



***Reducing Deforestation and Forest Degradation in Nepal:
A Strategic Environmental and Social Assessment of Nepal's REDD+ Strategy***

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**Strategic Environmental and Social Assessment (SESA)
and Development of an Environmental and Social Management Framework (ESMF)**

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ABBREVIATIONS

CSO	Civil Society Organization
DFO	District Forest Office
EIA	Environmental Impact Assessment
EMAP	Environmental Management Action Plan
ESMF	Environmental and Social Management Framework
IAIA	International Association of Impact Assessment
FCPF	Forest Carbon Partnership Facility
GIS	Geographic Information System
GON	Government of Nepal
IAS	Invasive alien species
ICEM	International Centre for Environmental Management
IEE	Initial Environmental Examination
IIED	International Institute for Environment and Development
ILO	International Labour Organization
IP	Indigenous People
IPO	Indigenous People Organization
MFSC	Ministry of Forests and Soil Conservation
NAPA	National Adaptation Programmes of Action for Climate Change
LAPA	Local Adaptation Programmes of Action for Climate Change
NGO	Non-Government Organization
OECD/DAC	Organisation for Economic Co-operation and Development/ Development Assistance Committee
OP	Operational Policy
PES	Payments for Ecosystem Services
REDD	Reduce Emission from Deforestation and Degradation
SchEMS	School of Environmental Science and Management
SEA	Strategic Environmental Assessment
SES	Social and Environmental Safeguard
SESA	Strategic Environmental and Social Assessment
TOR	Terms of Reference
UN	United Nations
WB	World Bank

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EXECUTIVE SUMMARY

In September 2013, the REDD Forestry and Climate Change Cell (REDD Cell) of the Government of Nepal's Ministry of Forest and Soil Conservation (MFSC) commissioned this Strategic Environmental and Social Assessment (SESA) of the REDD+ Strategy. It is accompanied by a separate report detailing an Environmental and Social Management Framework (ESMF).

1 Limitations of the SESA

During contract negotiations, due to a lower budget being available than anticipated, it was agreed with the REDD Cell to significantly adjust the proposed approach by reducing the professional time inputs available to the technical team, reducing the number of workshops and focus group sessions, reducing travel within the country and other logistical elements, and thus restricting district level consultations to one short field visit to districts accessible by road from Kathmandu - a mid-hill district – Makawanpur, as well as Terai and Inner-Terai districts - Bara and Chitwan. The consequence of these cut-backs is that the process cannot be regarded as a full SESA. The process to elaborate and consult on the REDD+ Strategy had not started when the SESA was initiated, and thus the latter could not be synchronised with and embedded within it.

2 Methodology

Phase 1: Inception and initial steps (October – November 2013)

- Stakeholder analysis and develop stakeholder engagement strategy
- Consultations with CSO-IPO Alliance
- Preparation of REDD+ Strategy Options Review
- Preparation of scoping notes for baseline contributory theme papers
 - Theme Paper 1: Analysis of the socio-environmental dimension of the forest sector
 - Initiate GIS-based thematic mapping of forest-dependent communities and disadvantaged groups that use forest resources at the district level.
 - Theme Paper 2: Review of legislation, regulatory and policy regime
 - Theme Paper 3: Analysis climate change issue and review possible links with NAPA/LAPA
 - Theme Paper 4: Analysis of institutional needs and capacities for REDD+ implementation
 - Prepare outline for ESMF
- First national multi-stakeholder workshop
- Scoping workshop: identify key issues to focus SESA investigations
- Consultation on strategy options at national level
- District-level ground truthing (in Chitwan, Makawanpur & Bara districts) and consultations, and regional workshop
- Brainstorming on potential social and environmental impacts

Phase 2: Detailed enquiry and analysis (December 2013 – mid January 2014)

- Assessment of impacts: deepening, widening and writing
- Continued consultations
- Preparation of theme papers

Phase 3: Develop first drafts of SESA and ESMF (mid January – mid March 2014)

Phase 4: Review of draft SESA and ESMF (April-June 2014)

- Second national multi-stakeholder workshop

Phase 5: Finalisation of SESA and ESMF (July 2014)

3 Baseline situation

The report first presents a brief **history of forest management** in Nepal, discussing early codes of forest management and the evolution of leasehold and community forestry. It then discusses the environmental situation in the forestry sector –and related climate change issues, and then the social situation. Further sections elaborate the legislative, regulatory and policy regime and review relevant institutional structures and capacities.

The report describes the nature and distribution of **forest types** in Nepal which reflect Nepal's unique geographical position, altitudinal and climatic variation, and its physiographic landscapes. They include: tropical forest, subtropical broad-leaved forest, subtropical pine forest, lower temperate broad-leaved forest, lower temperate mixed broad-leaved forest, upper temperate broad-leaved forest, upper temperate mixed broad-leaved forest, temperate coniferous forest, sub-alpine forest and alpine scrub. Various types of forest management regimes are also discussed: government-managed, protected, community, leasehold, collaborative, religious and private forests.

Nepalese people are **highly dependent on forests and forest products** - to fulfil energy demands and for timber for construction and maintenance of houses and buildings. Terai forests are more vulnerable than others to degradation and deforestation partly to meet the demand for such products. The main reasons for the conversion of forest areas are encroachment for resettlement/agriculture, and acquisition of forest area for infrastructure development including road expansion. The direct and indirect impacts of infrastructure projects are outlined. Illegal forest conversion and harvesting of forest products is a considerable problem, but most of it is not evident in official forest statistics as it is not accounted for in forest area loss or forest cover loss.

Key environmental issues include: land degradation and soil erosion, loss of biodiversity and ecosystems, water pollution and river sedimentation, chemical use in agriculture, and indoor air pollution from fuelwood. Nepal has been ranked as the fourth most vulnerable country to climate change worldwide and already feels the impacts in various sectors central to peoples' livelihoods and the national economy.

The report outlines the reality of **climate change vulnerability** and impacts in Nepal, and highlights some of the important linkages, issues and potential trade-offs when considering strategic options to achieve REDD+. Three key elements are addressed: (a) the main economic, social and environmental impacts of climate change, adaptation needs and strategies to enhance resilience; (b) the extent of land use change and forest-related activities as drivers of climate change or influencers of vulnerability, and the underlying causes of deforestation and forest degradation; and (c) vulnerability of forests to the effects of climate change, both directly (changing environmental conditions based on available modelling) and indirectly (human-induced pressures).

A **brief social profile** of Nepal is provided. Following this the relationship **of forest dependent communities and disadvantaged groups** (such as poor, indigenous people (IPs), dalits and women) to forests - from ethnic, historical, cultural and economic perspectives is reviewed. Their attachments to forests are analysed in terms of livelihoods and poverty, and rights, access and use of forest resources. The SESA maps and describes forest dwelling indigenous people; discusses formal and informal institutions for forest management; addresses forest-related conflict issues that arise between various actors, and considers the contribution of the forestry sector to the social development of communities. Furthermore, a brief analysis of the **social outcomes of REDD+ pilot projects** is provided, together with a summary of **the views, concerns and recommendations of**

forest dependent communities and disadvantaged groups regarding the REDD+ programme collected during SESA team's field visit.

Many enabling policies are in place in Nepal, but some of the policies needed to implement the strategic options effectively are lacking. The report describes the **legislative, regulatory, and policy regime** in relation to forest resources management, land use, forest-based enterprises, etc. It reviews relevant acts, regulations and government policies regarding forest resource use, and in relation to traditional use and rights to forest resources. It also analyses constitutional provisions and ILO 169 on indigenous and tribal populations, relevant stakeholder understandings and their implications for REDD+ programs in Nepal. Recommendations for policy reform/development are made based on the analysis.

REDD+ implementation activities to date are reviewed – and their institutional dimensions, and **institutions at national and district levels** which are likely to play a role in REDD+ and ESMF implementation – with commentary on responsibilities, institutional arrangement, functioning, staffing, skills and capacity:

- **National** – Ministries (plus subsidiary departments) responsible for forestry, environment, agriculture, roads, energy and local government (in terms of roles in coordination, technical support and training).
- **District** – DDC, DFO, District Education Office, DADO, DSCO, DWCO (in terms of screening and monitoring REDD+ projects or activities).
- **Local** – VDC, User groups, ward citizen forums (in terms of monitoring REDD+ projects or activities)

4 Strategic options for REDD+ in Nepal

The SESA report presents an outline of REDD+ strategy options as a basis for the SESA to screen and assess possible environmental and social impacts, and issues related to REDD+ programmes in Nepal. Since the REDD+ strategy has not yet been developed, the options presented are derived primarily from a number of key documents, as advised and provided by the REDD Cell.

- Ministry of Forests and Soil Conservation. **Nepal's REDD Readiness Preparation Proposal (R-PP), 2010-2013. (2010)**. Revised report addressing issues from PC6 resolution, submitted October 2010. Government of Nepal.
- Paudel, N., Khatri, N., Karki, R. and Paudel, G. (2013). **Drivers of Deforestation and Forest Degradation and responses to address them in Nepal**. Report submitted by ForestAction to UN-REDD Programme in October 2013.
- Bhujju, D.R., Shrestha, B.B. and Niraula, R.B. (2013). Study on Invasive Alien Species (IAS) as Drivers to Deforestation and Degradation of Forests in different physiographic regions of Nepal. BS JV API.
- Kanel, K.R., Shrestha, K., Tuladhar, A.R. and Regmi, M.R. (2012). **A Study on the Demand and Supply of Wood Products in Different Regions of Nepal**. Nepal Foresters' Association, Kathmandu, Nepal.
- Baral, N.R., Acharya, D.P. and Rana, C.J. (2012). **Study on Drivers of Deforestation and Degradation of Forests in High Mountain Regions of Nepal. Volume I: Main Report**. Community Forestry Research and Training Centre (COMFORTC), Kathmandu, Nepal.

Some additional suggestions and information obtained during stakeholder consultations have been used to structure the recommended strategic options.

In summary, the 14 strategic options developed for the SESA are:

- SO1 Land tenure, carbon rights and benefit sharing;

- SO2 Community-based forest management (formal and customary);
- SO3 Promotion of private forestry;
- SO4 Government managed forests for conservation of biodiversity and maintenance of fragile ecosystems and land;
- SO5 Conservation of biodiversity and ecosystem services outside Protected Areas;
- SO6 Payment for ecosystem services;
- SO7 Agriculture productivity and food security for small and marginal farmers;
- SO8 Energy access and efficiency;
- SO9 Environmentally-friendly infrastructure planning, construction and maintenance;
- SO10 Forest and non-forest enterprises;
- SO11 Law enforcement;
- SO12 Good governance and anti-corruption;
- SO13 Land use planning for each of the physiographic regions; and
- SO14 Institutional architecture.

Each option is sub-divided into various sub-options. The choice of options recognises that addressing policy problems such as REDD+ requires not only an understanding of the more visible and objective issues (c.f. proximate causes), but also the complexity of actors and their interactions (c.f. underlying causes).

5 Assessment of environmental, social and institutional impacts of REDD+ strategic Options

Analysis of the strategic options listed above shows that, if implemented, they will be likely to lead to a range of environmental and social impacts. Some will be positive in line with the aims of the objectives of the options; others are likely to be negative, and some of the latter will be perverse unintended negative impacts of well-intentioned objectives. These impacts are summarised in Tables ES1 (environmental) and ES2 (social) and are discussed in detail. Additional tables are presented that show how cumulative impacts arising from particular options or sub-options will be compounded, and Appendices 8.1 – 8.14 and 9.1 – 9.14 provide, respectively, a detailed analysis of the environmental and social impacts for each strategic option.

Table ES1: Summary of environmental impacts of implementing the strategic options for REDD+

Positive impacts	Negative impacts
<ul style="list-style-type: none"> • Improved conservation of biodiversity & fragile ecosystems • Improved ecosystem services • More sustainable forest , natural resources, land & environmental management • Reduced deforestation / illegal logging • Increased tree planting • Improved forest quality • Reduced biomass extraction / increased biomass • Enhanced biodiversity • Improved traditional forest management practices • Reduced pollution (fertilizers, pesticides, household smoke/CO) • Reduced methane emissions 	<ul style="list-style-type: none"> • Forest loss/degradation from improved access to forest • Forest loss and degradation from agricultural intensification, due to: <ul style="list-style-type: none"> • Encroachment (intensification may lead to agricultural expansion); • Providing agricultural inputs (e.g. leaf litter, organic mulch, fodder). • Loss of forest and deforestation by promotion of energy efficiency • Habitat loss and fragmentation/biodiversity loss due to forest management practices • Decline of biodiversity in compensatory plantation • Habitat fragmentation by infrastructure development

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|--|---|
| <ul style="list-style-type: none"> • Alternative energy sources • Improved soil fertility / productivity / water retention • Reduced land degradation / restored degraded lands • Reduced soil erosion, landslides, flooding • Maintenance of watersheds / aquifers • Enhanced scenic value / sense of place • Decreased carbon emissions / increased carbon sequestration/maintain carbon stocks • Removal of alien/invasive species • Reduced grazing pressure • Creation of micro-habitats • Reduced environmental risks/ hazards / disasters (including fire) | <ul style="list-style-type: none"> • Slope destabilization, soil erosion, landslides due to agricultural intensification and infrastructure development • Loss of ecosystem services • Solid waste from tourism industries • Chemical pollution from agricultural intensification |
|--|---|
-

Table ES2: Summary of social impacts of implementing the strategic options for REDD+

Positive impacts	Negative impacts
<p>Improved Rights and Access</p> <ul style="list-style-type: none"> • Improved rights & access to land / forests • Increased supply of , access to, & value of forest products • Improved benefit-sharing • Improved market access / surplus products for markets • Better access to forest products / NTFP <p>Improved Livelihood and Poverty Reduction</p> <ul style="list-style-type: none"> • Improved health • Poverty reduction • Investment in alternative livelihoods • Improved livelihoods, income, economic opportunities, enterprise development • Increased employment • Potential for cooperatives • Improved food security <p>Social Inclusion and Gender Empowerment</p> <ul style="list-style-type: none"> • Empowerment • Increased voice for women / powerless • Social inclusion (gender balance) • Reduced workload/drudgery (women) • Gender friendly technology introduced • Reduced social gaps <p>Increased Participation, Knowledge and Ownership</p> <ul style="list-style-type: none"> • Maintain/strengthened cultural norms/services • Increased knowledge / capacity for forest management • Increased use of local, indigenous/ & traditional 	<p>Social Exclusion and Displacement</p> <ul style="list-style-type: none"> • Exclusion of landless, poor & marginalised eviction, loss of land/property • Social exclusion • Exclusion/devaluation of women • Exclusion/elimination of cultural / spiritual values & traditional practices • Ignoring/displacing traditional/ indigenous knowledge • Small farmers & local enterprises out-competed, displaced <p>Leading to Inequity</p> <ul style="list-style-type: none"> • Inequity in benefit-sharing (loss of) • Elite capture (of resources, benefits, access, etc) • Inequitable/loss of access to forest resources/products • Increased costs (transaction, labour, time) • Land grabbing <p>Loss of Livelihood</p> <ul style="list-style-type: none"> • Reduced food production • Loss of/ limited access to, employment • Loss of livelihoods, income, economic opportunities <p>Loss of Authority/Autonomy and Induced Risk and Dependency</p> <ul style="list-style-type: none"> • Loss of user/traditional rights, or access to forest products & resources • Health risks • Lack of awareness / information

<ul style="list-style-type: none"> knowledge & practices Increased participation / ownership Environmental & social awareness Strengthened local organisations 	<ul style="list-style-type: none"> Not accessible to poor, marginalised (can't afford) Dependence on external inputs Monopolies setting prices (eg timber) Token participation Politicisation of community decisions
<p>Enhanced Accountability</p> <ul style="list-style-type: none"> Reduced corruption / bribery Reduced conflict Reduced illegal activities 	<p>Social Conflict and Violence</p> <ul style="list-style-type: none"> Violence against women Conflict Human-wildlife conflict

All of the potential impacts identified all of the strategic options will be cumulative since they are generic in nature and do not apply to individual projects. The significance and extent of such impacts will depend on the volume of activities and projects implemented under each option. And some impacts are likely to be exacerbated over time by increasing demands and pressures as a result of population increase - particularly those concerned with livelihoods. Beyond this, impacts are not a matter of simple cause-and effect. They are subject to cascading primary, secondly, tertiary and subsequent impacts. This generates a complex web of interacting linkages which need to be understood by policy makers and decision-takers. Developing a picture of such linkages is a complex process and takes considerable time to brainstorm. Figures 5.3.1 and 5.3.2 are provided as examples of such impact linkage diagrams developed by the team for one of the strategic options – Option 10: promoting forest and non-forest enterprises.

In the event that a REDD+ strategy is either not concluded or cannot be implemented, then current forest management practices will continue – although they will obviously be subject to any non-REDD+ related changes that may be introduced – but which cannot be predicted by the SESA team. In these circumstances, the likelihood is that the forest-related environmental and social issues and trends described by the SESA will persist. The extent and severity of some of the negative trends and issues discussed are likely to increase, particularly as population growth places more pressure on forests to sustain livelihoods, and as general development continues in other sectors which interact closely with forestry (agriculture, energy, infrastructure, etc.)

The implementation of all strategic options (SOs) will give rise to some positive institutional outcomes as well raising or exacerbating a number of institutional concerns. The range of issues are summarised in Table ES3 and listed in detail for each of the 14 SOs in Appendices 10.1 – 10.14.

Table ES3: Summary of key institutional issues resulting from implementing strategic options for REDD+

Positive issues	Negative issues
<ul style="list-style-type: none"> Need for compensation Commitment and investment Improved forest (and other) governance, administration & coordination (including cross-sector) Strengthened CFUGs Monitoring & enforcement of harvesting of 'allowable cut'. Increased transparency & accountability (eg in decision-making), & reduced corruption 	<ul style="list-style-type: none"> Conflicts, elite capture Lack of reliable data to assess performance in reducing emissions and on livelihoods Insensitivity to gender & social inclusion – women marginalised and their rights, role/contribution unrecognised Diversion of social/women's local funds for infrastructure Politicising of decisions Misuse of grievance systems

-
- Formal financial institutions established & strengthened
 - Security of tenure
 - Improved social inclusion
 - National & local institutions established and/or strengthened
 - Administration improved
 - Enhanced capacity (all levels) & knowledge
 - Strengthened grievance mechanisms
 - Empowerment of local institutions
 - Improved communication
 - Increased awareness/understanding of issues & links
 - Potential for improved laws, policies, regulations and statutes, and harmonisation
 - Potential for improved organisation of private sector
 - Enterprise and local industry development
 - Potential to improve coordination and cross-sectoral interaction
 - Development of local industries & markets, & improved access to them
 - Strengthened private sector capacity
 - Contribution to national economy
 - Strengthened participatory planning
 - Potential to promote farmers associations, cooperatives, service delivery
 - Job creation
 - Environmental & social impact assessment measures implement
 - Research stimulated
 - Extension centres strengthened
 - Technology enhancement
 - Loan and credit schemes made easy
 - Increased government revenue
 - Community-level by-laws introduced
 - Transboundary coordination (eg with China)
 - Marginalised people under-represented
 - Displacement of customary practices
 - Tokenism regarding participation
 - Over-regulation
 - Investment impeded
 - Slow EIA system delays project approval
 - Difficulties in monitoring some impacts
 - Increased corruption
 - Weak government/institutional capacity
 - Weak coordination
 - Bureaucratic complexities & inefficiencies
 - Limited extension coverage
 - Non-participatory decision-making
 - Lack of consensus, eg on benefit-sharing
 - Potential that powerless and poorest are punished whilst the powerful are not
 - Large transaction costs
 - Unregulated marketing (eg chemical fertilizers)
 - Policy conflicts & gaps
-

6 Conclusions

Given their importance, the conclusions are given here in full,

6.1 General

1. It is difficult to conceive that a REDD+ strategy on its own can bring about the changes in governance and social behaviour that will be necessary to guarantee that activities and projects are undertaken effectively, efficiently or equitably. REDD+ will need to be integrated with much broader legislative and policy reform, general awareness-raising, attitude changes and strengthened institutional capacity.

2. Overall, REDD+ is a positive concept, but when strategic options are examined in detail, there are likely to be both environmental and social implications (positive and negative) – with potential for unexpected perverse feedback if options are not implemented effectively, efficiently and equitably.
3. In considering the kinds of activities and projects that may arise in implementing the REDD+ strategy, two key issues are important: geographical coverage, and types of projects– which are discussed in section 3.2 of the draft ESMF:
 - *Geographical coverage.* It is assumed that the REDD+ strategy will provide definition of the scale of REDD+ implementation at sub-national and national levels. The area of REDD+ implementation will need be large enough to ensure that leakage (displacement of emitting activities elsewhere) can be contained. This means that the nature of drivers need to be addressed, and thus the activities to mitigate against them (ie REDD+ projects), on a large landscape scale (eg watershed)¹. In such landscapes there will be a diversity of resources as well as different actors, interests and rights.
 - *The type of projects.*
 - Some projects will aim to enhance readiness at national and subnational levels, eg capacity building; generation/provision of information; measurement, reporting and verification (MRV); and implementing safeguards. These activities are likely to engage CSOs/IPOs at different levels, including academia and research institutions as well as government. The overall objective is to establish a conducive environment for REDD+ implementation.
 - Some projects will aim to reduce emissions (see Table 3.2.1 in ESMF for examples) – mostly technological interventions in activities such as conservation agriculture, efficiency in production of biomass energy, sustainable forest management - combined with the development of local level capacity (eg developing organizational skills, support to access inputs, adding value to products, helping access to credit, markets etc.).

Thus, apart from this SESA of the overall REDD+ strategy, further smaller scale SESAs may be needed to address issues at subnational level once Nepal has defined the priority areas (and extent/acreage) where interventions should focus.

6.2 Environmental

1. Forest loss. With a REDD+ strategy in place, we should be looking at equitable access to forest resources (including for disadvantaged groups). This will improve social equity in the forestry sector, and could ensure positive participation of people in undertaking of forestry as well as REDD+ activities. But a possible side is that such increased access may lead to further forest degradation, exacerbated even more by increased population pressure. There is also potential for agricultural intensification to contribute towards forest loss and degradation, both in terms of encroachment as a result of agricultural expansion and the unsustainable extraction of forest-based agricultural inputs.

¹ In Nepal, pilot projects have been implemented in various watersheds. For example, in 2009-2012, ICIMOD, ANSAB and FECOFUN implemented a pilot project entitled '*Design and setting up of a governance and payment system for Nepal's Community Forest Management under Reduced Emission from Deforestation and Degradation (REDD)*'. This covered 10,00 ha including Kayarkhola watershed in Chitwan district, Charnawati watershed in Dolakha district, and Ludhikhola watershed in Gorkha district (see section *** n the SESA report).

2. Climate change will undoubtedly have an impact on forests – general models predict higher temperatures in the lower altitudes and drier conditions throughout the country- impact on distribution, composition and productivity, etc) – over time. But models are very general and no precise predictions regarding this can be made in this SESA.
3. With REDD+, dependency on forests as such will not change, but the types and amounts of forest products used will change. For example, promoting biogas will reduce fuelwood collection, but could increase cattle populations (dung is the main ingredient for biogas production) which need fodder from forests and fuelwood to cook animal feed (takes more fuelwood energy than human food) - so this will increase pressure of CFUG Executive Committees to raise the allowable offtake of fodder from forests and this may breach sustainable yield and the ecological balance and forest degradation will follow.

6.3 Social

1. Forestry remains closely associated with the livelihoods of the majority of people; and forestry and agriculture are intimately linked. And this balance will continue well into the future. If implemented effectively, some of the strategic options (eg SO8) have potential to promote workable livelihood alternatives, although there may be some perverse negative environmental impacts (eg from agricultural intensification).
2. REDD+ options aim to provide equitable benefit-sharing which genuinely reaches all eligible community households. If this is implemented effectively and equitable, it will eliminate a range of conflicts that currently exist between classes (haves and have-nots), ethnic groups, men and women, close and distant users, etc.
3. Strategic option 8 (promoting affordable, reliable and sustainable sources of energy and alternative cooking technologies) will reduce workloads and drudgery for women, with positive health impacts and saving their time for other productive purposes. Furthermore, promoting their access to affordable alternative energy technologies will help women to develop enterprises and generate income. This, in turn, will ensure improved family wellbeing through being able to afford better nutrition and medical care, improving family health and access to education for children.
4. Strategic action 4b (preparing a national forestry strategy through multi-stakeholder process) will ensure increased participation and a sense of ownership amongst local communities, facilitating its easier implementation.
5. Strategic option 7 should provide potential to increase both on- and off-farm incomes leading to reduced poverty. But if adequate safeguard measures (eg ensuring subsidies for agricultural intensification reach everyone, not just landowners) are not put in place, further exclusion of the landless, forest-dwellers, etc. may result.
6. Enhanced agriculture and livestock productivity (through strategic option 7) supplemented by forest and non-forest based enterprise development (promoted by strategic options 10) and income generating opportunities will lead to improved livelihoods and food security, and raise income levels; thus reducing poverty amongst forest-dependent poor and marginalized groups.
7. The adoption of REDD+ international standards for participation, inclusion and informed decisions (through strategic options 12c) will enhance the empowerment of local communities, particularly women, IPs, dalits and other forest dependent poor and marginalized groups – and this will help to alleviate the negative impacts they frequently endure from being excluded. Furthermore, the establishment and strengthening of (gender-sensitive) mechanisms to address grievances (strategic option 1d) will ensure an increased voice for the powerless in general, and for women in particular.
8. General health indicators in Nepal are comparatively low in terms of life expectancy, morbidity and the mortality. The increased availability of, and assured access to, forest products (strategic

options 1b) should result in reduced workloads, improved livelihoods and food security, leading to improved health.

9. Women, poor, IPs, dalits and marginalised people are generally landless having only usufruct rights to land and forests. When carbon rights and benefits-sharing are tied to land and forest ownership; it can result in the exclusion of these groups, limiting their access to forests and benefits. Hence, alternative mechanisms of providing carbon rights and benefit-sharing (strategic option 1a) are needed so that these groups benefit from the REDD+ programme and do not lose their usufruct rights to land and forests.
10. Violence against women is common in forest management. While preparing the REDD+ strategy, safeguards and mitigation measures against such violence will be necessary.
11. To address the possibility of gender discrimination against women and social exclusion of IPs, dalits, poor and other marginalised groups, the application of the Gender and Social Inclusion (GSI) strategy² should be mandatory in REDD+ programmes. GSI training should be required for personnel at all levels, from policy-making to programme formulation, implementation, monitoring and evaluation. Furthermore, GSI orientation should devolve to the community level to eliminate social conflicts that could arise during REDD+ implementation.

6.4 Legal and policy matters

From the viewpoint of the REDD+ process, a number of major issues should be addressed in reforming laws and policies:

1. The management of Government-Managed Forests can be improved through promoting community involvement in preparing forests action plans; by separating authority for harvesting and marketing of forests products; and by introducing a fair and market price based payment system for providing forests areas for development activities.
2. To promote the development of leasehold forestry, consideration should be given to eliminating royalty payments and developing a mechanism to enable the sharing of benefits arising out of the use and management of leasehold forestry.
3. Communities can be encouraged to engage in forest and non-forest enterprises that add value by introducing tax rebates and other support facilities.
4. The threshold for cases to be heard by the DFO needs to be increased from the present level of NRs 10,000.
5. A separate oversight mechanism is required within the forests administration system to take disciplinary action against those found to be engaged in irregular or illegal activities. The forests law can be invoked to prosecute those charged with offences.
6. Laws beyond those concerned with the forestry sector need to be reviewed thoroughly with a view to ensuring harmony and consistency with the Forests Laws (eg The Local Self-Governance Act, 1999; the Mines and Minerals Act, 1985; Public Roads Act of 1974; Water Resources Act of 1967).
7. The forest laws need to be reviewed and clarified, addressing issues such as land tenure, recognition and definition of carbon rights; ownership of carbon rights in the case of forests other than private forests; sharing of benefits arising out of carbon trading; and distant users of forests.

6.5 Institutional matters

² MoFSC/GoN. (2007). Forest Sector Gender and Social Inclusion Strategy. Kathmandu: Ministry of Forests and Social Conservation, Government of Nepal.

Effective coordination across institutions engaged in REDD+ will be critical for the successful implementation of the REDD+ Strategy, and particularly for implementing the ESMF.

1. During the preparation of the actual REDD+ Strategy, it is assumed that structures its implementation and coordination, and for coordination across all concerned bodies at international, national and local levels, will be proposed. As part of such structures, in the ESMF, it is recommended to establish a formal Assessment and Monitoring Unit within MoFSC (we suggest within the proposed REDD+ Coordinating Division) to coordinate all environmental and social assessment and monitoring process related to REDD+, with additional arrangements at district and local levels. Coordination of these mechanisms should be with MoFSC so that they are closely aligned with all other coordination procedures for overall REDD+ implementation.
2. There will need to be close liaison and cooperation with other line ministries, agencies and bodies (based on future programmes/projects) that have particular expertise and responsibilities relevant to ESMF implementation, particularly MoSTE as regards formal approval of EIA reports (see ESMF).
 - a. Formal coordination is needed between MoFSC and MoSTE (which has responsibility for implementing the environmental assessment legislation, and is also the focal body of UNFCCC for Nepal) Such coordination is require on environment issues and projects for the effective implementation of ESMF-REDD+.
 - b. We recommend that the currently dormant Climate change Section under MoFSC should be made active in order to contribute to climate change aspects of REDD implementation.
2. We also recommend that a coordinating mechanism should be established (with representatives from MoFSC (particularly the proposed AMU), MoSTE, other relevant line agencies as well as experts. This national level mechanism would be tasked to align work on environmental and social issues related to REDD+ implementation.
3. The AMU and other ministries/departments, districts and local bodies will need considerable training, budget resources and time to undertake their functions – these are elaborated in the ESMF.

7 Recommendations

The limitations of this SESA are described in section 2.2.2. It has been undertaken in the absence of an actual REDD+ strategy and dislocated from the process of developing that strategy. Expressions of interest by consultants to undertake the task of developing the strategy were invited in January. The process is expected to commence in May 2014, after this SESA has been completed.

In SESA, best practice is that it is would be undertaken by being fully integrated with the process of developing A REDD+ strategy. Where such integration is not possible, the next best option is to conduct the SESA in parallel, but ensuring that the two processes are undertaken with maximum synchronisation, sharing of steps (eg joint consultations) where feasible, very regular communication between the SESA and strategy teams, etc. Failing this, a sub-optimal option is to undertake a SESA after a strategy has been completed, but this will have much less opportunity to support and influence (in a positive way) strategy development than the previous two options. But this SESA was conducted prior to strategy development – an undesirable option - and this generated considerable technical and operational challenges, not least of which was the question “what could be assessed in the circumstances”.

In the circumstance, the SESA team constructed 14 possible strategic options (but which it believes are logical and well-founded) based on an analysis of the R-PP and several other document (see Chapter 4) against which to undertake an assessment. Despite the drawbacks of being undertaken in

the vacuum of 'no strategy', the range of positive and negative environmental and social issues identified by the SESA signal what would be likely to arise if particular (and already mooted) strategic options were to be carried forward into the actual strategy.

The limitations have also meant that the team has only been able to undertake limited consultations at regional, district and local levels, and some tasks important tasks have not been possible (eg convening focus group sessions, expert workshops, and developing linkage diagrams to indicate how cumulative impacts are likely to arise for each strategic option).

Developing an ESMF (presented in a sister volume) has been inhibited by the absence of an actual REDD+ strategy and lack of clarity on the institutional structure that will be established to implement it – into which ESMF structures and modalities will need to fit (eg (assessment & monitoring bodies, capacity building, establishing training and awareness-raising activities, and defining costs).

In all these circumstances we conclude that this SESA represents a first, but important step, in assessing the impacts of the forthcoming REDD+ strategy. It provides a solid analysis of the baseline conditions (environmental; climate; social; legislative, regulatory and policy regime, and institutional situation relevant to REDD+) and a solid analysis of environmental and social impacts likely to associated with REDD+ in Nepal.

But this SESA is not adequate as it stands. Further work will be necessary, linked to the development of the actual REDD+ strategy to provide a reliable platform of analysis and recommendations to support the strategy. It should identify where and how positive impacts can be enhanced, how risks and negative impacts can be minimised, and how cumulative impacts can be diminished. We recommend that it include the following components - to be undertaken over a year from the completion of the current SESA work.

Further analytic work should be conducted building on the SESA work. A **comprehensive and thorough consultation programme** in targeted districts is required, including engaging stakeholders (particularly forest users, CSOs and IPs) and local government throughout the country in discussions on the draft SESA documents and to ensure their views and information is documented and reflected in the final SESA report and linked technical papers. This will ensure that the SESA results are shaped and owned by local government officers and stakeholders. Without effective stakeholder participation, the SESA, ESMF and the REDD+ strategy which draws from it will have little credibility and influence with those to be involved in its implementation.

An initial component of further analytical work should be to develop **linkage diagrams** for each strategic option to illustrate how primary impacts can lead to secondary and tertiary ones, feeding back and compounding cumulative impacts. This is the best way to illustrate to decision-makers and stakeholders the complex web of positive or negative impacts that may be generated by each option – that will not be obvious from tables, lists and narrative text. The team has been able to develop an example for strategic option 10 (see section 5.3). Each diagram requires considerable brainstorming based on the assessment tables presented in this SEA. And such linkage diagrams should be subjected to expert and stakeholder inputs to both improve and verify them as well as to build understanding and consensus.

An **integration plan** should be developed to ensure that further SESA work is fully integrated with the REDD+ strategy development process – to align steps, thinking, analysis, consultations and team exchange to ensure maximum mutual support.

It was evident during the SESA work that CSO and IPOs did not understand the purpose, role or nature of the SESA. There was consistent confusion that the SESA was actually the process of

strategy development. Thus it will be important to include an element of **capacity-building for CSO and IPOs** on SESA in further work – through both awareness-raising activities and directly engaging them in SESA discussions and analysis. This will also serve to build trust and consensus and smooth the path of the strategy itself.

A **small fund for REDD+ stakeholders** should be included in the budget for further SESA work to enable three or four representative organisations to engage directly in the SESA process and to take advantage of their contacts and knowledge-base at local level. This fund would be used to enable stakeholders to support the SESA team's consultations by undertaking SESA-related deep consultations in a few districts with more isolated communities and reporting back on their findings. This work could be undertaken with separate funding that the REDD Cell has earmarked for Civil Society Organisations/Indigenous Peoples Alliance working with the sector. The REDD Cell and SESA team would consult with the CSO/IP Alliance on the most appropriate CSOs/IPs to conduct the consultation activities

We recommend the organisation of **public hearings in the five regions** of the country. These hearings should be open interactive events and conducted in regional centres. The SESA draft report from Phase 1 should be translated in full or in part and distributed to local, district and regional officers who should be involved in the hearings. Prior to each public hearing, the report should be disseminated to the relevant stakeholders including the CSO/IPO Alliance. Comments on the report should be requested – to be provided in written format which would then be discussed during the public hearing. The aim should be to reach consensus during each public hearing on pertinent issues to be address/ integrated into an updated SESA report. The hearings should actively involve community leaders and local CSOs/IPs. A record of submissions and key issues and viewpoints should be prepared for each regional hearing.

In order to deepen enquiry and analysis, it is recommended that further SESA work include **three district case studies** (perhaps in Dolakha, Chitwan and Gorkha). These studies should involve stand-alone supporting consultations with stakeholders. The issues and experiences for lessons for national application should be documented.

In support of the above, it is recommended that a **limited number of special technical studies** (up to four) be undertaken on important issues, as agreed with the REDD Cell. A tentative list of candidate such studies include:

- Encroachment and the encroachment strategy drafted by the government and the implications for resettlement policy based on the REDD+ strategy;
- Land tenure issues in Nepal as they relate to REDD+;
- Where best the implementation of REDD+ emission reductions would take place;
- The political/socio-cultural economy encompassing issues of land tenure institutional relations between different social groups, social cast and gender issues in country, governance, participation and social accountability;
- How best to establish socially inclusive, gender appropriate and equitable benefit sharing mechanism for REDD+;
- A review of Nepal's experience with community forestry;
- Assessing customary practices of managing forest resources at local level and their implication to REDD+;
- Propose mechanism to promote payment of ecosystem services from forests in Nepal;
- Develop national data base of basic forest attributes of all forest management regimes (community forests, collaborative forests, national forests, government managed forests, protected forests etc.);

- Institutional and cost-benefit sharing arrangements among various stakeholders.
- The impacts of ER-PIN – as a test of the draft ESMF.

Expert Focus Group sessions should be convened to extend and deepen the impact assessment and incorporate feedback and new perspectives from the stakeholder consultations and address evolving thinking on the REDD+ strategy options – each session focusing on particular themes/issues.

An indicative ESMF is presented in the sister volume to this SESA report. Once it is clear what the institutional arrangements for REDD+ implementation will be, the **ESMF should be reviewed, revised and tailored** to the requirements of those arrangements.

A **final national stakeholder workshop** would be conducted for presentation and discussion of: 1) the draft SESA, ii) results and lessons learned from case studies, iii) results of regional public hearings, iv) CSOs report back on their findings from consultations, v) presentation of results of special studies; and vi) wrapping up of issues and leading into a clear vision of how report is to be finalized

1 INTRODUCTION

1.1 BACKGROUND TO REDD+ AND NEPAL'S PROCESS TO DATE

Reducing Emissions from Deforestation and Forest Degradation (REDD) is evolving as a means to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. REDD+ goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. REDD is also seen as delivering 'co-benefits' such as biodiversity conservation and poverty alleviation. REDD is being promoted strongly by the World Bank and UN as a means to set up the bases for the carbon market and the legal and governance frameworks of countries receiving REDD payments. Activities can be undertaken by national or local governments, NGOs, the private sector, or any combination of these.

The World Bank's Forest Carbon Partnership Facility (FCPF) is assisting Nepal with financial and technical support to develop and apply strategies to address the drivers of deforestation and forest degradation.

Nepal is one of the countries participating in the FCPF REDD+ Readiness Fund and is currently implementing the REDD+ Readiness Programme. As a part of this process, in September 2013, the REDD Forestry and Climate Change Cell (REDD Cell) of the Government of Nepal's Ministry of Forest and Soil Conservation (MFSC) engaged a consultancy consortium to undertake a Strategic Environmental and Social Assessment (SESA) of the REDD+ Strategy and develop an Environmental and Social Management Framework (ESMF). The consortium members are the International Centre for Environmental Management (ICEM), the International Institute for Environment and Development (IIED), the School of Environmental Science and Management (SchEMS), affiliated to Pokhara University.

The Terms of Reference for this assignment (Appendix 1) set the overall objective of the SESA as

“to identify opportunities to mitigate environmental and socioeconomic risks during under the implementation of a REDD+ mechanism in Nepal. The SESA may also identify where REDD+ can improve development activities and other environmental measures adopted to combat climate change”.

2 METHODOLOGY

2.1 INTRODUCTION TO SESA

The R-PP document (MFSC, 2010) emphasized the need for a SESA of the REDD strategic options to avoid possible negative impacts (do no harm) and to ensure positive or additional REDD benefits (do good). It stressed that consideration of negative and positive effects should focus in terms of securing livelihoods improvements and the rights of local, forest-dependent communities (indigenous people, women, Dalits); promoting the conservation of biodiversity; and maintaining cultural heritage, gender balance, capacity development and good governance.

Nepal has a well-established system of project level environmental assessment involving Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) – established by the Environmental Protection Act (1996) and Regulations (1997). However, the provisions for environmental assessment of plans and policies are still not required by legislation in Nepal. Within the limitations discussed in section 2.2, the SESA has aimed to comply with the World Bank safeguard policies³ as the FCPF is one of the principal funders of the REDD readiness, and also to consider the principles deriving from existing rules and regulations of Nepal, including international agreements ratified by the government, as well as international practices and protocols protecting the rights of citizens, particularly with regard to impacts on their environment, traditional rights and access to and control over natural resources.

2.1.1 Principles SESA and comparison to EIA

Strategic Environmental and Social Assessment (SESA) is a tool used by the World Bank and applied particularly to REDD. It is a member of the family of approaches to Strategic Environmental Assessment (SEA) which the OECD DAC (2006)⁴ has defined as: “Analytical and participatory approaches that aim to integrate environmental considerations into policies, plans and programmes and evaluate the inter linkages with economic and social considerations”.

The essential difference between SESA and Environmental Impact Assessment (EIA) is that former is undertaken at more strategic levels of decision-making (strategies, policies, plans and programme) whilst EIA is applied at the level of individual project (Figure 2.1).

The OECD DAC (2006) provides clear principles (Table 2.1) and elements of good practice relevant to SESA that are drawn from international good practice in SEA. They are intended to ensure a good quality process and its effective implementation. This SESA has applied these principles to the fullest extent possible.

³ The World Bank’s safeguard policies are: (i) OP 4.01 on ‘Environmental Assessment, (ii) OP 4.04 on the Natural Habitats, (iii) OP 4.10 on Indigenous Peoples, (iv) OP 4.11 relating to Physical Cultural Resources, (v) OP 4.12 on Involuntary Resettlement; and (vi) OP 4.36 on the Forests.

⁴OECD/DAC (2006) *Applying Strategic Environmental Assessment: Good Practice Guidance for Development Cooperation*. DAC Guidelines and Reference Series, Development Assistance Committee, Organisation for Economic Cooperation and Development, Paris.

Figure 2.1: The hierarchy of environmental assessment

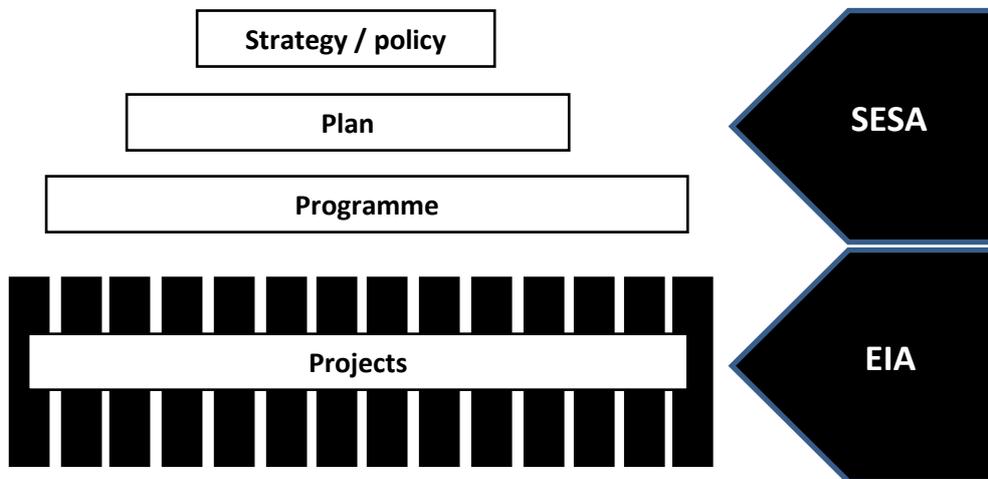


Table 2.1: Principles for SESA (based on OECD DAC (2006))

• Establish clear goals
• Integrated with existing policy and planning structures
• Flexible, iterative and customised to context
• Analyse the potential effects and risks of the proposed strategy, policy, plan or programme and its alternatives, against a framework of sustainability objectives, principles and criteria
• Provide explicit justification for the selection of preferred options and for the acceptance of significant trade-offs
• Identify environmental and other opportunities and constraints
• Address the linkages and trade-offs between environmental, social and economic considerations
• Involve key stakeholders and encourage public involvement
• Include an effective, preferably independent, quality assurance system
• Transparent throughout the process and communicate the results
• Cost-effective
• Encourage formal reviews of the SEA process after completion, and monitor PPP outputs
• Build capacity for both undertaking and using SEA

Nepal’s environmental assessment system and the approach to EIA are reasonably well understood. However, there has been no previous application of SESA in Nepal and little application to date of SEA. The few SEAs that that have been undertaken to date have been conducted mainly by donor agencies. Work on environmental mainstreaming conducted by members of the consortium in Nepal over the last three years has shown that there is little understanding of what environmental and social assessment at a strategic level would involve – particularly what it is - its role, modalities and usefulness. Most people mistakenly think that SESA is just EIA carried out at a larger scale. Table 2.2 compares EIA and SESA.

Table 2.2: SESA and EIA compared (based on OECD DAC (2006))

EIA	SESA
Applied to specific and relatively short-term (life-cycle) projects and their specifications.	Applied to strategies, policies, plans and programmes with a broad and long-term strategic perspective.
Takes place at early stage of project planning once parameters are set.	Ideally, takes place at an early stage in strategic planning.
Considers limited range of project alternatives .	Considers a broad range of alternative options & scenarios .
Limited review of cumulative impacts , often limited to phases of a specific project. Does not cover regional-scale developments or multiple projects.	Strong focus on of cumulative impacts .
Usually prepared and/or funded by the project proponents .	Commissioned by governments
Focus on obtaining project permission , and rarely with feedback to policy, strategy, plan or programme consideration.	Focus on decision on policy, strategy, plan and programme implications for future lower-level decisions.
Well-defined, linear process with clear beginning and end (e.g. from feasibility to project approval).	Multi-stage, iterative process with feedback loops .
Emphasis on mitigating environmental and social impacts of a specific project, but with identification of some project opportunities, off-sets, etc.	Emphasis on meeting balanced environmental, social and economic objectives in policies, strategies, plans and programmes, & preventing impacts . Includes identifying macro-level development outcomes.

Two of the key differences between SESA and EIA are that:

- SESA has a strong focus on assessing alternatives (in this REDD+ Strategy case, these are the strategy options and the ‘no-REDD+’ scenario), whilst EIA only deals with the single project proposal; and
- SESA addresses the cumulative environmental and social impacts from multiple activities arising from the strategy, policy, strategy, plan or programme, whilst EIAs usually address only the direct impacts of the proposed project.

This SESA and work with Nepalese participants will help to strengthen their capacity not only for undertaking such strategic assessments in the future, but also for monitoring ESMF implementation.

2.2 SCOPE AND LIMITATIONS OF THE SESA

2.2.1 Objectives of the SESA

The TORs (Appendix 1) emphasize that the overall objective of this SESA is to identify opportunities to mitigate environmental and socio-economic risks associated with implementing a REDD+ mechanism in Nepal, whilst the ESMF should include means to strengthen the positive impacts of the REDD process. The specific objectives of the SESA; as mentioned in the TOR; are to:

- **identify opportunities** that enable an understanding of the operating environment for REDD+ programs;
- **screen and assess possible social impacts** and issues related to REDD+ programs in Nepal;
- develop a **multi-stakeholder engagement approach** to address these impacts;
- propose methods and **measures to mitigate environmental and socio-economic risks** during REDD+ strategy implementation; and
- provide leads to **improve developmental activities and the state of the environment through REDD+** as well as any associated measures adopted to counter climate change.

2.2.2 Interpretation of terms

For the purposes of undertaking the team’s work, it has been clarified with the REDD Cell that where the term ‘implementation’ is used in the TORs, this means implementation of the ESMF – unless specifically referring to the REDD Strategy itself. And where the term REDD is used, this means REDD+.

2.2.3 The terms of reference and tasks

Key tasks (Box 2.1) are set out in the terms of reference (Appendix 1).

Box 2.1: Key tasks described in original Terms of Reference

- Task 1** A review of the stakeholder analysis (in the RPP)
- Task 2** Initial description of the social and environmental situation of the forest sector in Nepal (the baseline)
- Task 3** Outline of the legislative, regulatory and policy regime
- Task 4** Outline of REDD+ strategy options
- Task 5** Formulation of arrangements for implementation
- Task 6** Analysis of the particular institutional needs within the REDD+ implementation framework
- Task 7** Analysis of the possible impacts of different REDD+ strategy options scenarios.
- Task 8** Formulation of the Environmental and Social Management Framework (ESMF)
- Task 9** Identification of technical assistance required to implement the ESMF
- Task 10** Preparation of Learning Plan for capacity-building for ESMF implementation.
- Task 11** Outline of budget for implementing the ESMF

2.2.4 Limitations of the SESA

When the ICEM-IIED-SchEMS consortium presented its bid to undertake this SESA, it set out a design to satisfy the TOR. The bid proposed stakeholder engagement at national level consultations and at local level consultations in three districts covering the high mountains, mid-hills and Terai zones (the minimum that the Consortium felt was necessary). An accompanying budget was submitted appropriate to what the Consortium proposed. In accepting this bid and moving to contract negotiations with the Consortium implied acceptance by the REDD Cell that the proposed approach to consultations was acceptable. However, at the time of contract negotiation, the Consortium was advised that a much lower budget was actually available. In order to design SESA operations within the available budget, it was agreed with the REDD Cell to significantly reduce the professional time inputs available to the technical team, reduce the number of workshops and focus group sessions, reduce travel within the country and other logistical elements, and thus restrict district level consultations to one short field visit to districts accessible by road from Kathmandu.

The consequence of these cut-backs is that the process that the Consortium has been able to conduct cannot be regarded as a full SESA.

International good practice is that a SESA should be embedded in the actual process of developing the REDD+ Strategy – which would normally take a significant period of time. Thus a SESA should be undertaken over a similar period, sharing steps and stakeholder consultations with the REDD+ Strategy team. But the process to elaborate and consult on the REDD+ Strategy had not started when the SESA was initiated, and thus the latter could not be synchronised with and embedded within it.

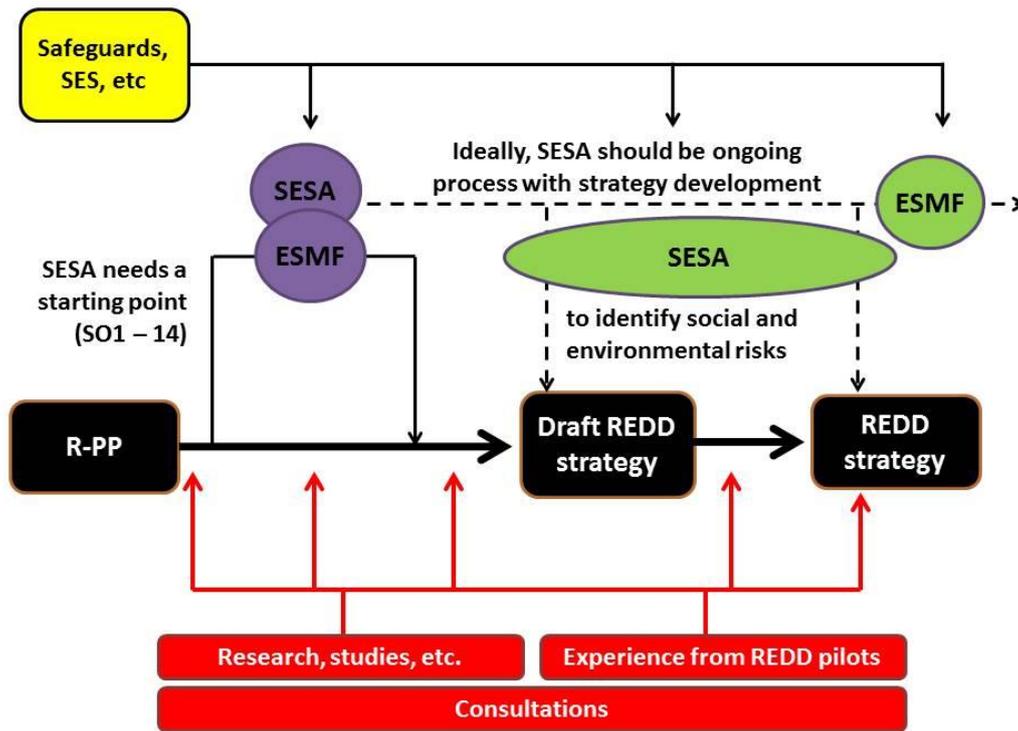
Due to the budget limitation, the necessary restriction of local level consultations for the SESA is inadequate. The SESA team was able to visit a mid-hill district – Makawanpur, as well as Terai and Inner-Terai districts - Bara and Chitwan. However, a much fuller sampling of the country is required covering different physiographic zones, geographic regions, and ensuring the complexity of ethnic and forest users are adequately engaged – requiring good planning, organisation and especially time, and coordination with the REDD+ strategy consultation process.

Despite these limitations, all of the steps undertaken by the Team would be the same that a full SESA would carry out in its initial stages, including: review of all available documents, initiation of baseline studies, scoping of key issues, identifying where the main impacts (positive or negative) are likely to result from Strategy options, undertaking national consultations and initial consultations in sample districts to test the consultation mechanism, preliminary analysis of potential impacts.

As we recommend in Chapter 6, a full SESA is required next to proceed to a wider nationwide consultative process over a longer period – embedded in the strategy development process - enabling it to progressively refine, enrich and deepen the analysis and assessment. The Team’s work described in this report provides a solid platform of analysis of background and baseline conditions, an assessment of key issues and likely areas of key impacts – tested through national and some local (even though limited) district consultations on which to build a full SESA, broaden consultation and deepen analysis.

Figure 2.2 illustrates the process of developing both the SESA and the ESMF, and the inputs to both in relation to the process of developing the REDD+ strategy itself.

Figure 2.2: SESA and ESMF development in relation to the REDD+ strategy



2.3 STEPS AND APPROACH TO THE SESA

To achieve the goals set out in the TORs, a number of activities were undertaken – sequenced in several phases (see Figure 2.3, Table 2.2, and Box 2.2). Some activities were conducted in parallel as they supported each other.

Figure 2.3: Flow chart of activities

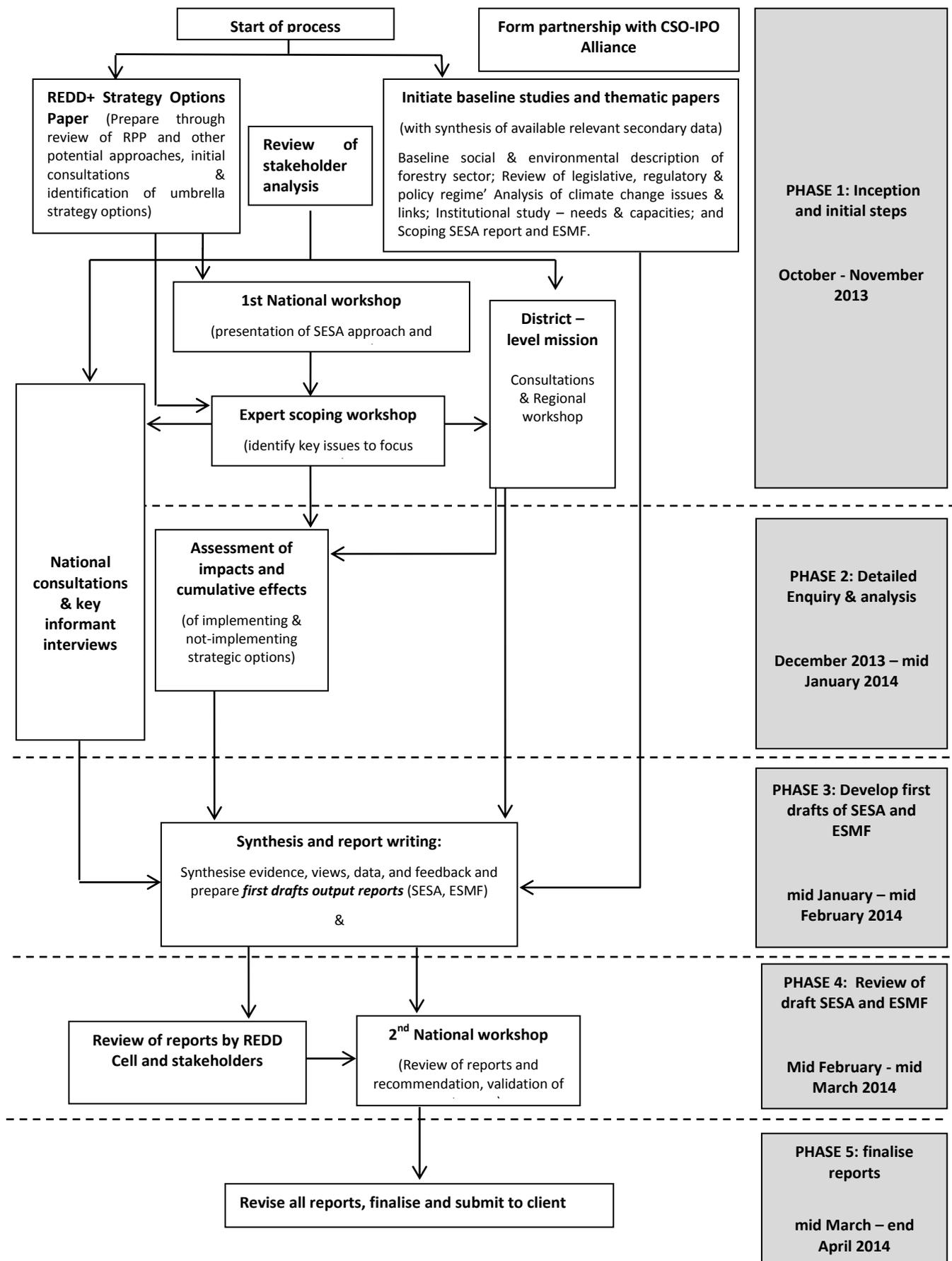


Table 2.3: Work schedule

The project contract was signed on 15th September 2013 with the first two weeks spent contracting and for logistical organisation. The team was mobilised on 1st October 2013 and work on the report is due to be completed by end April 2014 (weeks in table are approximate – assumes 4 weeks per month)

ACTIVITY	OCT 2013				NOV 2013				DEC 2013				JAN 2014				FEB 2014			MARCH 2014				APRIL 2014				
Week (approx.)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
PHASE 1: Inception - scoping & initiation of theme studies																												
Preparatory work																												
Inception report																												
REDD Strategy Options Paper																												
Scoping Notes for theme studies																												
Theme study reports																												
Consultation																												
Communications																												
1 st National workshop																												
PHASE 2: Detailed enquiry & analysis																												
District visit																												
Assessment of impacts <i>Brainstorming / identification</i>																												
Assessment of impacts <i>Deepening / writing</i>																												
Mid-term report																												
PHASE 3: Develop first drafts of reports																												
Team synthesis workshop																												
Prepare Draft 1 of SESA & ESMP																												

PHASE 4: Review of draft reports																				
Review of the reports, recommendations and validation of reports <i>By REDD Cell and stakeholders</i>																				
2 nd National workshop																				
PHASE 5: Finalise the reports																				
Preparation of draft 2 of SESA & ESMF																				
Review of 2 nd By REDD Cell																				
Revision of report to take account of clients comments																				
Final report submitted																				

Box 2.2: Summary of assignment phases and tasks

Phase 1: Inception and initial steps (October – November 2013)

- **Initiation**
 - Team assembly - confirm roles and responsibilities, confirm workplan, finalize methodological approach.
 - Initial meetings with REDD+ Cell.
- **Stakeholder analysis** and develop stakeholder engagement strategy
- **Consultations with CSO-IPO Alliance**
- Preparation of **REDD+ Strategy Options Review Paper** (on which the SESA was based) through (a) review of R-PP (and its listed drivers and strategic options), a study (for the REDD Cell) of the drivers of deforestation and forest degradation, and other documents recommended by the REDD Cell. The paper was later revised to incorporate additional information from other organisations, other potential approaches, and from existing REDD+ and REDD-related activities in Nepal...
- Preparation of **scoping notes for baseline contributory theme papers**
 - Theme Paper 1: Analysis of the socio-environmental dimension of the forest sector
 - Initiate GIS-based thematic mapping of forest-dependent communities and disadvantaged groups that use forest resources at the district level.
 - Theme Paper 2: Review of legislation, regulatory and policy regime
 - Theme Paper 3: Analysis climate change issue and review possible links with NAPA/LAPA
 - Theme Paper 4: Analysis of institutional needs and capacities for REDD+ implementation
 - Prepare outline for ESMF
- Plan **tiered enquiry**
 - Identification of districts, communities, and pilot projects to visit
- **Presentation of REDD+ Strategy options paper to REDD Cell**
- **First national multi-stakeholder workshop** – presentation of SESA approach and proposed REDD+ Strategy options.
- **Scoping workshop**: identify key issues to focus SESA investigations
- **Consultation on strategy options at national level** – solicit perspectives on options and possible impacts
- **District-level ground truthing** (in Chitwan, Makawanpur & Bara districts) – discussion of local perspectives on options and possible impacts, concerns and recommendations on forest use and management, and on REDD+ programmes (fact-finding, interviews, meetings with district authorities, communities/disadvantaged & marginal groups/women & adolescents, visits to pilot projects)
- **Brainstorming on potential social and environmental impacts**

Phase 2: Detailed enquiry and analysis (December 2013 – mid January 2014)

- **Assessment of impacts**: deepening, widening and writing
- **Continued consultations**
- **Verification** of compliance with WB policies
- **Preparation of theme papers**

Phase 3: Develop first drafts of SESA and ESMF (mid January – mid March 2014)

- **Synthesis of evidence**, views, data, and feedback from consultations
- Preparation of **first drafts output reports** (SESA, ESMF)

- Team report planning workshop (2 days)
- **Finalization of theme papers** as support documents

Phase 4: Review of draft SESA and ESMF (*mid March – mid April 2014*)

- Public **disclosure to stakeholders** of draft reports and recommendations, and gathering of comments
- **Review of draft SESA and ESMF** by REDD Cell
- **Second national multi-stakeholder workshop**- review of SESA and ESMF and recommendation,

Phase 5: Finalisation of SESA and ESMF (*mid March – end April 2014*)

- Revision of all reports – as required and submission to Client

2.3.1 Key support papers

To support the work of the SESA, the team prepared several support papers as described in the sections below.

2.3.1.1 REDD+ Strategic Options paper

The TORs indicate that SESA should focus on the REDD+ strategy. But at the time of initiating the SEA, work to develop a Draft Strategy had not actually started. This set a challenge for the SESA in that there was nothing concrete in place to provide a clear focus for assessment. However, this situation also provided an opportunity for the SESA to contribute significantly to the preparation of the REDD+ strategy so that it could be designed to take into account environmental and social issues.

The Team therefore prepared a **REDD+ Strategies Options Paper** during the inception phase (Phase 1). This involved reviewing (a) the RPP (which lists 165 strategic options grouped by nine direct and indirect drivers (and underlying causes) of carbon emissions from deforestation and the degradation of forests (Annex 2b-1 of the R-PP)⁵, (b) various reports relating to drivers and (c) other available documents. The paper distilled 14 **Strategic Options** and presented these at the first national stakeholder workshop. They are discussed in detail in section 4 and provided the basis for the assessment of impacts.

A key principle of SESA (see Table 2.1) is that it should assess alternatives. In this case, the strategic options set out in this paper provide critical alternatives. The SESA also examines the alternative of not implementing a REDD+ strategy, but continuing with the current forest management regime

2.3.1.2 Contributory theme papers

To provide a platform for analysis and addressing some of the key Tasks in the TORs, the team produce a number of theme papers:

- Environmental situation in the forestry sector (Task 2) (see section 3.2)
- Climatic issues & links (see section 3.3)
- Social situation in the forestry sector (Task 2) (see section 3.4)
- Legislative, regulatory and policy regime (Task3) (see section 3.5)
- Institutional needs and capacity analysis for implementing the ESMF (Task 6) (see section 3.6).

⁵Including: 1) high dependency on forests and forest products (timber, firewood, and other non-timber forest products (NTFPs), 2) illegal harvest of forest products, 3) unsustainable harvesting practices, 4) forest fire, 5) encroachment, 6) overgrazing, 7) infrastructure development, 8) resettlement, and 9) expansion of invasive species.

2.3.2 Stakeholder analysis

Within the limitations described in section 2.2.4, considerable emphasis was placed on ensuring maximum possible opportunities for **stakeholder engagement** in the SESA process. A priority initial step during Phase 1 was to undertake a thorough **stakeholder analysis** and develop a **stakeholder engagement strategy**. This involved reviewing and updating the list of stakeholders identified during R-PP development. The analysis (Table 2.4) updated the similar analysis in the R-PP and identified primary and secondary stakeholders⁶ amongst government, civil society and the private sector - at national to local levels, and included those often marginalized in consultative processes and often the most affected (e.g. the poor, Dalits, women and children, remote communities). This analysis was used throughout the SESA process to help determine who should participate in the work, how, where and when.

In undertaking this analysis, the team liaised closely the CSO-IPO Alliance, members of which also helped in organizing local meetings with different stakeholder groups.

In designing engagement with indigenous peoples, the Team has had regard to World Bank Operational Policy 4.10.

Table 2.4: Stakeholder analysis

	Primary stakeholders	Secondary stakeholders
National level Government institutions	<ul style="list-style-type: none"> Ministry of Forests and Soil Conservation Department of Forest Department of National Parks and Wildlife Conservation Department of Soil and Watershed Conservation Ministry of Science, Technology and Environment Forest Product Development Committee Parliamentary Committee on Natural Resources Nepal Trust for Nature Conservation Timber Corporation of Nepal Vaidhyakhana (Herbs Department) 	<ul style="list-style-type: none"> Division of Forest Research and Survey Department of Botany Commission: Landless, Bonded Labour and Squatter National Planning Commission Ministry of Energy Ministry of Finance Ministry of Agriculture Department of Agriculture Ministry of Women, Children & Social Welfare Department of Cottage and Small Industries Department of Roads
National Level Private sector	<ul style="list-style-type: none"> Furniture industries Saw Mills Brick Industries Carbon Traders Collectors, Processor and Seller of NTFP Local hotels Entrepreneurs and enterprises dependent on wood Private forests Medicinal plants processing 	<ul style="list-style-type: none"> Hydroelectricity projects Promoters of Alternative Energy Financial institutions

⁶ *Primary stakeholders* – those likely to be directly affected by the REDD+ Strategy and/or are directly responsible for implementation of the REDD activities. *Secondary stakeholders*– those likely to be affected only indirectly and/or those who have an interest in REDD+, and/or knowledge about the likely effects of REDD+ implementation

	Primary stakeholders	Secondary stakeholders
National level Civil Society	<ul style="list-style-type: none"> • FECOFUN • ACOFUN • NEFIN • NIWF • HIMMAWANTI • DANAR • Federation of Herbal Trade • Federation of NGOs • Community Based Forest Assistance Network, Nepal • WWF • Care Nepal 	<ul style="list-style-type: none"> • IUCN • Federation of Environment Journalists • FNCCI • ForestAction • ANSAB • Association of Forest Technician • Nepal Ranger Association • Junior Forest Technician Association • Women Organization for Change in Agriculture and Natural Resource Management (WOCAN)
National Academic Institutions		<ul style="list-style-type: none"> • ICIMOD • Universities • Schools
District/ Local Level Government institution	<ul style="list-style-type: none"> • DFO • DSCO • Warden and Conservation Area Offices 	<ul style="list-style-type: none"> • DADO • DDC • VDC • WCO
District/ Local Level Tribal and indigenous people and other forest dependent groups	Tribes having direct relation with forest like: Sherpa, Gurung, Magar, Limbu, Rai, Tamang, Newar, Tharu, Rajbansi, Chepang, Raute, Hayu, Pahari, Bote, Majhi, Dom, Lama, Raji, Meche, Koche	
District/ Local Level groups directly connected with forest for livelihoods	<ul style="list-style-type: none"> • CFUGs • LHF • Collaborative Forest Users • Charcoal burner group • Fuelwood traders and wood sellers • NTFP collectors – Chiraito, Yarsagumba, Lokta, Honey, Niguro, Kurilo, Bamboo Shoots • Religious forest users 	
District Vulnerable groups	<ul style="list-style-type: none"> • Raute • Kamaiya • Squatters • Dalit • Women • Chepang • Kusunda • Bote 	

Primary stakeholders	Secondary stakeholders
<ul style="list-style-type: none"> • Majhi • Raji, • Badi • Lepcha • Meche • Koche 	

2.3.3 Consultations and stakeholder participation

Consultations to gather views on REDD+ Strategy Options and perspectives on issues in forestry, and also to identify available data and sources, were undertaken at two levels: national and district – engaging with key relevant government ministries and agencies, private sector bodies, NGOs and civil society organisations and community-based organisations (including those representing marginalized and disadvantaged groups).

With the support of the REDD Cell **two national level workshops were organised**; one on 12 November 2013 to present the SESA approach and REDD+ strategic options; the other near the conclusion of the assignment on 12th March 2014 to present the key findings (see Figure 2.2). Participants in these workshops included representatives from all key government line agencies, as well as non-government, private sectors, expert and concerned groups. Reports on each national workshop were prepared, circulated to participants for comment, and revised to incorporate feedback. Agendas and lists of participants are provided in Appendices 3 and 4.

National-level consultations were conducted during November and December 2013 through workshops meetings with different stakeholder groups and with individual organisations (government departments, CSO and IP organisations, NGOs and private sector bodies). A list of organisations and individuals met is provided in Appendix 5

Local-level consultations were focused during 21-26 November 2013 in Makawanpur, Chitwan and Bara districts. REDD+ pilot projects/programmes were visited and focus sessions organised with indigenous, marginalized and disadvantaged groups, Dalits and women. A list of meetings and participating individuals is provided in Appendix 5.

A **regional workshop** was organised on 24 November 2013 for government officials and CSOs from Makawanpur, Chitwan, Bara and Parsa districts. A report on this workshop was prepared, circulated to participants for comment, and revised to incorporate feedback. The agenda and a list of participants are provided in Appendix 6.

In addition, the SESA team was able to participate in two regional workshops in Pokhara and Nepalgunj organised by FECOFUN, a consultation meeting in Kathmandu organised by DANAR, and a national consultation organised by NIFIN.

3 BASELINE SITUATION

3.1 BRIEF HISTORY OF FOREST MANAGEMENT IN NEPAL

3.1.1 Early codes for forest management

Gautam (1991) records that the involvement of professionals (trained specialists) began in Nepal in the mid-1920s when a professional forester from the Imperial (Indian) Forest Service first to the country as an adviser to the government. In 1941, Mr. E. A. Smythies was appointed as adviser and assisted in establishing a Forest Department in 1942. The first Nepalese student attended the Indian Forest College at Dehradun, India in the 1940s. Since then, the role of professional foresters in Nepal has steadily increased.

Before 1957, when Nepal First Five-year Development Plan was produced, forest policy was dominated by issues arising within the country and focused on indigenous systems of forest management. Reviewing historical practices, Gautam (1991) describes various 'codes' and documents that directed or influenced forest management in the past. Examples include:

- Inscriptions installed at specific sites where their messages could be read by the people;
- Red flags around the boundaries of protected forests during the early Rana period;
- Specific orders;
- Petitions that often linked indigenous management to the central power (many were made when established practices faced challenges which could not be resolved locally);
- Royal Directives;
- *Kipat* – a system in which a specific area of land has communal ownership;
- General regulations – used widely during the Rana period (1846-1951);
- *Sanad* - a decree or ordinance which replaced the practice of issuing royal orders, and frequently used in the authorisation of forest protection activities;
- *Sawal* - an order /circular to the government officials in Rana times.
- The Legal Code (1854): The chapter 'On cutting trees' dealt with all forestry matters. Whenever the legal code was found insufficient, amendments were made through regulations, *sanads* and *sawals*. Later, these were incorporated in the legal code. In this way the legal code of 1854 was amended many times up to 1948 before it was replaced by a new *muluki-ain* in 1962. However, the chapter 'On cutting trees' was repealed by the Forest Act in 1961; and
- Reports of foreign visitors.

Gautam (1991) comments that:

“early codes of practice developed in the hills region (and presumably elsewhere in Nepal) and focusing on the management of specific forests were reinforced by royal orders in the post-unification period [after the mid 1700s]. While the legal code of 1854 recognised the norms established by earlier orders, the general principle of involving local functionaries was initiated in 1883 and was finally incorporated in the forest legislation in 1918. Throughout the evolution, the emphasis was on the management of forest resources to meet the local needs. The words 'sanad/sanadiya' and 'chitaidar' used in the history of forest management are the result of this evolution.”

Throughout the period from unification (mid 1700s) to the fall of the Ranas (1951), the management of the Terai forest aimed at maximising the revenue, through a system of felling and export, with associated changes in organisation and in legislation. There is no convincing evidence that the forests in

the hills were managed with the same objective as for Terai forests. However the introduction of a monopoly on the export of medicinal herbs provided some revenue from the hills region to the governing elite.

Post-unification orders concerning forests did not discriminate between various land tenures, i.e. *raikar*, *kipat*, *birta*, and *guthi*. The absolute right to use forest products was thus not vested in the land-holder, though *birta* owners were appointed as *chitaidars* with responsibility for regulating the use of forest products by those living nearby. In some cases, access rights were stated to differ from hamlet to hamlet. The codes of practice were mostly motivated by the protective role of the forests. Conserving soil and water was known to be vital in productivity of the land

The aim of most orders was forest conservation attained by authorising certain people, or groups of people, to control utilisation in ways stated in the orders. The main emphasis was on growing 'green' trees, although some orders also related to growing other biomass such as tree leaves, fodder grass and thatching grass (*khar*). Usually there was no stated prohibition on the gathering of dead wood or other dead forest materials.

On the basis of historical evidence, it can be concluded that codes of practice varied in different geographical regions (Box 3.1.1)

Box 3.1: Historical codes of practice for forest management in different regions

Forests in and around Kathmandu valley: For the first century after unification (mid 1700s – mid 1800s), forests were used heavily for defence purposes, and later they became the property of the ruling elites. Almost all orders relating to these forests were imposed by the central authorities. In most cases paid watchers were involved in forest protection.

Forests of the Mahabharat region: Interest in the forests of the Mahabharat region developed only when relations with British India became tense, so they were preserved as a defence wall till the end of the last century.

Forests of the hills region: For the forests of the hills, the codes of practice were established as customary, indigenous codes and emphasised the local community. Whenever their effect was threatened these codes were safeguarded by royal orders, *sanads*, *sawals* and later by legislation. Though they were promulgated as specific orders in the beginning, the role of local institutions was enhanced in the late Rana period and most of the codes then developed out of local initiatives. Although imposed practices occurred in some instances, these were in response to petitions or other forms of local interest. The forests of the hills region were not used for financial benefit.

Forests of the Terai region: Forests in the Terai and inner Terai were always exploited as sources of revenue for the ruling elites. The exploitation of these resources was carried out in a rather piecemeal manner until the beginning of the Rana period. Utilisation was done intensively, supervised a department established in the early 1860s. The system aimed not at managing the forests properly but at increasing the revenue. The introduction of expertise of a professional forester was also to increase the revenue. Local needs were fulfilled by the left-overs from such commercial extraction.

Source: Gautam (1991).

The more recent evolution of forest management and administration since is charted in Table 3.1.1

Table 3.1.1 Forest management and administration history in Nepal

Time	Change	Function
Before 1927	No administrative Forest Offices	<ul style="list-style-type: none"> • Distribution of Lands for Farming
1927	Establishment of Kathmahal	<ul style="list-style-type: none"> • To supply Railway sleepers To India
1939	Establishment of " Eastern Wing and Western Wing"	<ul style="list-style-type: none"> • To manage the supply of sleepers to India and collection of Revenue.
1942	Establishment of DFO with "3 circles and 12 Banjanch"	<ul style="list-style-type: none"> • To control and manage the forest administration
1951	Establishment of 2 circles and 44 Ranges covering the Terai areas. Establishment of IOF	<ul style="list-style-type: none"> • To control and manage the forest administration in Terai. • Production of Skilled manpower inside the country
1957	Nationalization of Forests	
1959	Establishment of Ministry of Forest (MOF)	<ul style="list-style-type: none"> • To cover forest activities nationwide.
1960	MOF was abandoned (lack of staff). CCF office was established with 7 circles and 22 Divisions.	<ul style="list-style-type: none"> • To collect revenue to the country. • External assistance started.
1961	Establishment of TCN	<ul style="list-style-type: none"> • To utilize timber from resettlement areas. • Protection oriented laws were enabled (1961,1967,1970), power to forest staff, women became users, corruption
1962	Working plans were prepared for some Terai districts.	<ul style="list-style-type: none"> • To start planning processes in forest activities.
1966	Establishment of Fuelwood Corporation	To supply fuelwood to Kathmandu.
1967	Formulation of special Forest Protection Act	<ul style="list-style-type: none"> • To enable the forest conservation & protection activities. • DFO became policing and Lawyer.
1968	<ul style="list-style-type: none"> • Establishment of 14 circles and 75 DFOs (but failed due to lack of trained manpower) • Establishment of 7 circles, 22 divisions and "Pradhan Ban Karyala". 	<ul style="list-style-type: none"> • To coincide with other administrative structures • To strengthen the organization with available manpower.
1970	Formulation of Forest production rules	<ul style="list-style-type: none"> • To restrict, control and collect revenue.
1976	Publish of National Forestry Plan. (9 circles and 40 Divisions covering 75 districts).	<ul style="list-style-type: none"> • To implement forestry activities nationwide on a planned basis
1978	Promulgation of Community Forestry Rules	<ul style="list-style-type: none"> • To involve the local people in the management of forests.
1982	Decentralization Act.	<ul style="list-style-type: none"> • To empower the local level administration
1983-88	Establishment of 5 Regional Directorates (MFSC) and 75 DFO offices.	<ul style="list-style-type: none"> • To match with Decentralization Act.
1989	Master Plan For Forestry Sector	<ul style="list-style-type: none"> • To improve the policy of forestry sector.
1993	<ul style="list-style-type: none"> • 5 Regional Directorates (MFSC) and 74 DFOS • Huge reduction in central organization. 	<ul style="list-style-type: none"> • To reduce central control. But reduce whole forestry programmes.
1993	New Forest Act.	<ul style="list-style-type: none"> • To handover the national forest to the adjoining forest users for accountable

Time	Change	Function
1995	Forest Bylaws	management. <ul style="list-style-type: none"> To launch forest management programs according to Forest Act 1993 Power given to Forest User Group for decision-making. Government to act as the facilitator in CF programs.
1998	Forest Bylaws	<ul style="list-style-type: none"> To launch forest management programs according to Forest Act 1993 Power given to Forest User Group for decision-making, but legal provision to contribute 40% of CF income as the government treasury

(Source: <http://www.forestrynepal.org/wiki/319>)

3.1.2 The evolution of leasehold and community forestry

The following extract from Bhattarai and Dgungana (2005) provides a brief summary of the development of leasehold and community forestry in Nepal:

“Nepal's forestry policy has changed over time. Private forestry practices, based on a feudal system, were collapsed by the nationalization of forests in 1957. All of the national forests were brought under state-controlled management with stringent legislation against the private use of forest products. However, it created a de facto open access to forests, resulting in resource depletion and environmental degradation. A need for people's participation in forest conservation and management was perceived among national policy makers and international scholars in the mid-1970s, and a seminal form of community forestry was tried under the name of Panchayat Forestry, after the name of the then party-less political system led by the active monarchy. The major thrust of Panchayat Forestry was to stop further environmental degradation, while some scholars also observe that it had an underlying political objective to strengthen the active monarchy.

The concept of Community Forestry only came into a shape in Master Plan for the Forestry Sector (MPFS) in 1988. At that point, there was consensus among policy actors that Panchayat Forestry, as a unit, was too large to mobilize local people in participatory forestry. Therefore, the Plan suggested that the forests should be managed by traditional, local communities of users, irrespective of political boundaries. Although Community Forestry was recognized as the first participatory program of the forestry sector, the Plan envisaged the program as only fulfilling the basic needs of local people for forest products such as fuelwood, fodder and timber through the improvement of the ecological conditions of handed over forests. To enforce the Master Plan's major contents, including community-based forestry in the changing contexts, a new Forest Act was enacted in 1993 and came into force with the promulgation of Forest Regulation in 1995. In the meantime, a new school of thought believed that forestry should also support the poverty reduction goal of the country. As Community Forestry had primarily aimed at improving forest conditions and meeting forest-based needs, an alternative was sought to focus on poor people's livelihoods through forestry. In this line, a community-based Leasehold Forestry was specially provisioned for the poor in the Forest Regulation of 1995 to address poverty issues from a forestry perspective. Such a special provision was made through the Second Amendment in the Forest Regulation of 1995 in August 2000.

Leasehold Forestry and Community Forestry are the two major community-based forest management programs in Nepal. Leasehold Forestry is a program intended to ameliorate the ecological conditions of the degraded forests in the mid-hills and to improve the livelihoods of forest-dependent poor through their active involvement in the program. Community Forestry, on the other hand, is a common-property forest management model, primarily initiated to conserve the forest and meet the basic needs of forest products through local people's participation."

3.2 ENVIRONMENTAL SITUATION IN THE FORESTRY SECTOR

3.2.1 Introduction

The deforestation and degradation of forests accounts for a significant amount of carbon dioxide released to the atmosphere through the combustion of forest biomass and decomposition of remaining plant materials and soil carbon. Research carried out by the IPCC has revealed that 15-20% of carbon dioxide released to the atmosphere comes from global forest degradation and deforestation. This exceeds that released by the global transport sector and is second only to the global energy sector (G. R. van der Werf, 2009). As a result, attention has focused on the need to reduce emissions from deforestation and forest degradation, popularly known as REDD+. REDD+ is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from land use and land cover change and invest in low-carbon paths to sustainable development.

REDD creates a win-win strategy for both the developing and developed world since it broadens the options for rapidly and effectively reducing greenhouse gas emissions, limiting increase in temperature to acceptable levels and generating other non-carbon benefits. The mechanism envisages performance-based payments to developing countries like Nepal which results from reducing emissions contributed by forest deforestation and degradation. Forests are an important component of the environment. Interventions to improve carbon stocks through the REDD+ framework will improve forest management and forestry-based activities and tackle extra-sectoral drivers of deforestation and forest degradation such as agriculture, energy and infrastructure. They are also expected to lead to an improvement of overall environmental conditions such as increased extent (and value of) biodiversity, conserved ecosystems and better ecosystem services to people and environment, enhanced resilience of the ecosystems to climate change. This report explores the current status of forests and forestry activities in Nepal, and their relation with the existing forest environment.

3.2.2 Nepal's physiography and bio-climate range

The distribution of forest type in Nepal (see section 3.2.3) is a reflection of its unique geographical position, altitudinal and climatic variation. Nepal is positioned in the transitional zone between the eastern and western Himalayas. Its elevation varies from 150m above sea level at the southern border to the highest 8,848m at the summit of Mt Everest in the north within a short space of about 200 Km.

There are five major physiographic landscapes extending from east to west: (a) High Himal, (b) High Mountains, (c) Mid hills (or Middle mountains), (d) Siwaliks (or Chure), and (e) Terai (LRMP, 1986). The physiographic zones closely correspond to the seven bioclimatic zones developed by Dobremez (1976) and used by the Biodiversity Profile Project (1995) for classification of vegetation (Table 3.2.1 and Figure 3.2.1). Nepal has a tropical climate in the south and temperate and alpine climates in the north. Forest and other land types are close related to the physiographic and climatic zones (see Figure 3.2.2).

Figure 3.2.1: Bioclimatic zones of Nepal

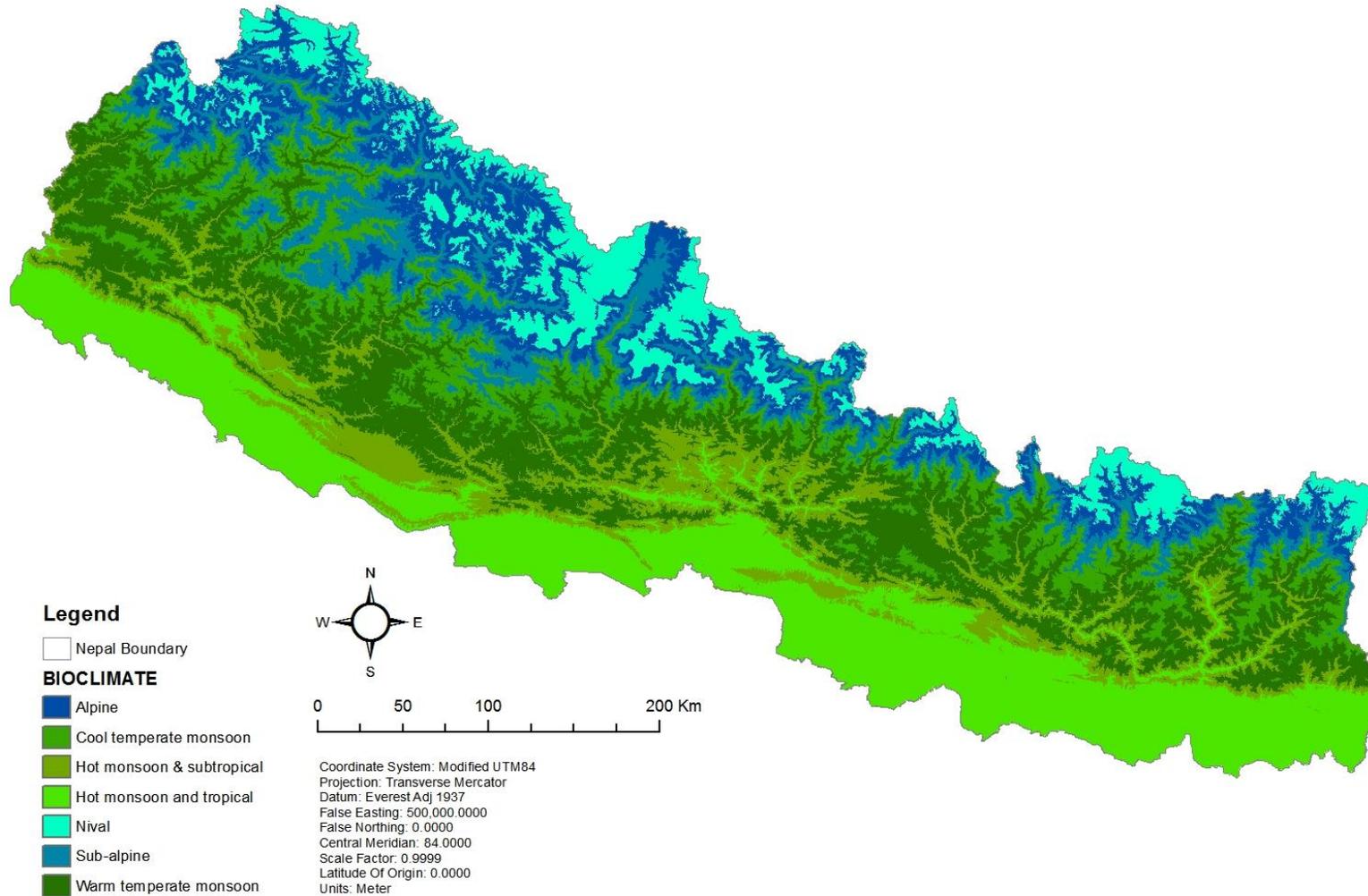


Figure 3.2.2: Forest and other land use distribution in Nepal (LRMP 1978)

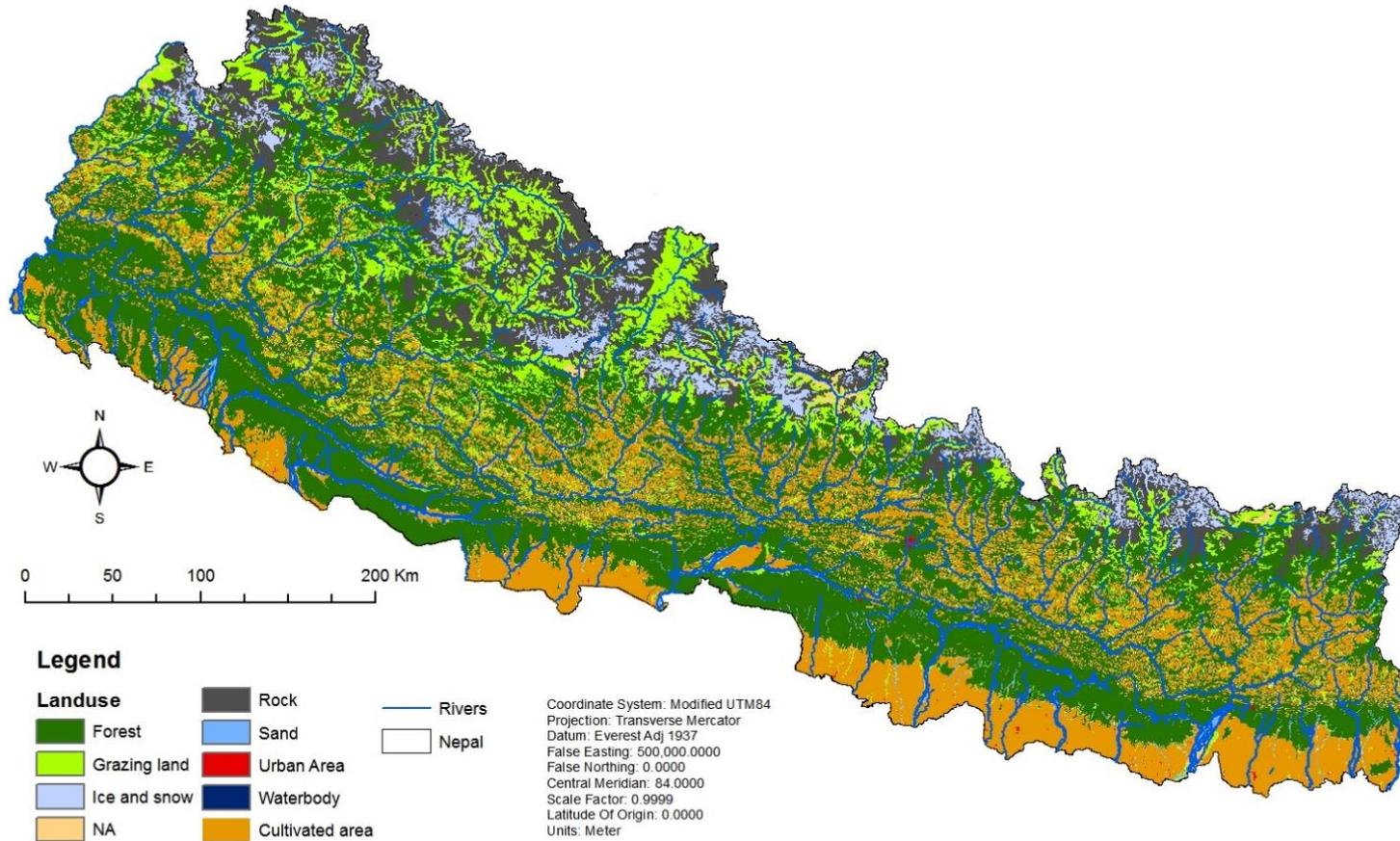


Table 3.2.1: Physiographic and bioclimatic zones of Nepal

<i>Physiographic zone</i>	<i>Surface area [%]</i>	<i>Elevation [m]</i>	<i>Bio-climate zone</i>
High Himal	24	Above 5000	Tundra-type and Arctic
High Mountains	20	4000 - 5000	Alpine
		3000 - 4000	Sub-alpine
Mid-hills	29	2000 - 3000	Cool temperate monsoon
		1000 - 2000	Warm temperate monsoon
Siwalik Terai and Siwalik	13	500 - 1000	Hot monsoon and subtropical
Terai	14	Below 500	Hot monsoon and tropical

Source: (MOFSC, 2002)

3.2.3 Distribution of forests in Nepal

The policy of the government of Nepal is to maintain 40% of the land under forest cover. Compliance with this target is determined through periodic forest inventories that provide snapshots in time. During the 1970s, forest cover was 39.6 % (DFRS 1999). But, according to last National Forest Inventory (NFI) carried out in early 1990s, the forest area had fallen to 39.6%. During the period 1978/79 to 1994, the forest area decreased at an annual rate of 1.7%, whereas shrub and forest together decreased at an annual rate of 0.5% (Table 3.2.2).

Table 3.2.2: Forest cover change from 1978 to 1994

Cover	1978 (LRMP)		1986 (GON/ADB/FINNIDA)		1994 (DFRS)	
	<i>Area [000ha]</i>	<i>[%]</i>	<i>Area [000ha]</i>	<i>[%]</i>	<i>Area [000ha]</i>	<i>[%]</i>
Forest	5,616.8	38.0	5,504.0	37.4	4,268.0	29.0
Shrub	689.9	4.7	706.0	4.8	1,560.0	10.6
Total	6,306.7	42.7	6,210.0	42.2	5,828.0	39.6

(Source: MOFSC, 2009)

The DFRS is currently updating the forest inventory through the Forest Resources Assessment⁷. The 1994 NFI revealed that the Eastern Development region had the highest percentage of forests and the

⁷ The FRA Nepal Project is a bilateral co-operation between Governments of Nepal and Finland to conduct forest resource assessment over the entire country. Key objectives of the project are: strengthening institutional capacity-building, maintaining forestry sector information systems, collecting data of all forest based resources, and data sharing among forestry organizations. There is an increasing demand to update Nepal's forest cover map, but also other data on forests, biomass and soil. National level baseline data collection is carried out by using remote sensing technology and extensive ground-based sampling which covers all geographical regions of Nepal. The FRA Nepal Project is implemented under the Ministry of Forests and Soil Conservation (MFSC), and the Department of Forest Research and Survey (DFRS) is the executing organization.

western Development Region had the lowest (Table 3.2.3). Furthermore, the Mountain physiographic region had the highest percentage of forest covers and the High Himal had the lowest (Table 3.2.4).

Table 3.2.3: Distribution of forest by development regions [%]

<i>Development Regions</i>	<i>1978</i>	<i>1986</i>	<i>1994</i>
Far Western	18	18	17
Mid-Western	29	30	21
Western	16	16	12
Central	20	19	24
Eastern	17	17	26

(Source: MOFSC, 2009)

Table 3.2.4: Distribution of forests by physiographic regions [%] (MOFSC, 2009)

<i>Physiographic regions</i>	<i>1978</i>	<i>1986</i>	<i>1994</i>
Terai	10	8	NA
Siwaliks	26	26	NA
Mid Mountain	32	33	NA
High Mountain	29	30	NA
High Himal	3	3	NA

(Source: MOFSC, 2009)

3.2.4 Forest types

Nepal has a diverse flora with 35 forest types as classified by (Stainton, 1972). These forest types are categorized into ten major groups (Box 3.2.1).

3.2.4.1 Plantation Forests

Nepal has been striving to improve its degraded forests and grasslands in the Terai and Mid-hills with plantations. As a result, a number of districts now have substantial areas of plantation forest comprising both indigenous and exotic species. Major species of planted forests in the Terai are *Dalbergia sissoo*, *Eucalyptus* species, and *Tectona grandis*, particularly in the Sagarnath and Nepalgunj Forestry Development Projects, which are implemented by the Forest Product Development Board. *Pinus roxburghii*, *P. wallichiana*, *P. patula*, and *Alnus nepalensis* are largely planted in the Mid-hills.

3.2.5 Forest management regimes

Forests, shrubland and grasslands fall under jurisdictions of the Department of Forests (DOF) and Department of National Parks and Wildlife Conservation (DNPWC), under the Ministry of Forests and Soil Conservation (MFSC). Collectively these lands under DOF are known as National Forests, whereas those under DNPWC are called Protected Areas (PAs). Presently, 15.2% of the total forest and shrub land is under the PA system - including National Parks, Conservation Areas and Buffer Zones.

The National Forests under the DOF are categorised into five types based on the management rights assigned to different entities (Table 3.2.5). Community Forest User Groups (CFUGs) manage the large proportion of the total forested area (21%), whilst Leasehold Groups manage just 0.46%, and 0.2% is under Collaborative Forest Management (CFM) regime. The remaining 63% is the residual forests and shrub lands, which are legally owned by the government but, in reality, are open access resources. These are the areas under intense pressure for land use conversion and deforestation, since there is a de-facto institutional vacuum to manage these forests.

Box 3.2.1: Forest type categories for Nepal

(1) Tropical forest (below 1,000m): Predominantly composed of *Shorea robusta* in the southern parts of Nepal. *Acacia catechu*/*Dalbergia sissoo* forests replace *Shorea robusta* forests along streams and rivers. There are other riverine forests with mainly evergreen species such as *Michelia champaca* or deciduous species such as *Bombax ceiba*. *Shorea robusta* forests are replaced by *Terminalia*/*Anogeissus* forests in the foothills of western Nepal.

(2) Subtropical broad-leaved forest (1,000-2,000m): *Schima wallichii*/*Castanopsis indica* forests are found in central and eastern Nepal. Riverine forests of *Cedrela*/*Albizia* occur along large rivers such as the Arun on subtropical foothills. *Alnus nepalensis* forests are widespread along streams and in moist places.

(3) Subtropical pine forest (1,000-2,200m): *Pinus roxburghii* forests occur particularly on the south-facing slopes of the Mid-hills and Siwalik Hills in western and central Nepal.

(4) Lower temperate broad-leaved forest: Occurs between 2,000-2,700m in the west and 1,700-2,400m in the east. *Alnus nitida*, *Castanopsis tribuloides*/*C. hystrix*, *Lithocarpus pachyphylla*, and several species of *Quercus* forests thrive in the Mid-hills. Among them, *Alnus nitida* forests are confined to the riverbanks of the Mugu Karnali, at 2,130-2,440m. *Quercus leucotrichophora*/*Q. lanuginosa* forests and *Q. floribunda* forests occur mostly in west Nepal, whereas *Q. lamellosa* forests are widespread in central and eastern Nepal. *Lithocarpus pachyphylla* forests occur in eastern Nepal.

(5) Lower temperate mixed broad-leaved forest (1,700-2,200m): Confined to north and west-facing slopes. In many places, prominent tree species of this forest type belong to the Lauraceae family.

(6) Upper temperate broad-leaved forest (2,200-3,000m): *Quercus semecarpifolia* forests are widespread in central and eastern Nepal on south-facing slopes but it are absent in heavy rainfall areas such as the upper Arun and Tamur valleys and the hills lying north of Pokhara.

(7) Upper temperate mixed broad-leaved forest (2,500-3,500m): Occurs in central and eastern Nepal, mainly on north and west-facing slopes. *Acer* and *Rhododendron* species are prominent throughout this altitude range. However, *Aesculus*/*Juglans*/*Acer* forests are mostly confined to western Nepal.

(8) Temperate coniferous forest (2,000-3,000m): *Pinus wallichiana*, *Cedrus deodara*, *Cupressus torulosa*, *Tsuga dumosa* and *Abies pindrow* forests characterise the temperate conifer forest type. However, many of the above species also thrive above 3,000m. *Pinus wallichiana* is an aggressive coloniser and is found in temperate parts of Nepal, extending to 3,700m. *Cedrus deodara*, *Picea smithiana*, *Juniperus indica* and *Abies pindrow* forests occur in the western Himalayas. The valley of the upper Bheri River demarcates the eastern boundary for *Cedrus deodara*. *Larix himalaica* forests only

occur in the Langtang and Buri Gandaki valleys of Nepal, preferring moraine habitats. *Larix griffithiana* is an eastern Himalayan larch species and extends to 3,940m. Both, *Cupressus torulosa* forests and *Tsuga dumosa* forests are widespread throughout Nepal between 2,130-3,340m.

(9) Sub-alpine forest (3,000-4,100m): *Abies spectabilis*, *Betula utilis*, and *Rhododendron* forests occur in subalpine zones, the latter in very wet sites.

(10) Alpine scrub (above 4,100m): Juniper-Rhododendron associations include *Juniperus recurva*, *J. indica*, *J. communis*, *Rhododendron anthopogon*, and *R. lepidotum* associated with *Ephedra gerardiana*, and *Hippophae tibetana* in inner valleys. *Caragana versicolor*, *Lonicera spinosa*, *Rosa sericea* and *Sophora moocroftiana*, amongst others, occur north of the Dhaulagiri-Annapurna massif. Alpine meadows, locally called 'Kharka', are subjected to grazing during the summer and rainy seasons. Perpetual snow occurs above 5,200m, and mosses and lichens are found in scattered locations. *Stellaria decumbens* and *Parrya lanuginose* have been recorded at an elevation of about 6,100m, but beyond 6,000m, in the Arctic desert/nival (permanent snow) zone, even mosses and do not survive.

Source: Stainton 1972

Table 3.2.5: Forest under different management regimes

<i>Management regime</i>	<i>Area [Ha]</i>	<i>Area [%]</i>
Community Forests	1,652,654	21.19
Leasehold Forests	41,422	0.53
Collaborative Forests	54,072	0.69
Forests Under Protected Areas	2,858,300	36.65
Government Forests or Residual Forests	3,193,090	40.94
Total	5,828,238	100.00

(Source: (CF, Collaborative forest and other data base from DOF (up to November, 2012), LHF data from Leasehold Forestry Program (2013), Department of National Parks and Wildlife Conservation (DNPWC) website <http://www.dnpwc.gov.np/index.php/page/41> accessed date 8 August 2014)

There are several regimes for forest management in Nepal (Box 3.2.2).

Box 3.2.2: Definitions of the forest management regimes

Government-managed forest: national forests managed by the government.

Protected forests: national forests that the government has declared protected in consideration of their environmental, scientific and cultural importance.

Community forests: national forests that have been entrusted to Forest User Groups for development, conservation and utilization in the interest of the community.

Leasehold forests: national forests that have been leased for specific purpose(s) to a legally defined institution, forest based industry or community.

Religious forests: national forests that have been entrusted to any religious entity, group or community.

In addition to national forests, Nepal has also legally accepted the existence of private forests -

defined as all the planted, nurtured or conserved forest on any private land that belongs to an individual as per the prevailing law.

The Forest Act 1993 defines *private forest* as a forest developed or conserved on the land which is under the ownership rights of an individual according to the prevailing laws. Broadly, this definition also includes all the trees planted on the private land. The Government also allows the registration of private forests with the DFO to enable access the support and incentives provided by DFOs. MoFSC (NA) provides an accurate account of the extent of private forests in the country.

Source: (GON, 1993)

The early attempts to manage forests with a centralized administrative structure were not successful. It either required extensive mobilization of government structure or requirement strict law enforcement. It was soon realized by the Government that Nepal's forests could only be preserved through the active participation of forest users, and participatory forest management approaches such as community forestry and pro-poor leasehold forestry have subsequently been introduced in early 1960s. The community based forest management approach has been particularly popular in the mid-hills of Nepal. Currently a total of 17,685 community forests (CF) have been handed over to communities, out of which 72% are in the mid-hills (Table 3.2.6). Leasehold forests are also being implemented successfully in 53 mountainous districts. A total of 72,825 ha of forest land has been allocated for Leasehold Forestry (LHF) with 7,230 LHF Groups formed, engaging 72,825 households (source: Leasehold Forestry Programme, 2013).

Table 3.2.6: Status of community forestry (Source: Community Forestry Division, Department of Forest, Kathmandu, Nepal)

Regions	# of FUG	# of HH	Area [ha]
High Mountains	2,830	291,415	266,007
Middle hills	12,812	1,405,286	1,090,398
Terai/Inner Terai	2,043	481,157	296,249
	17,685	2,177,858	1,652,654

Source: Community Forestry Division, Department of Forest (reported date: July 01, 2012)

3.2.6 Deforestation and forest degradation

3.2.6.1 High dependency on forests and forest products

Nepal has a significant dependency on forests to fulfil its energy demand. In 2008/09, total energy use was 400 million GJ, of which 77.7% was derived from fuel wood (WECS 2010). The latter is used mainly in for domestic consumption with only a nominal amount used in the commercial and industrial sectors. WECS (2010) estimate that 99% of fuel wood was used in residential areas, with only 0.6% used by commercial institutions and the remaining 0.4% used by industries⁸. It has been estimated that about 10.5 million tons of fuel wood is being extracted annually from Nepal's forests (Kanel, Shrestha, Tuladhar, & Regmi, 2012). This study also estimated that demand will increase to 11.7 million tons by 2020 and to about 12 million tons by 2030.

⁸ The industrial sector uses a large amount of agricultural waste, particularly rice husks to fuel boilers.

Fuel wood is a cheaper and affordable source of energy for the majority of Nepalese. The poorer population living in the rural areas is highly dependent on forests for fuel wood. However with increases in incomes, households are likely to switch to cleaner sources of energy such as Liquid Petroleum Gas (LPG) (Kanel, Shrestha, Tuladhar, & Regmi, 2012). Though WECS (2010) estimates a decrease in household demand for fuel wood by 1% every 5 years, the overall demand is predicted to rise (Table 3.2.7) because of population growth and increasing demand for fuelwood from commerce and industries (Kanel, Shrestha, Tuladhar, & Regmi, 2012).

Timber is extracted from forests for construction and maintenance of houses and buildings. With the growth of population, the construction of houses and other buildings is expected to grow. Kanel et al. (2012) estimate consistent growth in the number of houses constructed in Nepal. 0.3 million houses were built in 2011, and this figure is projected to grow to 0.34 million by 2020 and 0.44 million by 2030. As a result, demand for timber is also growing. The estimated demand for timber in 2011 was 3.37 million m³, which will grow to 3.75 million m³ in 2020 and 4.80 million m³ in 2030 (Table 3.2.8).

Table 3.2.7: Projected total demand of fuel wood in Nepal

Year	Fuel wood requirement ('000 Ton per year)			
	Terai	Hill	Mountain	Total
2011	5,302	4,414	821	10,537
2015	2,626	4,571	833	11,030
2020	6,074	4,786	850	11,710
2025	6,531	4,991	865	12,387
2030	7,015	5,199	878	13,092

Source: (Kanel, Shrestha, Tuladhar, & Regmi, 2012)

Table 3.2.8: Projected total timber demand

Year	Timber requirement ('000 m ³ per year)			
	Terai	Hill	Mountain	Total
2011	1,456	1,721	194	3,371
2015	1,548	1,783	203	3,534
2020	1,671	1,866	214	3,750
2025	2,073	2,230	235	4,538
2030	2,225	2,328	248	4,801

Source: (Kanel, Shrestha, Tuladhar, & Regmi, 2012)

It is anticipated that the increasing demand for timber and other forest products will be met from forests under different management regimes, mainly Government-managed national forests, community-based forest and private forests.

Official records show the following sales of logs from different forest regimes:

- Government management forests: 1.2 to 1.4 million Cft of logs are sold annually
- Community forests: 5 million Cft of logs were sold in 2007/2008 and the amount increased to 5.8 million Cft in 2009/2010
- Private forest: records are scarce on sales of the logs from the private forests, however, it was estimated that about 2.8 million Cft of logs is supplied from the private forests.

The study by Khanel *et al.* 2012 shows that Terai forests are more vulnerable than others to degradation and deforestation partly to meet the demand for forest products. It estimated that the Terai forests are converted at the rate of 400 Ha annual to other land uses. The study also claims that the condition of forest will be much better in the hills and mountains. Forest loss occurs mostly because of infrastructure development. However, such losses are compensated through afforestation and reforestation.

3.2.6.2 Loss of forested area

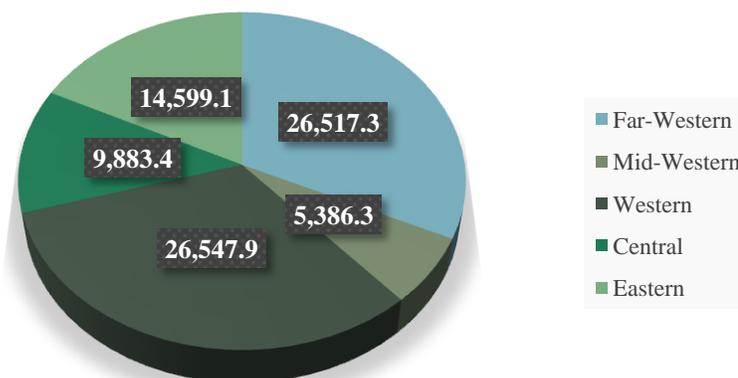
The **conversion of forested** areas into other forms of land use has been recognized as one of the primary drivers of deforestation and degradation (Poudel, Khatri, Karki, & Paudel, 2013; MOFSC, 2010). There are a number of reasons for this conversion, but the most prominent ones are:

- encroachment for resettlement/agriculture; and
- acquisition of forest area for infrastructure development.

MOFSC (2009) quoted a study by Adhikari (2002) which gave a picture of the forest area loss in Nepal between 1964 and 1991. It reports that Nepal lost 0.57 million ha of forest land, of which 0.38 million ha were converted into cultivated land, and the remaining 0.19 million ha into various forms of infrastructures e.g. roads, urban development, irrigation and establishment of educational institutions. Furthermore the Global Forest Resources Assessment by FAO reported that Nepal lost its forest area by 2.1 percent and 1.4 percent during 1990 – 2000 and 2000 – 2005, respectively (as reported by (MOFSC, 2013)).

Nepal has a history of **encroachment on forest areas for settlement and agriculture**. A prominent example is the State-sponsored resettlement programme during 1960s which resulted in the clearance of vast areas of forest in the Terai. And this trend of encroachment continues today in different forms. “*Sukumbasi* (landless people” and free bonded labourers) are mostly resettled in forested areas. The Government has created different Commissions to distribute forest land to landless people. Poudel *et al.*, (2013) provide figures showing that forested areas are under severe pressure from encroachment. They note that “in the past 40 years, 21 Commissions were formed which distributed 140,000 ha forestlands to landless people.” The report refers to Department of Forests figures for 2010 and comments that “besides the periodic distributions by Commissions, another 1, 00,000 Ha of forestlands are under encroachment.” Records available at the Department of Forests show that a total of 83,034 ha of forest land were under illegal occupation in 2012 (Figure 3.2.5). This is 66% higher as compared to the encroached area in 1994.

Figure 3.2.5: Forest area under illegal occupation (ha) (MOFSC, 2013)



3.2.6.3 Impact of infrastructure

Roads are the most widely distributed form of infrastructure in Nepal. The current network is shown in Figure 3.2.6. According to Poudel *et al.*, (2013), Nepal spends USD 40 million annually on road development, and the length of the roadwork extended from 4500 Km in 1998 to 9500 Km in 2006.

Road expansion is causing a relatively large amount of forest conversion – for three main reasons (Poudel *et al.* 2013):

- road construction is carried out in environmentally fragile lands such as along riverbanks and steep and fragile hills requiring massive earthworks and causing landslides and soil erosion;
- roads often have to be routed through forestland due to the resistance of private landowners to provide land; and
- most of the roads are constructed with minimum consideration of environmental concerns.

Amongst the roads constructed, the unplanned and unregulated construction of rural roads by VDCs and DDCs is a major threat to the forests, resulting in loss of vegetation and promoting landslides and soil erosion. Every monsoon cycle puts severe damage to these roads and the adjacent areas. By comparison, roads constructed by the Department of Roads and DOLIDAR *etc.* are carried out with proper engineering planning and fulfil the environmental assessment procedure.

Other infrastructure is also implemented in forest areas such as electric transmission lines (Figure 3.2.7), hydropower plants and reservoirs (Figure 3.2.8), irrigation, *etc.* The government has also allowed private sector companies to set up mines and other industries in forest land. The Environmental Protection Rules and Regulation require mandatory Environmental Assessment (EA) of major infrastructure developments. This process has ensured the participation of MOFSC in the EA approval procedure and, in turn, MOFSC has been able to ensure the replacement of forests that are lost during the construction and operation of infrastructure projects. The EIA and feasibility reports of individual projects record the loss of forest area and trees. However, such data/information is not consolidated or available at either the district or national level. As a result, neither the extent nor significance of the loss of forest area or trees/vegetation, nor the impact on forest resources due to infrastructure, can be estimated at either level.

Table 3.2.9 indicates the direct and indirect impacts of infrastructure projects.

Figure 3.2.6: Distribution of roads in Nepal

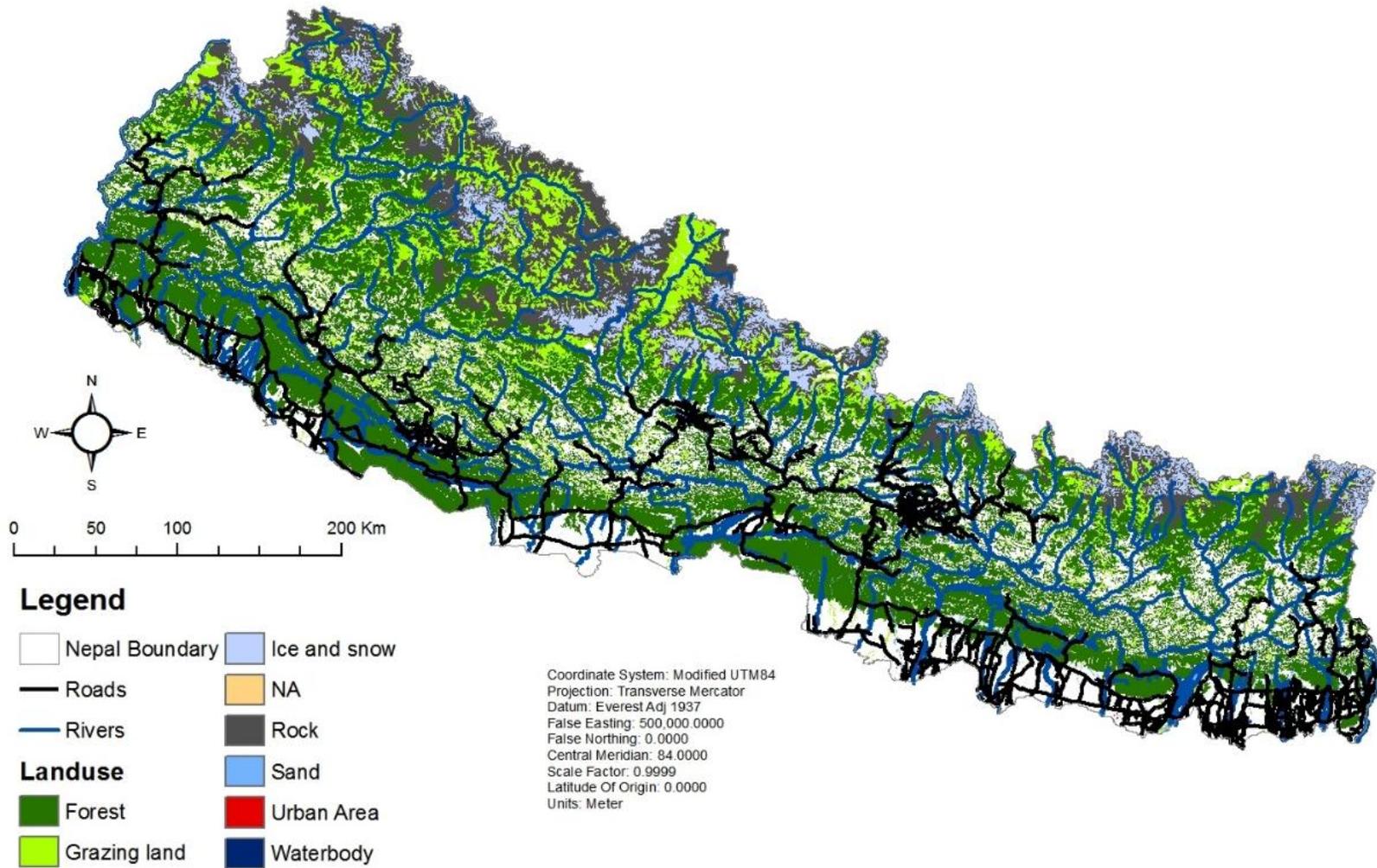


Figure 3.2.7: Existing transmission lines of Nepal (IPPAN, NA)

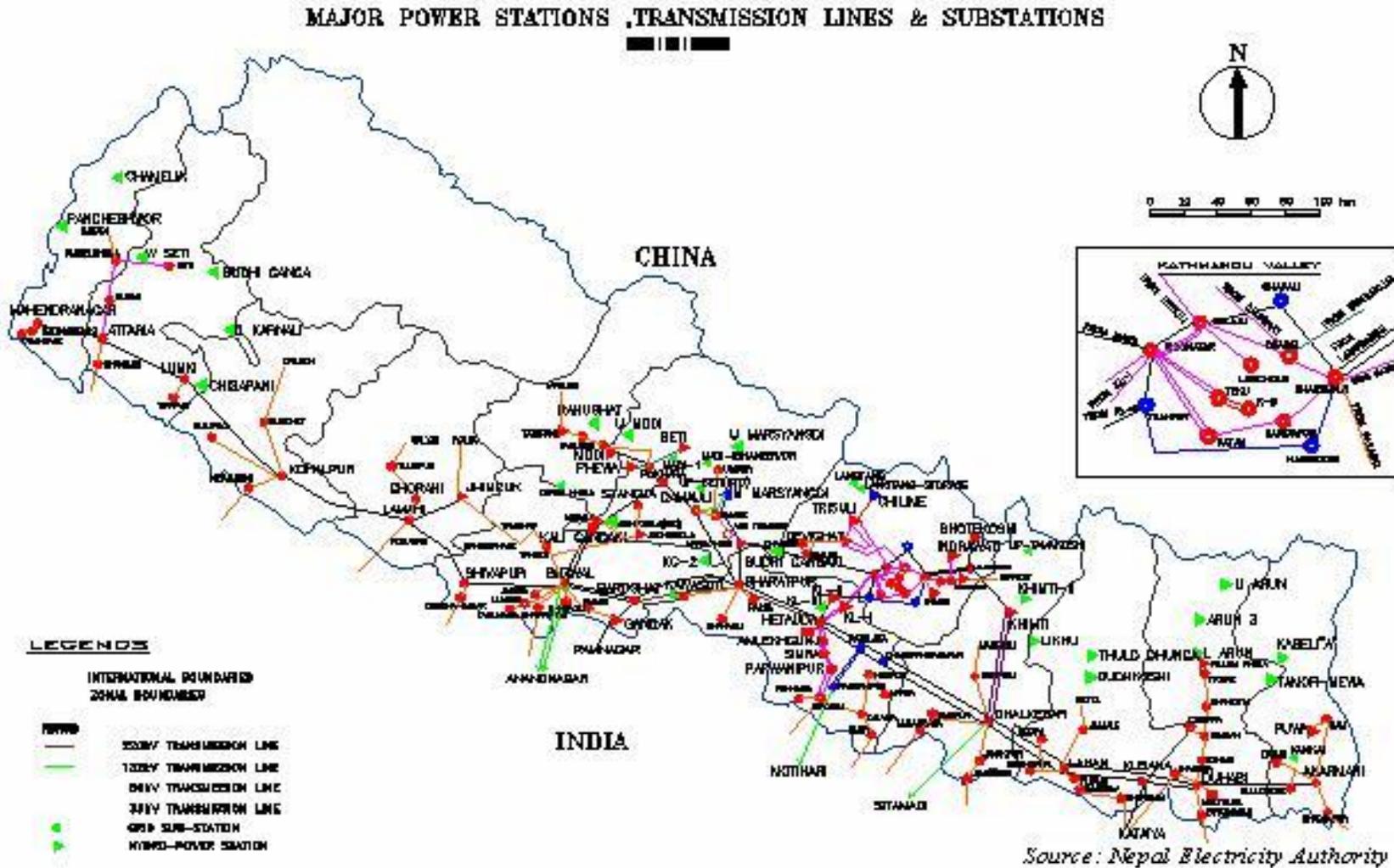


Table 3.2.9: Direct and indirect impacts of the infrastructure projects

<i>Direct impact</i>	<i>Indirect impact</i>
<ul style="list-style-type: none"> Acquisition of forest area to set up the components of the infrastructure project, and removal of vegetation from those sites Construction of dams/weirs for hydropower and irrigation creates dewater or low flow stretches in rivers. Obstruction to the route of migratory fishes Increase pollution due to construction and operation of the projects, e.g. increase release of vehicular exhaust, etc. 	<ul style="list-style-type: none"> Loss of / disturbance to wildlife habitat resulting in displacement of the wildlife populations, Disturbance to hill/mountain slopes and removal of vegetation, resulting in landslides and soil erosion. Increased turbidity of river water due to increased erosion and landslides on river valley slopes and spoils/muck disposed into rivers. Loss of aquatic habitat and ecosystem. Change in the aquatic species composition. Population of fish will diminish. Infrastructure projects supports improvement in agriculture, industries, tourism etc. that can increase release of pollutants eg agricultural chemicals, industrial effluents and exhausts, etc.

3.2.6.4 Illegal forest conversion for farming and grazing

The poor population is involved in converting forest lands, e.g. for slash and burn cultivation (Dhital, 2009). The conversion of forest areas is usually permanent where it is undertaken to establish illegal settlements. Similarly, other forms of encroachment activity are often accompanied by the invasion of alien species and lead to forest degradation.

In addition, the illegal grazing of animals leads to significant forest degradation, although data on the extent of this problem is not available. This is a particularly important problem in the high altitude forests where the extent of such grazing exceeds forest carrying capacity nine fold (MoFSC, 2002).

3.2.6.5 Illegal harvesting of forest products

25% of Nepal's population lives under the poverty line (CBS 2011), including communities of forest dwellers (MFSC, 2008). The latter are highly dependent on both timber and non-timber products for both subsistence and earning an income by selling products. According to Poudel (2009), the lack of employment and inaccessibility to productive agriculture practices have led to most Nepalese living close to forests so they can gather fuel wood, food, timber and supplements to what they can cultivate (see section 3.2.6.1).

Some forest products are collected illegally. Illegal logging has been a serious issue in Nepal for a long time. But most of it is not evident in official forest statistics as it is not accounted for in forest area loss or forest cover loss. Trees felled illegally in forests are not recorded, but result in significant impacts on forest health and biodiversity (eg by harvesting protected species) in forest areas, as well as on the ecological balance (by extracting particular high value species which are then replaced with other species, thus changing forest composition and habitat conditions and services, eg water balance, available products, etc.). But such cause-effect linkages require further research.

Several forms of tree clearance are considered as illegal logging:

- theft of timber – logging without official permission;
- felling caused by unauthorized construction;
- felling carried out by local residents for personal need for fuelwood, timber etc.;
- felling carried out for the extension of agricultural land; and
- abuse of authority for felling of forest.

Other forms of forest degradation include grazing, harvesting wood for the preparation of charcoal, collection of forest litter and under-growth activities can have significant impact on forest health, but it is not clear if these necessarily appear in the forest statistics.

3.2.7 Key environmental issues

Forests have been an integral part of the Nepalese population, particularly of the rural population. It supports the livelihoods by providing organic matter in the form of leaf litter, fodder, medicinal herbs, timber and fuel wood etc. In addition, forests also provide important environmental services such as protection of water catchments, conservation of soil, biodiversity etc. Thus the forest is an important resource which is closely associated with the livelihoods as well as maintains the environmental balance.

However, the services provided by the forest are under-priced and are not properly acknowledged (Richards, 1994). Here forests provide not only environment services but also supports rural livelihood and are also an integral part of the farming system. Therefore problems like market failure, unplanned development along with weak tenure rights also contributes to forest degradation.

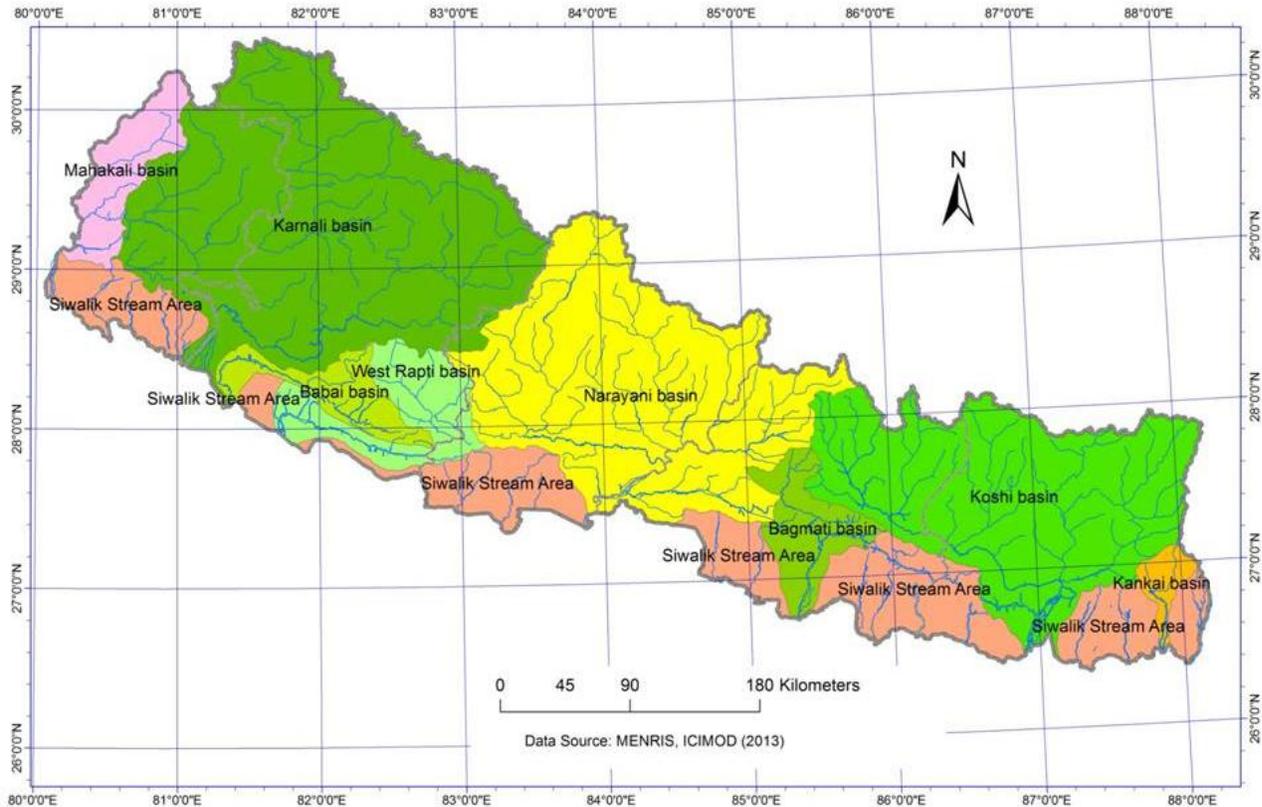
3.2.7.1 Land degradation and erosion

As a mountainous country, erosion is one of the major environmental challenges that Nepal faces. According to (Hill, 1999), “although much erosion in Nepal may be geological in origin, deforestation and forest degradation may result in significant localized erosion, resulting in loss of farmland through landslides and decreased productivity of topsoil and downstream siltation effects.” Various activities such as deforestation, encroachment of forest land, overgrazing and poorly maintained marginal lands contribute to the degradation of watersheds. It was estimated that about 14% of the area of major watersheds (shown in Figure 3.2.9) suffer degradation to varying extents (Jha, 2007). It has also been estimated that every year the monsoon rain washes away more than 7.8 tons of soil from each ha in the forested Swanlike hills and as much as 570 ton/ha in the deforested mid-hills (Jha, 2007).

The water retention capacity of the watersheds is severely compromised due to erosion. The process of soil compaction takes place in the denuded slopes. As a result, rain water cannot infiltrate into the compacted soils, rather these are immediately released into the streams and rivers. On one hand, due to decreased lack of effective rainfall, ground water table lowers drying up of springs and streams. On the other hand, swollen run-off results in flooding. Furthermore, the eroded soil is deposited in the Terai. It was reported that the river beds in the Terai are rising from 15 to 30 cm every year (Rana, 1976) as reported by (Shrestha, 1999)). As a result, the lowland rivers are changing courses damaging lives, properties and fertile cultivated lands.

In recognition of critical situation regarding soil erosion and watershed degradation in the country, in 1974, the Government created the Department of Soil and Water Conservation in August under the then Ministry of Forests. In 1980, it was renamed as Department of Soil Conservation and Watershed Management (DSCWM) to better represent its roles and responsibilities of watershed management. Since its establishment, there have been continuing efforts to address soil erosion and watershed degradation. The DSCWM provides soil conservation and water management services (SCWM) to 73 out of the 75 districts of Nepal through 56 District Soil Conservation Offices (DSCO).

Figure 3.2.9: Major basins of Nepal (MOFSC, 2013)



3.2.7.2 Loss of biodiversity and ecosystems

The National Biodiversity Strategy and Action Plan (MOFSC, 2013) have identified 7 threats to biodiversity. Amongst them, loss of and degradation of habitat due to deforestation and forest degradation have been identified as the major threats having high to medium impacts. These threats are increasing in increasing except in the mid-hill regions (see Figure 3.2.9).

Figure 3.2.9: Threat to forest biodiversity in Nepal (MOFSC, 2013)

Physiographic Zone	A	B	C	D	E	F	G	Impact	Trend
High Himal			→	→			→	High	Increasing
High Mountains	→	→	→	→	→		→	Medium	Decreasing
Mid-hills	→	→	→	→	→	→	→	Low	Increasing
Siwaliks	→	→	→	→	→	→	→	High	Increasing
Terai	→	→	→	→	→	→	→	High	Increasing

A = Loss of habitat; B = Degradation of habitat; C = Poaching and illegal trade; D = Human-wildlife conflict; E = Invasion by alien plant species; F = Stone, gravel and sand mining; G = Unmanaged tourism. Blank cell refers to not applicable or lack of information.

Deforestation and forest degradation results in changes in their structure and ecological dynamics, and has had a significant impact on biodiversity due to the loss and degradation of habitats. According to the Global Forest Resources Assessment (FAO 2005), Nepal lost 2.1% of its forest area during 1990-2000, and a further 1.4% during 2000 – 2005. Despite conservation efforts, biodiversity loss is continuing unabated. The Nepal Conservation Strategy raised the alarm that if Nepal were to lose its remaining humid tropical forests, an estimated ten species of medicinal herbs and fifty species of other trees and shrubs would be lost permanently. In addition, the habitats of 200 species of birds, 10 species of mammals and 20 species of reptiles and amphibians would be severely affected (MOFSC, 2002). Box 3.2.3 provides a brief overview of the status of biodiversity in Nepal.

One of the major biodiversity conservation initiatives undertaken in Nepal is the creation of the Protected Area (PA) system. Since 1973, the government has established a network of 17 protected areas: 10 national parks, 3 wildlife reserves, 6 conservation areas and 1 hunting reserve (Figure 3.2.10).

Box 3.2.3: Status of Nepal's Biodiversity

Nepal's unique geography with dramatic changes in elevation along its relatively short (150-250 km) north south transect, and associated high variability in the eco-climatic conditions, have resulted in a disproportionately rich diversity of flora and fauna. Moreover, the country's standing at the crossroads of two major biogeographic regions of the world (Indo-Malayan to the south and Palearctic to the north) has made Nepal a mixing place of species originating from both the regions. The country occupies about 0.1 percent of the global area, but is home to over 3% and 1%, respectively, of the world's known flora and fauna, and to 2% of the flowering plants, 8% of the birds, and 4% of the mammals. It includes 12 of the 867 global terrestrial ecoregions. From the perspective of species diversity in wild habitats, Nepal occupies 26th and 11th positions, respectively, on a global and continental basis. Most of these species are globally endangered, with nearly 500 of them cited in the Red Data Book of the Fauna of Nepal as having a high risk of local extinction (Hill, 1999; MOFSC, 2009).

The natural ecosystems in Nepal range from tall grasslands, wetlands and tropical and sub-tropical broadleaf forests along lowlands and adjoining the Siwalik foothills to alpine meadows above the tree line. The country's forest ecosystems can be categorized into ten major groups (see Box 1). Among the **rangeland ecosystems, the tropical savannahs and marshlands, and alpine meadows are exceptionally rich in biodiversity**. Nepalese wetlands have very high ecological significance, as they harbor many threatened and endemic species of flora and fauna and serve as resting places for many migratory and globally threatened birds. The wetlands also have high cultural and economic significance. Many ethnic groups of people are dependent on wetlands for their livelihoods.

The diverse climatic and topographic conditions in the country have favoured the maximum diversity of agricultural crops, their wild relatives, and animal species. Over 550 crop species are identified as having food value, and around half of those species are believed to be currently under cultivation. The country also has 400 species and subspecies of horticultural crops, including 45 species with seasonal fruits. An estimated 200 species of vegetables, including 11 different local varieties of potatoes, are grown in the country.

A total of 342 plants and 160 species of wild plants and animals have been reported as being endemic to the country. Of the former, 14 belong to tree and bamboo groups. The richness of endemic species increases steadily from low to high elevations. The high altitude rangelands are especially important from the perspective of endemism.

Many species of plants and animals are threatened. This includes 55 species of wild mammals and 18 species of trees found in the mountains. Birds are among the most threatened group of fauna. Over

half of Nepal's nationally threatened bird species inhabit lowland forests, and over a quarter live in wetlands. Among the known species of domestic animals, pure siri cattle has become extinct, achhami cattle and lampuchhre sheep are near endangered, and bampudke pig is critically endangered. Very limited information exists on the country's genetic diversity.

Nine species of plants, 55 mammals, 149 birds, and 64 herpetofauna are included in the IUCN Red List. Similarly, 154 species of plants, 52 mammals, 108 birds and 19 reptiles and three insects have been listed in the CITES Appendices. Several species of plants and animals, including 27 mammals, nine birds, 14 angiosperms, and four gymnosperms have been declared as protected species by the government.

Nepal is renowned for its charismatic fauna. For example the alluvial grasslands and subtropical forests of the Terai are highly productive. They support some of the highest Royal Bengal Tiger densities in the world, the second largest population of the Greater One-horned Rhinoceros and the largest herd of Swamp Deer. The Area is also home to other endangered and protected species like Asian Elephant (*Elephas maximus*), Gangetic Dolphin (*Platanista gangetica*), Gharial Crocodile (*Gavialis gangeticus*), Hispid Hare (*Caprolagus hispidus*), Greater Hornbill (*Bucedros bicornis*), Sarus Crane (*Grus antigone*) and Bengal Florican (*Houbaropsis bengalensis*). Royal Bardia National Park is a Learning Site for IUCN's Protected Area Learning Network (PALnet); and the Royal Suklaphanta Wildlife Reserve is a CITES (Convention on International Trade in Endangered Species of Wild Fauna & Flora) and MIKE (Monitoring of Illegally Killed Elephants) site for gathering information on wild elephants. There are also three RAMSAR Sites (Ghodaghodi Tal, Bishazari Tal and Jagdishpur Reservoir) and two World Heritage sites (Chitwan National Park and Lumbini, the birth place of Lord Buddha in the Terai).

Charismatic species are also found in Nepal's mountains. The Snow Leopard (*Uncia uncia*) is the top predator in the alpine and nival habitats of the Himalayas. It is seen as the flagship predator and a primary focal species for conservation planning, along with habitat specialists such as the Red Panda (*Ailurus fulgens*), Musk Deer (*Moschus chrysogaster*) and 13 species of pheasants. Other renowned mountain species include Tibetan Wolf (*Canis lupus chanco*), Blue Sheep (*Pseudois nayaur*), Himalayan Thar (*Hemitragus jemlahicus*) and Clouded Leopard (*Neofelis nebulosa*). All these species are now endangered or vulnerable due to hunting and habitat loss.

Source: partly based on Executive summary of Nepal National Biodiversity Strategy and Action Plan (MOFSC, 2013)

However, most of these protected areas are located either in the High Mountain or in the Terai region (Table 3.2.10). The Mid-hills region, which is richest in ecosystem diversity and forest, is inadequately represented within the PA system (MOFSC, 2013; MOFSC, 2002). This is considered as one of the policy gap in biodiversity conservation in Nepal.

Table 3.2.10: Representation of ecosystems in Nepal's protected area system (MOFSC, 2013)

Physiographic Zone	Protected Areas		Ecosystems	
	Number	Coverage (sq. km.) ⁹	Total	Covered by the PA
High Himal	10	20293.9 (71)	43 (36.4)	32 (27.1)
High Mountains	2	3430.0 (12)	52 (44.1)	33 (28.0)
Mid hills	1	285.8 (1)		
Siwaliks	4	2858.3 (10)	13 (11.0)	5 (4.2)

⁹(i) Most of protected areas extend over more than one physiographic zone. The allocation of number in the table is based on inclusion of the major part, (ii) the coverage is excluding the buffer zones.

Physiographic Zone	Protected Areas		Ecosystems	
	Number	Coverage (sq. km.) ⁹	Total	Covered by the PA
Terai	3	1715.0 (6)	10 (8.5)	10 (8.5)
Total	20	28583.0 (100)	118 (100)	80 (67.8)

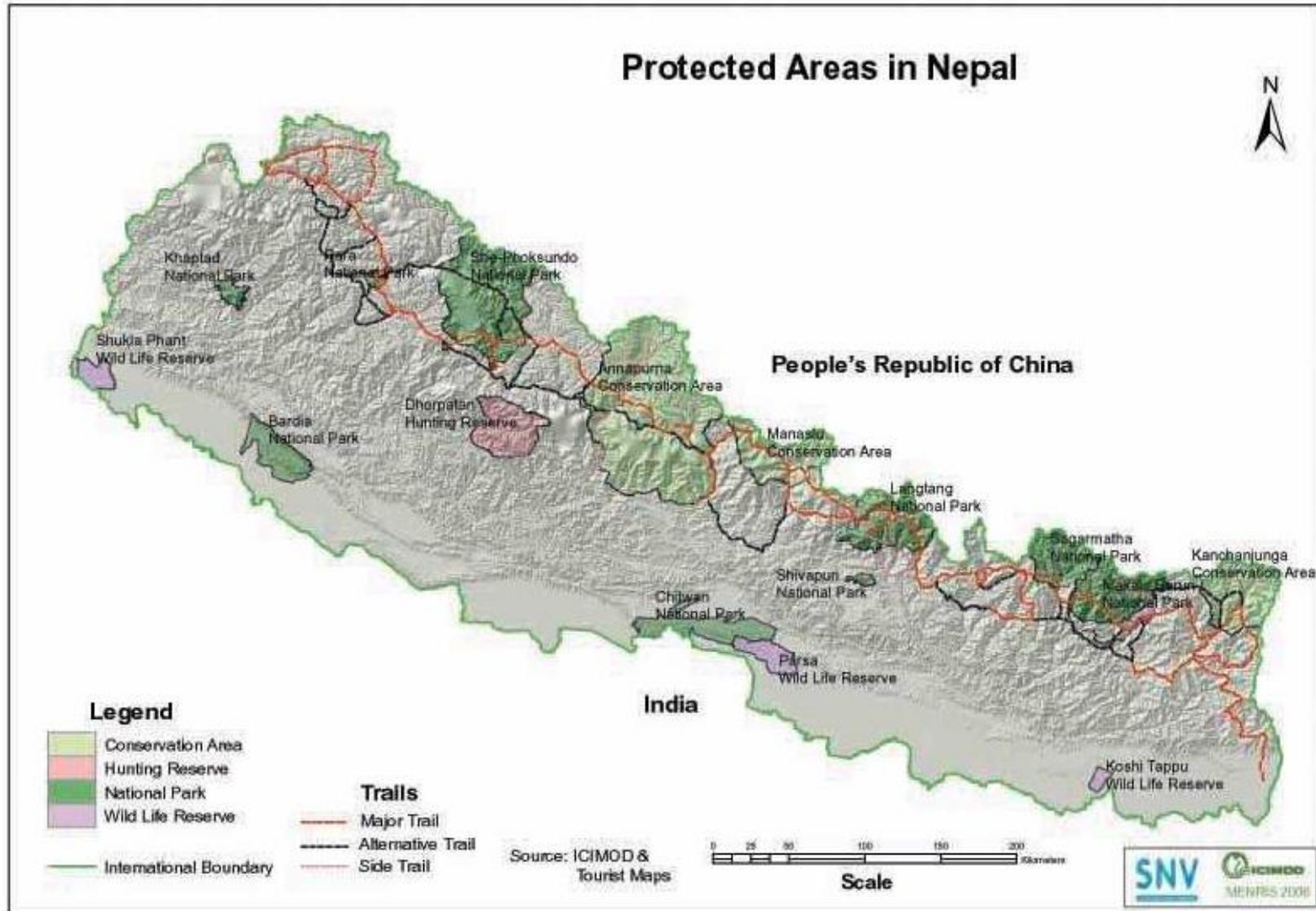
Source: Adapted from MFSC (2013a) and other sources. Figures in the parentheses refer to percentages.

The protected area covers only 30% of the forest area in the country (MOFSC, 2013). The rest are managed under different forest management regimes as national forests, community-based forest management, private forests etc. The primary orientation of these forest regimes is to produce timber with high commercial value or to promote fast-growing species that can support to fulfil needs of forest dependent communities. Less priority has been given to biodiversity conservation in government-managed forests.

Large blocks of forests in the Mid-hill region and in the mountainous regions are extended in many VDCs and beyond the administrative boundary of one district. Therefore, intra collaboration and coordination among the forest offices of different districts is necessary to manage these large blocks of forest, which is a major problem resulting in poor management. Furthermore, the Government does not have any specific program for management of these large blocks of forests (MOFSC, 2002).

Some natural forest ecosystems that have high conservation value remain without effective conservation system in place. Tinjure-Milke-Jaljale rhododendron area, located in Sankhuwasabha, Taplejung and Terathum districts, is rich in biodiversity consisting of 25 species of rhododendrons. Realizing its high significance for conservation, the Nepal Biodiversity Strategy Implementation Plan (2006-2010) identified the area as one of the priority sites. The Phulchoki-Chandragiri was another priority area identified in the Plan. However, these provisions of the plan were not implemented. Findings of past studies (e.g. Dinerstein, 1998) and consultations made during the NBSAP development process show that some biodiversity-rich forest areas and strategic corridors that deserve priority but remain without effective conservation arrangement include: (i) Sapta Koshi Gorge, (ii) Morang-Ilam Broadleaf Forests, (iii) Makalu-Barun southern extension, (iv) Rolwaling Valley, (v) Tinjure-Milke-Jaljale rhododendron area, (vi) Daman-Palung-Phulchoki-Chandragiri, (vii) Gaighat-Seti River-Panchase stretch.

Figure 3.2.10: Protected areas of Nepal



3.2.7.3 Pollution

Water pollution and river sedimentation

Two types of water pollution are observed in Nepal:

- *Discharge of effluents from settlements (particularly from large urban settlements) and industries.* There are almost no sewerage networks in Nepal. Only a small proportion of the population (15% of houses in Kathmandu Valley) are linked to a sewerage network. The effluents from urban areas are not treated prior to disposal into water bodies. But they are certainly rich in faecal coliforms (eg *E coli*,) which present a health hazard to anyone handling river water (both near discharge points and downstream). Furthermore, industrial establishments are mostly distributed in the Kathmandu valley and in the Terai along the East West Highway. Only a few industries have set up plants to treat waste water (see Table 3.2.11). The majority of industries dispose their effluent directly in the rivers. Both industrial and household effluents degrade water quality and affect aquatic ecosystems. The stretch of the Bagmati river that flows through the Kathmandu Valley is severely abused by effluent discharges and is considered a dead river. The BOD of the river can be as high as 20,846 Kg/ Day, too high for many aquatic species to exist. Downstream from Kathmandu the river flows through forested where people as well as cattle and wild animals may access the polluted waters. Further downstream, in the Terai, water is abstracted from the river for irrigation which may cause pollution to soils and crops, and possibly present a health hazard where used for domestic purposes. However less polluted tributaries may dilute pollution levels. It is not possible to state how serious a problem this might be due to a lack of data.

Table 3.2.11: Industries with waste water treatment plant in Nepal

Name of industry	Type of treatment
Colgate Palmolive	Primary treatment plant
Nepal Liver	Primary treatment plant
Shree Ram Sugar Industry	Anaerobic digester
Gorkha Brewery	Primary treatment plant
Surya Carpet Industry	Preliminary treatment
Narayai Leather	Chromium recovery unit and effluent plant
Everest Leather	Common effluent treatment
Bhrikuti Paper	Boiler wet scriber

- *Sedimentation of rivers.* The latter is an extensive and sediment loads in rivers are amongst the highest in the world. The main reason is the fragile geology and concentration of high precipitation during the monsoon period (Sangroula, NA). However, as discussed in section 7.1, deforestation and forest degradation aggravate slope instability and soil erosion leading to increased sedimentation load to the rivers.

Chemical use in agriculture

Agriculture in Nepal has strong ties and is closely integrated with the forestry sector. The majority of subsistence farmers gather a number of agricultural inputs from forests (eg organic matter for manure and fodder) and graze cattle in forests. On the other hand, in historical terms, agricultural expansion in Nepal resulted mainly from the conversion of forest land to cultivated land. The use of agricultural chemicals is increasing in Nepal: pesticide use in vegetable farming increased from 7.1% in 1991/92 to 16.1% in 2001/2002; and in cereal crop farming from 2.8% in 1991/92 to 4.2% in

2001/02 (CBS, 2006). Chemical pesticides are known to have deleterious effect on human health as well as in the environment in general. Miller (2004) reports that over 98% of sprayed insecticides and 95% of herbicides reached a destination other than their target, including forest species, air, water, sediments and food. Data on the extent and significance of the impacts on Nepal's forests in particular, and its environmental in general, is lacking, and needs research.

Indoor air pollution from fuel wood

Indoor air pollution is one of the major environmental and health issues that arise from the use of fuel wood for cooking purposes, particularly in the rural areas. Biomass is typically burnt in poorly ventilated kitchens generating a lot of smoke that engulfs houses. This smoke is a complex mixture of aerosols containing significant amounts of carbon monoxide, suspended particulate matter, hydrocarbons, and NO_x. A study by Lohani (2011) showed particulate matter (PM₁₀) concentrations of 8000 µg/m³ in rural kitchens. This compares with the national standard of 120 µg/m³ over a 24 hour period. Similarly, the concentration of total suspended particles (TSP) was about 8,800 µg/m³ compared to the national standard of 230 µg/m³, and the average concentration of carbon monoxide over an 8 hour average was 21 ppm of CO compared with the national standard of 9 ppm. Exposure to indoor air pollution carries severe health implications, particularly resulting in respiratory diseases. Another study by Jha (2007) has revealed that women who spend about 20% of their work time in indoor cooking- related activities (exposed to air pollution) have acute respiratory tract infections and chronic bronchitis. The prevalence of chronic bronchitis is highest in Jumla (29%) and lowest in urban areas of Kathmandu (8%).

3.2.7.4 Climate change

Carbon-intensive economic development and large-scale changes in land cover are major anthropogenic drivers of global climate change. The promotion and conservation of forests is recognized as a practical and cost-effective measure to sequester atmospheric Carbon to mitigate changing climate, and has stimulated the emergence of the REDD+ initiative internationally. However, forests themselves are vulnerable to changing climate. The average warming of annual temperature in Nepal was 0.06°C during 1977-1994. Nepal is expected to experience an alteration in its rainfall pattern, hydrological cycles and availability of water resources resulting in increased floods or depletion of water resources (MoFSC, NA). Under the changed scenario, changes in forests in terms of extent and distribution, health and species composition can be expected.

Global warming can have serious implication on forest protection since forest areas are considered an important natural sink of greenhouse gases (GHGs). Hence, emissions resulting from deforestation must be controlled. Though Nepal is not one of the major contributors of GHGs, the country itself is highly susceptible to the impacts resulting from climate change due to its fragile geography.

Some of the impacts of climate change reported by (MOFSC, 2013) are summarized below:

- The climate range of many species will to higher elevations in the Himalayas (towards the poles in the global context). Many species will migrate to more suitable areas. However, they will have to pass over natural and human made barriers and fragmented landscapes. Not all of the species will be able to migrate and thus will face the possibility of extinction.
- Many species that are already vulnerable are likely to become extinct, i.e. species with limited climatic range and/or with limited geographical opportunities (e.g. mountain top species), species with restricted habitat requirements, and/or those with a small population are typically the most vulnerable.
- Forest composition and structure can be expected to undergo changes. Changes in the frequency, intensity, extent and locations of climatically and non-climatically induced disturbances will affect how and at what rate the existing ecosystems will be replaced by new plant and animal assemblages.

Section 3.3. of the SESA report outlines the reality of climate change vulnerability and impacts in Nepal, and highlights some of the important linkages, issues and potential trade-offs when considering strategic options to achieve REDD+.

3.3 CLIMATE CHANGE ISSUES RELATED TO REDD+

3.3.1 Introduction

Nepal has been ranked as the fourth most vulnerable country to climate change worldwide and already feels the impacts in various sectors central to peoples' livelihoods and the national economy. Accordingly, Nepal has placed a high development priority on strengthening the adaptive capacity of communities in the face of climate change, while their engagement with international climate negotiations is also firmly framed around national and local adaptation needs. Meanwhile, Nepal accounts for low quantities of anthropogenic greenhouse gas emissions in both absolute and relative terms (e.g. per capita CO₂ emissions are less than half the global average).

At the same time, Nepal recognises the importance of a shared vision and responsibility in taking nationally appropriate mitigation and adaptation actions. Indeed, while the national priority is adaptation, mitigating the adverse impacts of climate change and the adoption of a low-carbon development path are also well articulated in the national climate change policy (CPEIR, 2011). Given the country's efforts in achieving forest protection, sustainable management and afforestation – with an emphasis on community participation – Nepal has recognised the opportunity to engage in climate change mitigation through REDD+ (while also enabling forests to meet local demands for forest products, contribute towards biodiversity conservation and environmental protection).

The high relevance of both adaptation and mitigation in Nepal requires attention to help ensure synergies in corresponding activities. Efforts to mitigate emissions enhance adaptive capacities and build resilience need to be mutually supportive and cognisant of national development priorities. There is also a need for approaches to encourage the revival of traditional practices and social norms backed by modern tools of management and governance.

Accordingly, this section outlines the reality of climate change vulnerability and impacts in Nepal, and to highlight some of the important linkages, issues and potential trade-offs when considering strategic options to achieve REDD+. It is well established within Nepal's climate change policy (Ministry of Environment, 2011) that climate impacts on various development sectors are interlinked and interdependent, and understanding the inter-linkages between climate change and various sectors will be important for building enhanced adaptation capabilities. Particular emphasis is placed on agriculture and energy given their relevance to climate change, forests and livelihoods. Below, three key elements are addressed:

- Main economic, social and environmental impacts of climate change, adaptation needs and strategies to enhance resilience;
- Extent of land use change and forest-related activities as drivers of climate change or influencers of vulnerability, and the underlying causes of deforestation and forest degradation; and
- Vulnerability of forests to the effects of climate change, both directly (changing environmental conditions based on available modelling) and indirectly (human-induced pressures).

The following issues are addressed in subsequent sections.

- Known and potential linkages (both positive and negative effects) between proposed REDD+ mitigation measures and sources of emissions from land use and land use change (e.g. forests, agriculture, biomass energy, manure management); and

- Potential for REDD+ activities to contribute to enhanced adaptation and reduced vulnerability, or need for any mitigation measures for REDD+ activities that may adversely affect the adaptive capacity of the most vulnerable people.

3.3.2 Impacts of climate change, adaptation needs and strategies to enhance resilience

3.3.2.1 Impacts

Variability and uncertainty

Nepal has a very large north-south variation in topography within a span of only around 200km, giving rise to quite different climatic regions¹⁰ and sensitivity to climate change, particularly the hills/mountains and the Himalayas (Baidya *et al.*, 2008). Topographical diversity means that there is likely to be considerable local variation in response to global warming, particularly precipitation (Christensen *et al.*, 2007). However, it is important to note that topographical variability also gives rise to uncertainty in predicting impacts. Recent work focusing on Himalayan glaciers has highlighted the speculative nature of climate projections, given the poor understanding of the processes affecting glaciers and the diversity of climatic conditions and extremes of topographical relief within the region (Bolch *et al.*, 2012).

Changes in climatic conditions

There are some differences in opinion about the changes in Nepal's climatic conditions although more agreement regarding temperature increases. Observed changes in extreme climatic conditions in Nepal include a general increasing trend in both temperature extremes between 1971 and 2006 (with higher magnitude in the mountainous region) as well as total and heavy precipitation events between 1961 and 2006 (Baidya *et al.*, 2008). The National Adaptation Programme of Action to Climate Change (NAPA)¹¹ concurs with the observed increase in temperature, but observes a lack of significant trends in precipitation data (although noting that Nepal has experienced considerable damage as a result of Himalayan glacier melt and retreat) (Ministry of Environment, 2010). Similar conclusions are found more broadly; while temperature appears to be increasing in the Himalayas at three times the global average, precipitation trends are more ambiguous (Christensen *et al.*, 2007; Shrestha and Devkota, 2010; Xu *et al.*, 2009).

Nepali farmers across the country claim that the vagaries in weather patterns are growing more and more pronounced (NCVST, 2009). The NAPA reports that local communities perceive an increase in temperature, an upward shift in agro-ecological zones, changes in precipitation (timing, intensity, duration), shifts in wind, frost and dew patterns, and increased frequency of extreme events (Ministry of Environment, 2010).

Future projections

Rapid temperature increases are expected in Nepal (faster than the average global rate of warming), with winters characterised by relatively high temperatures and low rainfall, and more frequent extreme weather events). With specific reference to forests, NCVST (2009) predict an increased incidence of forest fires as a result of rising temperatures and more erratic climate, resulting in reduced residual energy available in forests for use by local communities.

¹⁰ Nepal's highly variable topography gives rise to variable temperature and rainfall patterns, ranging from the warm and humid sub-tropical climate of the lowlands to considerably colder high altitude mountainous regions.

¹¹ The NAPA is set within the national development objectives that have an overriding goal to reduce poverty and are articulated within National Five-Year Plans (e.g. Tenth Plan, 2002-2007) and Three-Year Interim Plans (e.g. 2007-2010, 2011-2014). Local Adaptation Plans for Action (LAPA) aim to mainstream climate change adaptation into the planning process. By December 2012, there were 3000 community adaptation plans developed in Nepal.

Vulnerability

Nepal is one of the most vulnerable countries to impacts from climate change due to complex topography and low level of development (Ministry of Environment, 2010; CPEIR, 2011). The erratic weather patterns, unpredictable rains, periodically low snowfall at high altitudes, and recurrent droughts have adversely affected agriculture and livelihoods, adding further strain to small farmers and poor people (CPEIR, 2011). The highest vulnerability is in the Mid and Far Western Regions where high levels of poverty prevail along with heavy reliance on small scale agriculture (Ministry of Environment, 2010). The NAPA notes that national development is being severely affected by lack of access to energy, with over 85% of the population relying on traditional biomass sources, while increased incidence of forest fires threatens the availability of already scarce fuel wood sources.

The NAPA identifies six major subjects that are affected by climate change (and the nature of impacts – in brackets below) (Ministry of Environment, 2010):

- **Agriculture and food security** (crop and livestock production);
- **Water resources and energy** (agricultural productivity, human health, sanitation, human settlements, infrastructure and renewable energy);
- **Climate-induced disasters** (flooding, landslides, droughts);
- **Forests and biodiversity** (shifts in agro-ecological zones, incidence of disease, pests, alien/invasive species and forest fires, deteriorating status of forest ecosystems and biodiversity);
- **Public health** (spread of vector-borne and water-borne infectious diseases); and
- **Urban settlement and infrastructure** (impact of climate-related disasters and climate-induced rural-urban migration).

Adaptation needs

Nepal's forests are recognised for their ability to help in simultaneously reducing the adverse impact of climate change, reducing poverty and supporting economic development (Ministry of Environment, 2010). Out of the six above-mentioned subject areas impacted by climate change, four are strongly linked to forests, with the following adaptation priorities identified by the NAPA:

- **Agriculture and food security**
 - Increasing access to irrigation; alternative crop varieties; adoption of organic farming practices; community-based, on-farm water management; farmer cooperatives; improving access to seeds, technology and market; increasing agro-ecological resilience and crop productivity enhancement; and improving conventional cropping practices. Adaptation priorities exist within the broader context of sustainable agriculture land use system, agro-biodiversity management, and governance mechanisms.
- **Water resources and energy**
 - Ensuring availability of acceptable quantity and quality (for health, agriculture and livelihoods) and a reliable and sustainable supply of water (energy); more accessible information technology; stronger/adaptable institutions; natural and man-made infrastructure to store, transport and treat water, and to maintain the energy production base; and expansion and integration of transmission and distribution networks.
- **Climate-induced disasters**
 - Land use regulation; building construction codes; public awareness; early warning; embankments, dams and spurs; conservation farming (rainwater harvesting and soil moisture retention); flood mitigation (embankments, planting, slope management); disaster risk reduction (strengthen resilience, diversifying livelihoods, planning, providing insurance, and early warning). Urgent priority through community-led initiatives.

- **Forests and biodiversity**

- Sustainable forest management and ecosystem restoration; watershed and landscape level planning; improved governance and capacity at local levels; empowering local communities and service providers; and supporting adaptation priorities of the most vulnerable through improved access and benefit sharing.

Moreover, in order to face the challenge of adapting to climate change, poor communities require: (a) *adaptive capacity* (incorporating climate change into community-based development and improving the availability of appropriate information and skills, effective institutions, access to technology and opportunities to raise incomes); and (b) *reduced vulnerability* (protection of existing assets, improved risk management, increased assets and broadening the available range of livelihood options).

Strategies to enhance resilience

The diverse nature of climate threats facing communities across Nepal requires location-specific understanding of the problem in order to plan appropriate responses.

The NAPA prioritises nine adaptation options, each of which comprises numerous priority activities (areas of notable linkages with forests are highlighted in bold italics):

- *Promoting community-based adaptation to climate change through integrated watershed management of agriculture, water, forest and biodiversity sector*
 - Integrated watershed management, ***on-farm soil and water conservation***, flood management, ***conservation of natural and social heritage in mountains, sustainable forest and resource management***;
- *Building and enhancing adaptive capacity of vulnerable communities through improved agricultural systems and access to service related to agricultural development*
 - ***Access to agricultural services, technology and practices***, improved production and marketing systems, strengthened highland-lowland linkages, underground water management, ***improved crop varieties and animal breeds***;
- *Community-based disaster management for facilitating climate adaptation*;
 - Capacity building, water retaining structures, drinking water supply schemes;
- *Glacial lake outburst flood (GLOF) monitoring and disaster risk reduction*;
 - Early warning, mapping;
- *Forest and ecosystem management for supporting climate led adaptation innovations*
 - ***Managing trees outside forests - agroforestry, fuel wood plantations, scaling up biomass energy technologies, strengthening local level forest institutions, community fire management, implementing adaptation priorities of LFUGs, facilitating market linkages and voluntary carbon financing***
- *Adapting to climate changes in public health*
- *Ecosystem management for climate adaptation*
 - ***Pasture and rangeland management, implementation of forest management plans, medicinal plant/NTFP conservation and management***, integrated wetland management, maintaining biological corridors, ***ecotourism promotion***
- *Empowering vulnerable communities through sustainable management of water resource and clean energy supply*
 - Conserving water supply sources, rainwater harvesting, urban groundwater monitoring, micro-hydropower, multi-use water mills

- *Promoting climate smart urban settlement*

Education

Recent analysis of damage due to floods and landslides across all major physiographic regions in Nepal suggests that education had a significant effect on lowering the number of human and animal deaths as well as the number of households otherwise affected (Samir, 2013). The results suggest that investing more in education is a higher policy priority for reducing household vulnerability than strengthening the economic aspects of livelihoods (income/wealth). Samir (op. cit.) infers that education could reduce damage and losses by increasing individual awareness regarding different aspects of floods and landslides, enabling diversification of household income to reduce vulnerability during disaster, and strengthening community-level institutions and leadership.

3.3.2.2 *Extent of land use change and the underlying causes of deforestation and forest degradation*

Extent of land use change

According to Nepal's Initial National Communication¹² on climate change to UNFCCC, estimated greenhouse gas emissions from Nepal in 1994/95 were equivalent to 0.025% of global annual greenhouse gas emissions (Ministry of Population and Environment, 2004; Ministry of Environment, Science and Technology, 2008). Total CO₂ emissions from land-use change and forestry in 1994/95 were 22,895 Gg, out of which 14,738 Gg were sequestered due to biomass growth.

Deforestation is a major source of CO₂ emissions in Nepal. Over the ten-year period between 1991 and 2001, there was a reduction of around 34 million tonnes of carbon stocks from Nepal's forests, equivalent to 125 million tonnes of CO₂ (although actual amount expected to be higher since this estimate does not include biomass growth or loss of soil carbon owing to soil erosion from the land surface) (Joshi *et al.*, 2010).

Underlying causes of deforestation and forest degradation

Section 4 analyses the main proximate drivers (i.e. most immediately visible drivers) of deforestation and forest degradation, and their underlying causes. In summary these drivers are:

- High dependency on forest and forest products (timber, firewood and other non-timber forest products (NTFPs));
- Illegal harvesting of forest products;
- Unsustainable harvesting practices;
- Forest fires;
- Encroachment into forests;
- Overgrazing in forests;
- Infrastructure development in forest areas and nearby centres;
- Resettlement; and
- Expansion of invasive species into forests.

Underlying causes include: economic influences; policy, institutional and governance issues; socio-political dynamics; demographic and technological aspects.

It is important to note that the linkages between forests, agriculture and energy go beyond their role as among the main drivers of deforestation in Nepal. With two-thirds of the population having

¹² This Initial National Communication sets out Nepal's obligatory contribution to international efforts to address climate change issues, providing an overview of National Circumstances that influence Nepal's capacity to respond to the problem, describes the greenhouse gas emissions inventory and mitigation options, and discusses developments with regard to vulnerability/impact and adaptation issues, policies and measures taken, and the areas where Nepal still lacks the capacity to address Climate Change problems.

agriculture-based livelihoods, and some of the most serious effects of climate change affecting farming systems, this section examines the links between climate change, agriculture and REDD+. In terms of energy, forests are relevant from a climate change perspective as they produce wood fuels as an alternative to other renewable energy sources and to inaccessible fossil fuels. Moreover, wood from forests is the overwhelming source of cooking fuel for rural and urban poor Nepalese households.

3.3.2.3 Vulnerability of forests to the effects of climate change

Evidence from Himalayas

Shifts in treelines and the loss and fragmentation of habitats are among the effects of climate change. Some studies have shown a distinct correlation between the treeline and climate (Körner, 1998; Körner and Paulsen, 2004). A shifting treeline as a result of climate change has already been observed in the Himalayas, resulting in loss of around 30% of snow leopard habitat and associated increases in human-wildlife interactions (Forrest *et al.*, 2012).

Projections by the International Panel on Climate Change (IPCC) suggest that, when compared to 1980-1999, annual precipitation and average annual temperature in South Asia and Tibet will increase by 3-4 degrees Celsius by 2080-2099 (Christensen *et al.*, 2007), and, as a result, it is likely that forests will continue to ascend into alpine areas (Forrest *et al.*, 2012). The IPCC's projections under its high emission scenario, indicate that about 30% of snow leopard habitat will be vulnerable to change along the Himalayas, with the number of large snow leopard habitat blocks ($\geq 1500\text{km}^2$) fragmenting from 9 to 15 leading to habitat isolation.

Evidence in Nepal

Nepal's Initial National Communication on climate change to UNFCCC reported that a change in Nepal's forest composition is anticipated, with tropical wet forest and warm temperate rain forest disappearing and rain forest emerging in the tropical and subtropical regions (Ministry of Population and Environment, 2004). Local communities also report that snowline trees like Birch (*Betula utilis*), Yew (*Taxus baccata*) and Cedar (*Cedrus deodara*) have become highly vulnerable to other species competing for space (Ministry of Forests and Soil Conservation, 2011).

While there have not been any long-term scientific studies, there is some evidence of plants that are common at lower altitudes, where temperatures are higher, now growing at higher altitudes (Ministry of Forests and Soil Conservation, 2011). Many foresters and community forest user groups in high altitude districts (e.g. Dolpa, Jumla, Mugu, Humla) have reported a declining abundance of high altitude herbs.

Another notable impact of climate change on forests is the rising incidence of fire caused by increased dryness during prolonged winter dry spells (with high vulnerability of tree species in mid-hills including Banjh (*Quercus lanata*), Kharsu (*Quercus semicarpifolia*), Katus (*Castenopsis indica*), Champ (*Michelia champaca*) and Utis (*Alnus nepalensis*)). For example, severe drought during late 2008 and early 2009 resulted in massive forest fires in Kanchenjunga Conservation Area during the late spring which destroyed thousands of tonnes of forest biomass and associated biodiversity (in addition to loss of life). The possibility of climate-induced reduction in winter rain may increase the frequency and magnitude of such forest fire events in future (Ministry of Forests and Soil Conservation, 2011).

Other impacts of climate change (e.g. less snowfall, untimely rain, increased dryness) on forest ecosystems include (Ministry of Environment, 2010; Ministry of Forests and Soil Conservation, 2011):

- physical disturbance from erratic rain, landslides and erosion (in particular affecting high altitude fringe forests close to roads, streams, villages, agricultural lands);
- altered natural life cycles (e.g. potential changes in the flowering and fruiting behaviour of plants, which would have knock-on effects on the food chain);

- encroachment (and colonisation) by invasive species;
- increased prevalence of disease and pests (e.g. stem borer and fungus); and
- degradation of species diversity.

Spatial differences in vulnerability

The vulnerability of ecosystems, wildlife and plants varies across agro-ecological zones (Ministry of Forests and Soil Conservation, 2011):

- *Terai and Mid-hills:*
 - Impacts on ecosystems – from siltation and flooding to increased dryness in forests and reduction in water bodies (and increased landslides in mid-hills specifically);
 - Impact on wildlife - reduced local and migratory birds, wild animals and changes in their habitat and food availability; and
 - Impact on plants - diseases and insects in trees and plants, reduction in tree species, herbs and NTFPs, early flowering and fruiting, and an increase in invasive species.
- *High Altitude*
 - Impact on ecosystem – landslides, less snow but more water in precipitation;
 - Impact on wildlife - overlapping range of low altitude animals like leopard; and
 - Impact on plants - biodiversity loss, habitat change, shifting of tree line, disease.

3.3.3 Capacity, coordination and institutional challenges

A number of considerations arise from experience of responding to climate change at local levels in Nepal, particularly in relation to adaptation planning and implementation (CPEIR, 2011; Baral, 2013):

- Climate change struggles to compete for attention in a very crowded policy space given the on-going constitutional transition, making it difficult to mainstream climate change into other sectors;
- Understanding of climate change at local government level is skewed towards environment and natural resource management; and although there is a good understanding of disaster risk management at the local level, its link to climate change has not yet been sufficiently made by local government and mainstreamed into decision-making;
- Limited local capacity to deliver and spend adaptation finance due to limited understanding of climate change, limited ability to develop clear and targeted programmes and budgets on climate change adaptation and mitigation, limited public financial management capacity, and weak effectiveness of current institutional arrangements to support all tiers of local bodies;
- Lack of coordination between central and local government levels, and institutional collaboration challenges (e.g. lack of working relationship between the Ministry of Irrigation and the Department of Watershed Management in the Ministry of Forests and Soil Conservation);
- Existing institutional structure does not support village-level climate programmes. There is a need to strengthen the role of the Energy and Environment Units within District Development Committees;
- Gap in national support for Clean Development Mechanism projects in the agriculture, livestock and forestry sectors; and
- The influence of political parties at local level and lack of accountability of local government bodies, largely due to the absence of local elections since 2007. This has resulted in heavy influence by local politicians on annual projects and government project disbursements.

3.3.4 Climate change and REDD+ strategic options

Chapter 4 describes the strategic options for REDD+ elaborated for the purposes of conducting this SESA. Following this, Section 5 considers the impacts of implementing these options (both positive and negative). It also discusses the linkages between proposed REDD+ mitigation measures and land use sources of emissions and their significant positive and negative effects. Furthermore, it addresses the synergies between REDD+ strategies and climate adaptation options, and mitigation measures for REDD+ activities that may adversely affect the adaptive capacity of the most vulnerable people.

3.4 SOCIAL AND GENDER SITUATION IN THE FORESTRY SECTOR

3.4.1 Introduction

This section provides a basic social profile of Nepal, as a background for addressing social issues in the forest sector. It particularly considers the social and gender dimensions of forestry sector. Nepalese are by and large forest dependent people. Traditional users of forests have a long and historical relationship with forests in their localities. Forests can have religious, cultural as well as economic values for Nepalese people.

The management interests and priorities of people with regard to forest and other natural resources will vary depending on various factors, including:

- where they live (i.e., in the mountains, hills or Terai, and urban or rural settings);
- what livelihood strategies they have adopted (farming, pastoralism, forest product based enterprises, etc.);
- the level of exposure and skills (illiterate, literate to highly educated);
- their level of well-being (landless, poor, rich, etc.); and
- their caste/ethnic groups (125 are listed in the 2011 census report) and belief systems (from animism to nature worship and one or the other religions).

In this context this section reviews the relationship of forest dependent communities and disadvantaged groups (such as poor, indigenous people (IPs), dalits and women) to forests - from ethnic, historical, cultural and economic perspectives. It also analyses their attachments to forests in terms of livelihoods and poverty, and rights, access and use of forest resources. The section maps and describes forest dwelling indigenous people; discusses formal and informal institutions for forest management; addresses forest-related conflict issues that arise between various actors, and considers the contribution of the forestry sector to the social development of communities. Furthermore, a brief analysis of the social outcomes of REDD+ pilot projects is provided, together with a summary of the views, concerns and recommendations of forest dependent communities and disadvantaged groups regarding the REDD+ programme collected during SESA team's field visit.

3.4.2 Brief social profile of Nepal

According to 2011 census, Nepal's population grew from 9 million people in 1950 to 26.5 million in 2011. At the time of the 1981 census, the population was 15 million and the average family was made up of 5.8 persons. The population was 23 million in 2001 with a subsequent family size decline from 5.44 to 4.9 from 2001–2011. The absentee population in 2011 was some 1.9 million, over a million more than in 2001, most being male workers. This correlated with the drop in sex ratio from 94.41 as compared to 99.80 for 2001. The annual population growth rate is 1.35%. Population structure is shown in Table 3.4.1. Kathmandu, with a population of over 2.6 million (metropolitan area: 5 million), is the largest city in the country

According to the *World Refugee Survey 2008*, published by the US Committee for Refugees and Immigrants, Nepal hosted 130,000 refugees and asylum seekers in 2007. Of this population, approximately 109,200 were from Bhutan and 20,500 from the People's Republic of China. The government restricted ethnic Nepalese expelled from Bhutan to seven camps in the Jhapa and

Morang districts, and refugees were not permitted to work in most professions. At present, the United States is working towards resettling more than 60,000 of these refugees in the US.

The Nepalese are descendants of three major migrations from India, Tibet, and North Burma and the Chinese province of Yunnan via Assam. Even though Indo-Nepalese migrants were latecomers to Nepal relative to the migrants from the north, they have come to dominate the country not only numerically, but also socially, politically, and economically.

Table 3.4.1: Population structure

Data	Size
Population	26,494,504 (2011)
Growth rate	1.35%
Population below 14 years old	34.19%
Population above 60	8.13%
The median age (average)	20.07
The median age (male)	19.91
The median age (female)	20.24
Ratio male:female	100:94.16
Life expectancy (average)	66.16 yrs
Life expectancy (male)	64.94
Life expectancy (female)	67.44
Literacy rate (average)	65.9%
Literacy rate (male)	75.1%
Literacy rate (female)	57.4%

The 2011 census records that Nepal has 125 caste and ethnic groups, compared to 101 and 61 such groups listed, respectively, by the 2001 and 1991 censuses. The rise in the number is perhaps related to the increased concern and awareness about distinctiveness in cultural identity by various groups of people in the country. Major caste and ethnic groups and the proportion of their populations for selected census periods are presented in Table 3.4.2. A number of groups in Nepal are regarded as being vulnerable to marginalisation (Box 3.4.1).

Table 3.4.2 Percentage of Population by Caste/Ethnic Groups in Nepal (selected census years)

Caste/Ethnic Group	1991	2001	2011
Chhetri	16.05	15.80	16.6
Brahman-Hill	12.92	12.74	12.2
Magar	7.24	7.14	7.1
Tharu	6.46	6.75	6.6
Tamang	5.50	5.64	5.8
Newar	5.63	5.48	5.0

Caste/Ethnic Group	1991	2001	2011
Muslim	3.53	4.27	4.4
Kami	5.21	3.94	4.8
Yadav	4.14	3.94	4.0
Rai	2.84	2.79	2.3
Gurung	2.43	2.39	*
Damai	1.99	1.72	*
Limbu	1.61	1.58	*
Thakuri	1.62	1.47	*
Sarki	1.50	1.40	*
Teli	1.35	1.34	*
Chamar	1.10	1.19	*
Koiri	NA	1.11	*
Others	NA	19.32	*

Source: CBS, 1995; 2002. Note: *Not yet calculated in the available 2011 Census reports

Box 3.4.1: Vulnerable and marginalised groups in Nepal

Adibasi/Janajati Groups

The Adibasi/Janajati groups are defined as social groups with a social and cultural identity distinct from the dominant society. The National Foundation for Upliftment of Adivasi/Janajati Act, 2058 (2002) defines those ethnic groups and communities who have their own mother language and traditional rites and customs, distinct cultural identity, distinct social structure and written or unwritten history. The Act recognizes 59 indigenous communities in Nepal, known as Adivasi/Janajati (Indigenous Nationalities). As a whole, these groups are generally considered to be the marginalized segment of the population who engage in economic activities ranging from hunting/gathering and shifting agriculture in or near forests to wage labourers or even small-scale market oriented activities.

However, Adibasi/janajati among themselves are diverse groups who do not all come under one economic system. There are disparities among different Adivasi Janajati groups in Nepal. While Adivasi Janajati groups such as Rautes are still engaged in hunting and collecting food, Chepangs and Kusundas practice slash and burn, shifting cultivation and depend mainly on natural resources. On the other hand, Newars, Thakalis and Gurungs are more exposed to modern ways and are involved in foreign employment, government and nongovernment services, industry and commerce. The Nepal Federation of Indigenous Nationalities (Adivasi Janajati) (NEFIN) is an umbrella organization of Adivasi Janajati groups. It has classified these groups into five categories. Of the total 59 Adivasi Janajati groups, 10 groups are categorized as "endangered", 12 as "highly marginalized", 20 as "marginalized", 15 as "disadvantaged" and 2 as "advanced" or better off on the basis of a composite index consisting of literacy, housing, land holdings, occupation, language, education, and population size. The first and second category of the Adivasi Janajati groups seems more vulnerable from an involuntary resettlement perspective.

Dalits

Dalits are defined as those castes of people of Nepal who were categorized as 'untouchables' in the Old Civil Code of 1853 that prevailed until the promulgation of the New Civil Code of 1962.

However, in Nepal, the word *Dalit* has generally come to mean a 'community or a person who suffers from caste discrimination and belongs to the bottom of the caste hierarchy'. *Dalits*, who have been placed at the very bottom of the Hindu discriminatory caste hierarchy, comprise 13% of the total population (CBS, 2001). They do not have a geographical centre or 'traditional homeland' where they are numerically predominant. Instead, they are scattered throughout Nepal and are not homogenous. They can be divided in three broad regional groups: i) those in the hill areas; ii) those in the *Newari* community; and iii) those in the *Terai* areas. The practice of untouchability is more severe amongst the *Madhesi* community in the *Terai* and in the hills of the Mid-Western and Far-Western Development Regions of Nepal. The National Dalit Commission (2003) identified 27 *Dalit* castes in Nepal.

As the Dalit communities remain marginalized from the State's economic and social services and political opportunities, the living conditions and human development indicators of Dalits are far below the national average. Poverty is rampant among Dalits and they are far more vulnerable to the prevailing economic, social, political and educational conditions in comparison to other excluded communities. The poverty index for Dalits is 47% compared to the national average of 31%. In total, 44% of Dalits in the Terai are landless and 44.6% of those in the hills are marginalized farmers (owning 0.18 to 0.40 ha. of land). On most socio-economic indicators, the Terai Dalits fare worse than the hill Dalits. Altogether, Dalits own just 1% of Nepal's arable land, while only 3% of Dalits own more than a hectare of land.

Women and others as Vulnerable Group

Though women comprise half of the total population, gender discrimination still prevails in the society. The status of women with regards to their access to knowledge, economic resources, political power, and personal autonomy in decision-making is quite low. Daughters lose rights over parental property after marriage. Despite the high average work burden of women, which at 16 hours a day is much higher than the global average (Nepal Human Development Report, 2004), women still lack access to and control over productive resources. Only 10% of women own land while just 5.5% own a house of their own (CBS, 2004). Women in all social groups and regions have been proven as more disadvantaged than their male counterparts, Widows, separated and divorced women, and women-headed households are particularly vulnerable. Similarly, due to their limited access to economic resources and livelihood options, women in all groups can equally be classified as vulnerable when they permanently face severe poverty. Elderly people, children and the individuals less able to care for themselves are also vulnerable.

Nepal's population is also heterogeneous in terms of cultural and religious beliefs. Table 3.4.3 lists the proportion of the population following different religions, according to periodic censuses. Hinduism is dominant (currently practiced 81.34% of Nepalis) whilst Buddhism (9.04%) is linked historically with the country. The proportion of followers of some of these faiths has fluctuated in every census period. The proportion of Hindus has fluctuated between 80 and 89 percent during the past six decades. Buddhism has remained the second most popular faith. The followers of Islam and Christianity seem to have steadily increased since the 1990s. Kirat was not listed as a separate religion until 1981, but it is now the fourth largest.

Table 3.4.3: Population Distribution by Religion for Nepal, 1971-2001

Religion	1961	1971	1981	1991	2001	2011
Hindu	87.69	89.39	89.50	86.51	80.62	81.34
Buddhist	9.25	7.50	5.32	7.78	10.74	9.04
Islam	2.98	3.04	2.66	3.53	4.20	4.39

Religion	1961	1971	1981	1991	2001	2011
Kirat				1.72	3.60	3.05
Jain				0.00	0.00	NA
Christian		0.02	0.03	0.17	0.45	1.42
Sikh				0.00	0.00	NA
Bahai				0.00	0.00	NA
Others	0.07	0.05	2.49	0.29	0.04	0.76

Source: CBS 1995; 2002, Preliminary report: 2011 Census.

Public health and health care services in Nepal are provided by both the public and private sector but are poor by international standards. According to 2011 census, more than one third (38.17%) of total households do not have toilet in their houses. Tap/piped water is the main source of drinking water for 47.78% of households, and tube wells/hand pumps for another 35% , while spout, uncovered and covered well/kuwa are the main source for 5.74%, 4.71% and 2.45% respectively. Based on 2010 World Health Organization (WHO) data, Nepal ranked 139 in life expectancy at birth in 2010 with the average Nepalese living to 65.8 years.

The prevalence of disease is higher in Nepal than in other South Asian countries, especially in rural areas. Leading diseases and illnesses include diarrhoea, gastrointestinal disorders, goiter, intestinal parasites, leprosy, visceral leishmaniasis and tuberculosis. In 2011, according to National Centre for AIDS and STD Control¹³, about 3 out of 1,000 adults aged 15 to 49 had human immunodeficiency virus (HIV), and the HIV prevalence rate was 0.5%. Malnutrition also remains very high: about 47% of children under 5 are stunted, 15% wasted, and 36% underweight, and although there has been a declining trend for these rates over the past five years, they remain alarmingly high. In spite of these figures, some improvements in health care have been made; most notable is the significant progress in maternal-child health. Overall, Nepal's HDI for health was 0.77 in 2011, ranking it 126 out of 194 countries, up from 0.444 in 1980.

A 2010 survey estimated about 46,000 hard drug users in the country, with 70% of the users to be within the age group 15 to 29. The same survey also reported that 19% of users had been introduced to hard drugs when they were less than 15 years old, and 14.4% of drug users were attending school or college. Only 12 of the 17 municipalities studied had any type of rehabilitation centre. There has been a sharp increase in the seizure of drugs such as hashish, heroin and opium in the past few years; and there are indications that drug trafficker are trying to establish Nepal as a transit point.

Human trafficking is a major problem in Nepal. Nepali victims are trafficked within Nepal, to India, the Middle East, and other areas such as Malaysia and forced to become prostitutes, domestic servants, beggars, factory workers, mine workers, circus performers, child soldiers (during the armed conflict), and others. Sex trafficking is particularly rampant within Nepal and to India, with as many as 5,000 to 10,000 women and girls trafficked to India alone each year.

Nepal has a very diverse socio-cultural and natural landscape. About 1.6 million people (just over 6% of the country's total population) currently live in the harsh northern mountain environment of high peaks, hills, valleys and glacier lakes. Here people combine agriculture, animal husbandry and small-scale trade as a livelihood strategy. 43% of the population lives in the mid-hills zone where terrace farming and livestock raising are the predominant livelihood strategies. The remaining 50% of Nepal's total population) lives in the terai plains. Dependence on forests for sustaining livelihoods is

¹³ <http://www.unaids.org/en/dataanalysis/knownyourresponse/countryprogressreports/2012countries/ce NP Narrative Report.pdf>

high among people in the mid hills, but only while it is moderately so for the farmers living in the mountains and terai belts. As shown in Table 3.4.4, there is still a high level of poverty in Nepal, particularly in rural areas, although it has fallen over the last two decades

Table 3.4.4: Living Standard: Proportion of Population below Poverty Line

	1995/96	2003/04	2010/11
Nepal	41.8	30.9	25.2
Urban	21.6	9.6	15.5
Rural	43.3	34.6	27.4

Source: NLSS reports.

3.4.3 Key Issues with particular reference to the forest sector

A key social issue is the relationship between people and forests which is manifested in various ways:

- Forest areas are the base of the livelihoods of people who have adopted agriculture and livestock-raising as their primary livelihood strategy. Given this, the way they interact with forests has a major influence on their level of poverty.
- Forest-dependent communities face considerable issues concerning their rights to access forest areas and use forest resources.
- Both formal and informal social institutions have been established for forest management;
- There are numerous examples of social conflicts that are related to forest-based issues;
- The forestry sector plays a key role in the social development of communities.

In addressing this people-forest relationship, the status of people – whether they are indigenous or come from a particular caste or ethnic group, and gender concerns - are key crosscutting issues.

3.4.3.1 Livelihoods and poverty

Nepal is well known for its progressive forest policy and innovative implementation models, particularly community-based forest resources management or participatory forestry arrangements. These take the form of Users Groups with rights to manage Community Forests, Leasehold Forests, Buffer Zone Forests, and arrangements for Conservation Area management and Collaborative Forest management. Under these arrangements, communities enjoy usufruct and management rights as prescribed under legislation, policies and guidelines¹⁴. The implementation modalities of each of these models of participatory forest management vary at the local level. So, the extent to which each arrangement engages women, Dalits and disadvantaged groups in forest management activities (e.g., decision making) also vary. Similarly, the costs and benefits are not necessarily shared equitably within Users Groups. For example, with regard to Buffer Zone (BZ) Users Groups, research by Paudel, Budhathoki and Sharma (2007:50) comment that *“the program has largely failed to benefit the poor and marginalized. The indigenous people, dalits, the poor and women are inadequately represented in the BZ institutions”*. There is usually a lack of equity in sharing the costs and benefits within User Groups in participatory forestry. Chhetri (2004:18) argued that *“differentially permeated benefits of forestry programmes may not only raise questions about*

¹⁴See Forest Act 1993; Forestry Rules 1995 and Operational Guidelines, 2008.

addressing equity and poverty but could also have implications for achieving the goals of conservation and sustainable development in Nepal”.

In Nepal, there are about 18,000 Community Forest Users Groups and about 3000 Leasehold Forest Users Groups, with numerous Buffer Zone Users Groups around most of the national parks and Conservation and Management Committees for Conservation Areas.

In community forestry, Community Forest User Groups (CFUGs) are allowed to keep 100% of the revenue generated from the sale and distribution of forest products from their particular forests (with the exception of income from the sale of *Shorea robusta* and *Acacia catechu* timber). Similarly, in Buffer Zones, local communities are entitled to receive 30 to 50% of the revenue generated by their adjacent protected areas or parks. According to a study by Kanel (2004), in the year 2002, the total annual income of CFUGs in the country from various sources (eg sale of forest products, external grants, fines, membership fees, and entrance fees) was Rs. 913,809,327. Kanel also looked at expenditure patterns and found that CFUGs were spending more than 28% of their income on forest protection and management and about 36% on community development (school support, road construction and other infrastructures), while only 3% was spent on pro-poor programmes. The latter was far below the 35% stipulated by the current policy. This data illustrates a failure to implement policy.

Research shows that forestry, in general, and community forestry, in particular, makes a significant contribution to increasing the natural, social, human, financial and, to some extent, the physical capital of community forest users; and contributes significantly to poverty reduction (Chapagain and Banjade, 2009; Dhungana *et al*, 2007; Kafle, 2009; Pokharel, 2002):

- Users are empowered through the ownership of natural capital (forest resources);
- Social capital is gained and strengthened through social cohesion, especially through the social inclusion of the poor, powerless and disadvantaged people;
- Human capital is built through awareness-raising, knowledge and skill development in natural resources management, organizational management, community development and networking;
- Financial capital is established in the User Group Fund, which is used for providing income generating (IG) credit to the poor, scholarships to students from poor families, and community infrastructure development;
- Physical capital formation as a result of financial capital, eg roads, school buildings, bridges, health posts, drinking water supply, irrigation canal, rural electrification, improved stoves/biogas, etc.

The Livelihood and Forest Programme (LFP), funded by DFID¹⁵ from 2003 to 2008, contributed to 61% increase in the household real income (an average 12.2% per year) - five times higher than the national growth rate (about 12.3% over the same period). Incomes of the poor and excluded groups, especially Dalits, increased by 93%. The income of those groups with the highest income in 2003 increased by only 7%. This indicates a reduction in the income gap. The Gini Coefficient showed that income inequality reduced in LFP project districts from 0.3343 in 2003 to 0.3026 in 2008. The contribution to increased income from community forestry and LFP represented 25.4% of the total increase in income. Other contributing factors to the latter were remittances (53.7%), normal economic growth (12.3%) and other development efforts (8.6%). LFP also led to an improvement in the standard of living of the members of forest users groups through household asset building, access to drinking water facilities and improved sanitation, and electrification of homes. The abundant availability of forest products such as firewood, fodder, green grass, etc., saved people's time that could be used instead in agricultural activities and income generation. The availability of

¹⁵ Livelihood and Forestry Program (LFP) funded by DFID works in selected districts viz., Dhankuta, Sankhuwasabha, Bhojpur and Tehrathum in Eastern Nepal; Baglung, Parbat and Myagdi in western Hills; Rupandehi, Nawalparasi and Kapilvastu in western Terai; and Salyan, Pyuthan, Rukum, Dang and Rolpa in Mid-western Nepal.

timber, poles and grass doubled between 2003 and 2008. The provision of low interest loans from Community Forest Revolving Funds triggered income-generating activities. There was a fourteen fold increase in these loans over the project period, leading to an increase in real incomes - from NPR 13,938 in 2003 to NPR 25,232 in 2008. The cost of reducing economic poverty was about NPR 4,446 (UK£35) over this period (LFP, 2009).

There has been no comprehensive study of the contribution of the forestry sector to national GDP. But it is claimed that it has been underestimated so that the forestry sector has a low profile in policy terms. The FAO estimated Nepal's forestry sector contributed 3.5% GDP in 2000 and 4.4% during 1990 – 2000. However MoFSC ¹⁶estimates that the forestry sector contributes 15% to GDP. Nonetheless, Dhungana (2007) notes that the sector, especially through community forestry, has made a commendable contribution to achieving several of the Millennium Development Goals: eradicating poverty (Goal 1), achieving universal primary education (Goal 2), promoting gender equality and empower women (Goal 3) and ensuring environmental sustainability (Goal 7).

Sharma (2011) has estimated the income of Leasehold Forestry (LHF) households in which agriculture was the major occupation (78% of households) in the hill districts where this programme is being implemented. Crop income constituted 26.1% followed salary and business income (25.9%), remittances (12%) and local wage income (10.9%), income from livestock products and sale of animals (7.9%). Total income from agriculture, livestock, wages and remittances constituted 84% of overall household income; the remaining 16% was attributed to the income from biomass extraction from various other sources. The share of LHF specific biomass was about 5% of the total household income.

Despite the above analysis, Dhungana *et al.* (2007) observe that no single conclusion can be drawn about the contribution of community-based organizations to household poverty reduction. They present three scenarios arising from their research:

- Scenario 1- positive impact is noticed only at landscape and institution levels, but there is no positive impact at the poorest household level.
- Scenario 2 (mismatched supply and demand case) - although groups are active in delivery of interventions for poor households, the households themselves are not sufficiently empowered to demand services and their rights; and do not yet recognize their responsibilities. Some households demand services, but do not receive an adequate response from group leadership.
- Scenario 3 - there are positive impacts on poverty reduction that appear to be sustainable; households are pursuing various livelihood opportunities and are also empowered emotionally.

3.4.3.2 Rights, access and use of forest resources

Nepal's community forestry policy provides for the equal representation of men and women in forest management committees. The Ministry of Forest and Soil Conservation (MoFSC) has been sensitive to gender and social equity issues since the start of the community forestry programme. Currently, guidelines emphasize the equal participation of women and men in CFUG Executive Committees. But male members still dominate when it comes to tabling agendas and making decisions. Luintel and Timsina (2008) report that most women members are still passive listeners, and even when some speak, they feel that they are not listened to. Their research, based on selected case studies from different parts of the country, shows that the participation of women and Dalits has increased in recent years (Luintel and Timsina, 2008).

¹⁶Source: <<http://www.forestrynepal.org/images/publications/Forestry%20Outlook%20study%20Country%20Paper%20Nepal%202008.pdf>>

Arrangements for gender and social inclusion in Buffer Zones are different to those for Community Forests; the BZ guidelines (1999) provide for at least 3 female members on Users Committees. But women are seldom elected to the Buffer Zone Council (the apex decision making body constituted in each of the parks where BZ is implemented).

3.4.3.3 Forest dependent communities

The livelihoods of a number of groups of people in Nepal are closely linked with forests and their resources. Of particular note are the Raute and Chepang. Raute people are contemporary foragers who call themselves “kings of the forest”. As one of the remaining representatives of the hunter-gatherer peoples, Rautes subsist on langur and macaque monkeys, wild yam and some rice which they obtain from local farmers by means of barter (they do not cultivate any crops). They are found in Dadeldhura, Jumla, Kalikot, Jajarkot, Rolpa and Dang districts in mid- and far-western Nepal. They are a nomadic people and move seasonally along the major rivers in the area. The nomadic Raute are hunters and the only group who call themselves forest dwelling people in Nepal (for details, see Fortier, 2011).

Chepangs are also forest dependent foragers found in Chitwan, Makwanpur, Dhading and Gorkha districts. Most of them live in rock-caves or make-shift huts on steep hill slopes close to forests. They grow some corn and millet on the slopes and also gather wild tubers, berries, and green vegetables on a regular basis. Similarly, Bankariya (found in small numbers in Tanahue, Gorkha, and Chitwan) are people who regard the deep forests as their place of residence and work.

For people such as the Raute and Chepangs, the forests are not ‘wild places’. For these people, the forests provide food and enable them to thrive. They regard forests as ‘domestic space’ as opposed to ‘wilderness’ and key to their cultural survival and identity.

3.4.3.4 Formal and informal institutions

Most of the indigenous and traditional institutions and practices for managing forests and irrigation have now been formalized by bringing them under the umbrella of institutions such as CFUGs and Farmer Managed Irrigation Systems (FMIS). Such systems had no written rules for management; the ruling elites in the locality made most decisions. The foundation for Nepal’s Community Forestry model was the indigenous forest users groups that had existed in many places for generations.

As already indicated, User Groups now manage forest areas (except national parks and hunting areas). Very few of such forests have been formally registered with the District Forest Offices, and therefore most User Groups operate as informal institutions.

3.4.3.5 Forest related conflicts

There are several types of people-forest conflicts: people-State, people-park, elite capture, rich-poor, near-distant users, exclusion of women from the forest and violence against women.

In the opinion of indigenous people, the main causes of deforestation and forest degradation are laws and government policies and programmes. Among the ‘faulty’ laws, policies and programmes are the Private Forest Nationalization Act- 1957, Establishment of Resettlement Company-1963, *Jhoda* Act- 1971, and the National Park and Wildlife Conservation Act-1973. These are criticised for leading to the loss of IPs’ customary rights over forestry and the complete break-down of the dependency of IPs on, and inter-relationship with, forests. With regard to this people-State conflict, NEFIN (2010) has complained that these laws and policies ignore IPs and put them into conflict with parks, and that they also lead to them being displaced causing a crisis of identity. Similarly, during SESA team consultation, Terai-Madesh communities pointed to ‘faulty’ government policies and programmes that have promoted the clear felling of Terai forests and marketing of timber. This has resulted in communities being distanced from their traditional “Forest Goddess” making the distant users and causing conflict with near users. Additionally, Dalits (socially excluded as untouchables)

are reliant on forests for their traditional occupations. But the Forest Act 1993 provides insufficient rights for Dalits (Pariyar, S. 2013) – creating a further conflict between people and the State.

Conflicts between the rich and poor households occur in leasehold forestry (Nagendra, Karna and Karmacharya, 2005). Leasehold forestry user groups are supposed to comprise only "poor" member households, defined according to annual income and landholding size. Evidence gathered by the SESA team indicates that this has led to the exclusion from leasehold forestry user groups of households that do not fall within the definition of poor, even though, traditionally, they have used the same forest, and has caused conflicts between households. Non-member households have refused to recognise the rights of user group members and disrupted their programme by grazing their livestock in leasehold forests, harvesting forest products, and uprooting seedlings. This conflict carried on for many years until the non-poor households were eventually included in the user groups.

Evidence of elite capture is illustrated by Iversen *et al.* (2006) in their research in the West-Central Terai. Here, high value timber is the dominant source of revenue for FUGs. FUG members receive a subsidy when buying high value forest products such as timber, and the FUG can set a price and require large advance payments. But, this means that poor members are excluded from accessing subsidized timber as they cannot afford to make the required advance payments. In comparison, elites and rich members can afford the advance payment and can make a good profit margin when selling the subsidized timber to the market. FUG price and payment policies thus enable better off households to siphon off a large chunk of the annual benefits generated by local forest user group members.

3.4.4 Social development

The forestry sector has been able to contribute to the social development of communities through the improvement of education and health, access to information and communication, social inclusion and empowerment of women and establishment of networking and linkages.

Based on research in the Koshi Hills, Chapagain and Banjade (2009) report that, over 10 years, CFUGs were able to invest US\$ 327,000 in formal school education, informal literacy programmes for women and the poor, and scholarships for poor students. Contributions have been made to the construction and maintenance of school buildings and to support the remuneration of school teachers. There are other examples of social development activities in the forestry sector. For example, girls' education is promoted through special scholarships to girl students, and contributions have been made for the construction and maintenance of community health posts. Health and sanitation related activities are carried out on regular basis. The introduction of clean energy through the promotion of improved cooking stoves and biogas has resulted in the improvement of the health of families in general and women's health in particular. Furthermore, rural electrification initiatives by CFUGs have enabled rural communities to better access information and communication channels. Raised income from forestry has induced income-generating activities that enable household members to afford information and communication devices, eg radios, TVs and mobile phones.

Social inclusion has been promoted by different programmes such as the LFP through the mandatory representation of disadvantaged households and of women on user group decision-making bodies (committees), and more specifically by designating that they occupy leadership positions (chair, vice-chair, secretary, treasurer). Participation in meetings, workshops, and excursion visits has encouraged disadvantaged groups to become involved in mainstream group dealings. The better-off community members are now sensitised about their roles and attitudes towards disadvantaged members, and have been persuaded to encourage disadvantaged people to raise their voices and to consider their opinions.

The establishment of links between disadvantaged groups and various development organizations such as VDCs, line agencies, other projects, service agencies, etc., has directly benefitted disadvantaged families to find support that is beyond the capacity or mandate of the user groups. Networking is now in place between local and national levels that has benefited the disadvantaged (Dhungana *et al.*, 2007; LFP, 2009).

6000 groups and networks of poor and excluded people were established through the Livelihood and Forestry Program (LFP) from 2003 to 2008. These groups became forums for expressing voices, advocating rights and exerting influences. In 2004, the UNDP Human Development Report recognised LFP's social mobilisation programme in Nepal as an example of the best practice. The outcome of social mobilization has resulted in the representation of women and poor on FUG committees supported by LFP. On average, women now account for 36%, and the poor for 52%, of the membership of FUGs. The occupancy of decision-making positions has increased to 40% (poor), 32% (women) and 6% (Dalits) (LFP, 2008).

Although forestry sector interventions have been identified as contributing towards achieving MDG 3 (promoting gender equality and the empowerment of women), outcomes have varied according to the types of forestry management regime and caste/ethnic mix of communities. As previously noted, the Buffer Zone guidelines of 1999 make provision for at least 3 female members on users committees; but women often do not get elected to the Buffer Zone Council. In leasehold forestry, it is mandatory that women should occupy 25% of committee seats. They tend to do so mainly as female household heads. Due to this low mandatory figure, women benefit less than men. In general, they contribute more labour, especially in forest watching, pruning and thinning trees, and weeding and watering nurseries for fodder species. But it is the men that usually receive training for forestry activities (Sharma, 2011; Subba and Babar, 2001).

Women's participation in the collaborative forestry regime decision-making is minimal. Collaborative forests are mainly situated in Terai/Madesh areas where communities restrict women's mobility and their participation in public activities. However, there are many VDCs participating in collaborative, where there are settlements of Hill/Pahari communities. In these communities, there are no restrictions on women's mobility and participation in forestry or other public-related activities. During fieldwork, the SESA team met with a women's group (all from Hill/Parhari communities) in Halkhoriya Collaborative Forest. They pointed out that, in Hill areas, the CFUG guideline mandates 50% representation of women on the Collaborative Forest Management Committee, but the government guideline for collaborative forests mandates the token representation of just a single woman on the VDC committee (and similarly just one woman on the central level Executive Committee for Collaborative Forest Management). The women suggested that government policy-makers may not have provided for a higher proportion of women on the committee because collaborative forests are mainly situated in Terai/Madheh areas where they assume Madhesi women are not allowed participate in forestry activities. But women meeting with the SESA team asserted that they do actually participate very actively in collaborative forest conservation and management activities such as maintaining nurseries, transplanting saplings, nurturing new plants, pruning, thinning, guarding forest against illegal loggers; so they want 50% representation in the VDC and executive committees.

Community forestry has become a frequently cited example of promoting gender equality and women's empowerment. However, history shows that there had been a long struggle and much effort that contributed to the present situation - with women having rightful representation in forestry management decision making. Chhetri (1994) found caste/ethnicity differences in women's participation in community forestry activities. Women in Brahmin/Chhetri communities were discouraged to take part in adult literacy classes or other public gatherings; whilst in Tamang communities, women were encouraged to take part such events. Men in Tamang households even shared household tasks and took care of children to release their women for such activities. In Brahmin/Chhetri communities, men attended meetings but they did not communicate important

decisions made to their women folk. At that time (1994), women were generally not aware of the existence of user committees, the dates or timing of meetings. Although a few women were included in user committees, mainly as female household heads, they were neither aware about user rights in the community forest nor had they any decision-making power within the committees. Thus, Chhetri (1994) concluded that the inclusion of women in committees does not necessarily reflect their involvement in decision-making. Nonetheless, women were found to actively participate in cleaning, pruning or thinning activities. Even now, women still contribute 70% of their labour in forest cleaning, thinning and cutting bushes (WOCAN and HIMAWANTI, 2012).

Women actively participate in conservation, but lack of recognition as social and political actors, led to advocacy to make forestry decentralization effective by empowering women (Forest Action and HIMAWANTI, 2008). Gautam *et al.* (2008) also found that, in general, the participation in decision-making of women and lower castes is much lower than higher caste men. CFUGs are dominated by wealthier higher caste men, with women and disadvantaged groups alienated. Women's involvement in forestry activities has increased over time, but their participation has been mainly to showcase legal requirements or to draw the attention of donor funded projects. More than half of women who attended the General Assembly of CFUGs did not table any agenda items or did not speak. It has also been noted that the voices of the women members of CFUGs are not heard during the meetings. Their capabilities to conserve forests are undermined at the community level, and this is reflected in State policy (Forest Action and HIMAWANTI, 2008).

In terms of gender equality and social inclusion, community forestry has evolved to a great extent since its initiation in late 1970s. The third amendment of the Community Forestry Organizational Regulation (2008) requires gender equality and social inclusion in decision-making bodies. Box 3.4. 2 lists the following representation frameworks for Community Forest management at central level, district level and local level.

Box 3.4.2: Representation requirements for Community Forest decision-making bodies

Central Level

77 members with equal representation of women and men from open competition

- | | |
|---|----|
| 3. From 5 Development Regions - | 40 |
| 4. Dalit | 3 |
| 5. Madhesi or Southern User | 6 |
| 6. Indigenous/Ethnic | 6 |
| 7. Muslim/Minority | 3 |
| 8. Disabled/Physically Differently Able 2 | |
| 9. Poor/Underprivileged | 2 |
| 10. Karnali | 2 |
| 11. Mountain origin | 4 |
| 12. Terai Community Forest | 4 |
| 13. Kathmandu Valley | 2 |
| 14. Nominated | 3 |

- If the Chairperson is a woman, then the General Secretary should be a man and vice-versa
- If the Vice-Chairperson is a women, then the Treasurer should be a man and vice-versa

District Level (verified in FECOFUN/Chitwan and Makwanpur)

- Elected 25 with a gender equality mandate
- Nominated 5 – No gender equality mandate (generally Political Parties do not nominate women)
- If the Chairperson is a woman, then the General Secretary should be a man and vice-versa
- If the Vice-Chairperson is a women, then the Treasurer should be a man and vice-versa

Local Level (verified in CFUGs of Khayarkhola watershed area in Chitwan district)

- Representatives from local CFUG committees
 - 1 woman and 1 man from the Executive Committee including the Chairperson
 - 1 woman and 1 man from general Users
- Principle of social inclusion has to be adopted while nominating representatives
- If the Chairperson is a woman, General Secretary has to be a man and vice versa
- If the Vice-Chairperson is a woman, Treasurer has to be a man and vice versa.

The past three decades have seen the advent of community forestry, with women making an increasingly substantial contribution (especially demonstrated through 5% of community forestry initiatives being women only). As stated above, currently in gender-mixed Community Forestry Committees there is mandatory equal representation of women and men, with decision-making positions rotating by gender and the compulsory signature of women for fund use. As a result, women now play a visible “agency role” in forestry conservation and management. The increased percentage of women in executive committees has led to significant improvements in forest conditions such as regulating illicit grazing and felling, increased institutional effectiveness, transparent fund management and enhanced capacity to manage and resolve conflicts (UNDP/UN REDD Programme, WOCAN and LEAF/USAID, 2013).

Some observers have labelled women’s participation in community forestry just as ‘token participation’ (Luintel and Timsina, 2008); but the prospects for empowering women through participation in community forestry is being increasingly recognised (Luintel *et al.*, 2013). Some commentators have noted that by playing a public role as forest managers and decision-makers, women themselves have realized their participation as an opportunity to have a public identity. It is even predicted that women’s participation in REDD+ could lead to an opportunity to re-write the role of women in Nepalese society (Suzuki, 2012). Some women feel that their capability to perform in central-and district-level leadership roles in the forestry sector is now proven¹⁷; indicating that the re-writing of the role of women has already begun and women themselves are leading in that re-writing.

3.4.5 Gender issues

There are distinct differences in gender roles, responsibilities, entitlements¹⁸, socio-cultural and geo-physical positioning, access to and control over resources, access to information and communication, cultural, social and political networks. All of these lead to the different development perspectives and interests of women and men.

Nepal’s patriarchal society has placed women in a socio-economically subordinate position, but one in which they play multiple roles: reproductive role, productive role, social/community role and citizenry/constituency role. The interplay between these roles and the position of women is manifested as follows.

3.4.5.1 Feminization of poverty

“Feminization of Poverty” is a process leading to a higher proportion of women among the poor (both income poverty and human poverty) compared to an earlier state/period” (Source: SAARC

¹⁷ Comments made at a meeting between the SESA Team and female FECOFUN district representatives and CFUG officers.

¹⁸ Conventional evidence show that when a forest has just a “use value”, women have access to and control over the forest resources; but when it transforms into having an “exchange value”, then women lose access to and control over both the forest resources and the associated income. This is mainly due to the historical denial of inheritance rights that resulted in loss of land ownership/entitlement.

Gender Info Base www.saarcgenderinfobase.org). In Nepal, the brunt of poverty falls disproportionately on women and girls resulting in human deprivation from access to food and nutrition, education, health and medical care, and to other human development opportunities, and having an excessive work burden. In addition feminization of poverty in Nepal is also evident in relation to income, property and wealth, time and identity.

Conceptually, time can be converted into money, goods, and services through work. Time is also required for the consumption of goods and services, for community work, and even for leisure activities. Time use analysis therefore offers a comprehensive overview of all human activities such as market and non-market work, consumption, community and leisure activities (Abdourahman, 2010). The reliance on traditional labour- and time-intensive technology for production results in a heavy workload and drudgery. Women have no time for rest, leisure, recreation or human resources development. Daughters usually share their mother's work, often dropping out of school (Rana *et al.*, 2009).

In Nepal's patriarchy, the identity of women is linked with men's names, eg as a daughter, sister, wife, mother, etc., rather than an independent identity as a woman. Until 2002, inheritance right was bestowed to the male heir only. In spite of *de jure* rights to inheritance¹⁹, daughters are still rarely treated as a legitimate inheriting heir. Similarly, a woman loses her birth identity as soon as she gets married; having to move to the husband's residence, adopt his surname and surrender her labour and income. The social identity and nationality of children is also linked to the fathers' lineage and citizenship. All these factors reduce women's identity, generate 'feminization of poverty', leave them without property/land or income and without access to adequate credit. Women participating in Nepal's 'National Conference on Beijing+ 15 Review'²⁰ concurred that women remain in a state of poverty due to lack of independent identity; hence it should be an indicator of "feminization of poverty".

3.4.5.2 Feminization of agriculture

The out-migration of men, induced by household poverty, has resulted in the "feminization of agriculture". In Nepal, this has been characterized by an increasing number of women in the agricultural labour force (more than 85% are now women). The latest Agriculture Census (2011/2012) indicates that the number of farm households headed by women has increased from 8.1% in 2001 to 19%. Increased land fragmentation due to rapid population growth and low agricultural productivity has exacerbated feminized poverty, with 60% of farm households reporting in the latest Agriculture Census (2011/2012) that agricultural products are insufficient to meet annual food consumption needs. Climate change has impacted negatively on already below subsistence 'feminized agriculture'. Women are more vulnerable to the adverse effect of climate change since their daily survival activities revolve around natural resources and they have less access to remedial measures in time of need (IIED, 2013). Very few NAPAs, including Nepal's, recognize women as important agents in adaptation activities (Mainlay and Tan, 2012).

3.4.5.3 Entitlement to land and forestry

Women spend as much as 64% of their work time and 78% of their daily total time in agriculture, but they do not have legal entitlement to the land on which they toil (Bhadra, 1997). According to the Population Census 2011, only 19.71% of total households in Nepal have female ownership of land and house. "Feminization of agriculture", "feminization of poverty" and the multiple roles of women make them dependent of forests. For direct household consumption needs for drinking water, fuelwood, medicinal herbs and plants, fruits and berries, mud/soil (for sanitation and beautification of homes), and other edibles, women depend on the forest near to their villages. Livestock is the

¹⁹ The 11th Amendment of the National Code-2002; and The Act to Amend Some Nepali Act to Maintain Gender Equality-2006.

²⁰ Kathmandu, 13-14 September 2009).

mainstay in feminized agriculture; and women depend on forests for fodder, fuel for animal feed and litter for animal bedding. These activities are crucial for a non-commercial-input-agriculture farming system as the main source of organic fertilizer to enhance soil fertility. Because women have only the usufruct rights to land and forestry, their contribution to local resource management is taken for granted (Wickramasinghe, 1997).

3.4.5.4 Workload and drudgery: access to alternative energy

The workload of women in terms of time used and the drudgery involved has been the basis of advocacy for women's access to renewable and alternative energy technology. The Status of Women Study in 1979 (Acharya and Bennett, 1981) documented for the first time the workload of women. It showed that women worked for 11 hours per day compared to 7 hours per day worked by men. The drudgery involved in women's work and their lack of supplementary material energy has been identified as the factor contributing to prolapsed uterus in a high number of Nepalese women. In 2006, about 10% of women suffered from uterine-prolapse nationally, and about 7% of women aged 15-45 years (MOHP, New ERA and ICF, 2012). Access to alternative energy technology (AET) has led to a reduction on women's workloads and drudgery in cooking, milling/grinding, hauling water, and through men engaging in sharing women's work –because they have become motivated to use new technology and clean energy. It has also resulted in an improvement in women's health – alternative energy being cleaner (less polluting) than tradition forms of energy (eg fuelwood). In spite of these positive impacts, women have been alienated from AET and have abandoned it in many instances – since they were not involved in the planning and decision-making and/or not technically trained to undertake repairs and maintenance. Rather than remaining dependent on male technicians, women reverted back to traditional energy technology that they could independently manage (Mahat, 2003). The moral of the story is that bare provision of AET does not solve women's problems; it must be delivered in a gender responsive way, through women-friendly AET linked to their choice and technical capacity for operation, repair and maintenance of AET devices.

In terms of the workload of women in the forestry sector, Chhetri (1994) reported that women actively participate in cleaning, pruning or thinning. A more recent report specifies that women contribute 70% of the labour in forest cleaning, thinning and cutting bushes (WOCAN and HIMAWANTI, 2012). Examples of the dynamics in workloads, gender roles and behaviour are described in Box 3.4.3.

Box 3.4.3: Dynamics in workloads, gender roles and behaviour in community forestry in Pahari and Madhesi communities

During focus group discussion with women in Halkhoriya Collaborative Forest/Bara district (25 December 2013), women commented that, in Pahari communities, women work both inside and outside of the household including in agricultural and forestry work; so they have heavy workload. This is because Pahari men mostly engage in playing cards around the forest areas. In Madhesi communities there is "Parda" system and women are not allowed to work outside of the household. Most outside work, including that in agriculture and forestry, is done by men. Madhesi men are hardworking and they do not waste their time as Pahari men do by playing cards.

However, participation in community forestry by women and men seems to result in a change in Pahari men's behaviour and gender role. It is reported that there are many examples of an easing of women's workload through participation in community forestry, especially due to the gender responsiveness of community forestry regulations and procedures. These have resulted in workload-sharing by men in the families (Uprety, B. R., 2000; WOCAN and HIMAWANTI, 2012). Additionally, the provision of AET devices (eg biogas and improved cook stoves - ICS) has been a component of REDD+ pilot projects.

3.4.5.5 *Interdependence of women and forest*

Women comprise the majority of the forest dependent population in Nepal. Two-thirds (64%) of Nepalese households and nearly three quarters (73%) of rural households use fuelwood for cooking²¹ and women are solely responsible for cooking activities including the provisioning of cooking fuel. Additionally, agriculture (including the livestock-raising) is also forest and natural resources dependent. With the “feminization of agriculture” it is women, more than men, who are forest dependents. In addition to fodder from the forest, forest litter is gathered for animal bedding and manure for agricultural land – and carried in loads up and down the hills, mostly on women’s backs (Bhadra, 1997). The availability of water depends on the forest, and managing water for household and livestock consumption and irrigation is also the responsibility of women. Furthermore, women gather NTFPs for food and food preserving items, medicinal herbs, household sanitation and home decorating materials, raw materials for utensils and fibres, and marketable NTFPs for income generation (Bhadra, 2006).

Research on gender, land and forestry undertaken in the early 1990s found that the survival strategies of women are dependent on the three-sphere system of “family-farm-forest”- comprising the domestic domain, crop fields and forest resources (Wickramasinghe, 1997). Household wealth is connected to land, livestock and trees; and trees in the form of wealth are valued as sources for timber, fuel, fodder and fruit (both for household consumption and marketing) (Bhadra1997). However, at that time, the government’s perspective was highly biased against women. In particular, the Forestry Sector Policy 1996 referred to women as “woodcutters” (p.14). This perspective seems to linger on in the mindset of the bureaucracy. During consultation with the SESA team, as FECOFUN members expressed their displeasure towards the State for identifying women as “drivers of deforestation”. This may be the reason why, during consultations with the SESA Team²², FECOFUN Executive Committee members asserted that “*women should not be identified as drivers of deforestation; rather they are the conservers of the forest.*”

Nepalese women exercise their “agency role” by:

- contributing their knowledge, skills and time in forest conservation and community forestry activities;
- providing the spiritual and material bases for immediate daily survival; and
- providing the long-term life support system as well as the medium of spiritual connection to the nature through tree and water God and Goddess.

Because of their spiritual and material affinity to forest, women have long played the role of conserving the forest as stewards (Bhadra, 2006).

See Box 3.4.4 for a description of the existing ambivalence in forestry policy and practice.

3.4.5.6 *Violence against women related to the forest*

The violence against women related to the forest is presented in the Box 3.4.5.

3.4.5.7 *Health issues related to forest*

The health of Nepalese women is also closely connected to forestry sector activities. Women are solely responsible for provisioning fuel (firewood), fodder, leaf-litter and water for the family and livestock. These are hauled on women’s backs generally up and down hill in Nepal’s difficult terrain. Deforestation and forest degradation lead to women spending more time and energy in such activities due to receding forests and drying of aquifers; further aggravating their drudgery. As previously noted, 10% of Nepalese women (about 600,000) (Chetry *et al.*, 2012) suffer from prolapsed uterus, largely as a result of their heavy workload. Use of fuelwood and other biomass for

²¹ Population and Housing Census – 2011

²² Meeting at FECOFUN office, Duwakot, Bhaktapur, 12 December 2013.

Figure 5.1 Cooking, indoor pollution and impact on women and children's health



Box 3.4.4: The Paradox of “Thinking Globally and Acting Locally” and the Dilemma of Forest Dependent Women

In the climate change discourse, REDD+ has emerged as a global concern where developed countries seek to compensate developing countries for reducing emissions from deforestation and forest degradation. But REDD+ has a local dimension in terms of fostering the conservation and sustainable management of forests by communities residing around them. However, grassroots women find that they are losing their traditional access to and control over forest and forest resources.

Two women seen in the photo are in Halkhoriya Collaborative Forest, Bara district. They are “*Samdinis*” - related by the marriage of the daughter of one of the women to the son of the other. The mother of the bride who is visiting from Makwanpur district is easing her *Samdini*’s workload by helping her to cut grass badly needed to feed her goats. The dialogue between these two women illustrates the dilemma of forest dependent women.

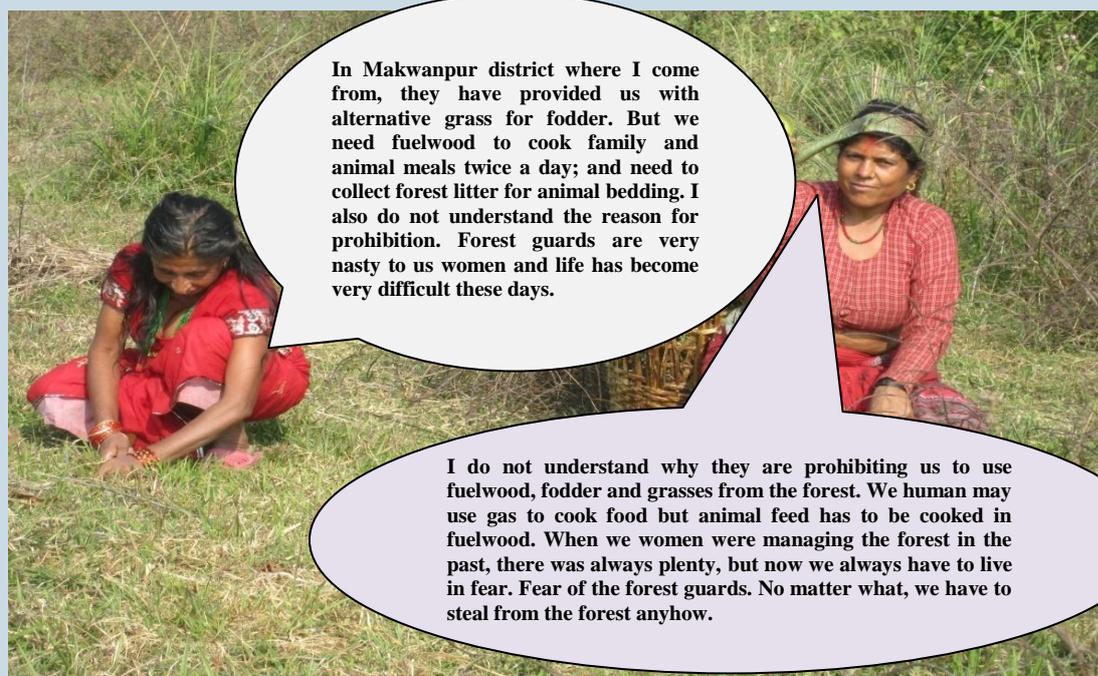


Figure 5.2: Grassroots women cutting grasses barely above the roots.

3.4.5.8 Women, untouchability and forests

cooking causes lung, skin and eye problems for women due to indoor pollution such as smoke, soot and other harmful organic compounds. Indoor air pollution is found to increase the risk of respiratory tract infections and lung cancer among housewives (Joshi, 2006). According to the 2001 census, about two thirds of those suffering blindness in Nepal were women (11043 women versus 5483 men). Most incidences of blindness among women are attributed to indoor pollution due to cooking with biomass fuel.

On certain occasions, the bodies of women are considered impure and untouchable especially in Hindu households, eg during their menstrual period for at least the first four days. Only after the purification rite on the fifth day can they participate in normal household and public activities. During the menstrual period, women are forbidden to touch plants around the homestead and in agriculture – it is believed that to do so will ruin the vegetation. This restriction also prevails in the forestry sector. Chhetri and Pandey (1992) found that, in Far Western Nepal, women were restricted from entering the forest to collect forest products during their menstrual period. Here, forests are considered as sacred places and menstruating women are considered to pollute them if they enter. This prohibition was also recently found to exist in Kaskit district. Here, women from Hindu households were restricted (mainly by their mothers-in law) from participating in CFUG meetings during their menstruation period (Adhikari, 2011).

The spiritual and material affinity between women and forest is very close; but this affinity may at times become the source of violence against women (Box 3.4.5).

Box 3.4.5: Violence Against Women in the Forest

During district-level consultations with women in November 2013 for the SESA, forest-related violence against women (VAW) emerged as a crucial issue. But none of the REDD+ and gender related literature reviewed address this issue. VAW can be found in various forms:

a) Physical Violence

As members of community forestry and/or collaborative forestry groups, women engage in guarding forests. There have been instances of illegal loggers inflicting physical violence against women. In Halkhoriya Collaborative Forest, Bara district, a woman showed the SESA team newly inflicted wounds all over her face. In April 2012, another woman from Madhu Malati Community Forest in Kailali district almost lost her life while fighting with forest encroachers. They cut both her hands and made them dysfunctional. She received the 2012 Abraham Special Conservation Award for her bravery in conserving biodiversity.

b) Sexual Violence

Many women informants stated that they are at risk of sexual violence, especially when alone in forests collecting fodder and fuelwood. Whilst women tend to be safe in community forests, in government forests and collaborative forests, there is sexual violence by illegal loggers - outsiders from the villages/communities. Subtle mention was also made that even forest guards sometimes demand sexual favours for allowing women to collect fuelwood and fodder if they are alone in the forest.

c) Murder and Mutilation

During discussions with a women's group in Bara Collaborative Forest in November 2013, it was reported that a woman from the nearby village (from a poor and powerless family) had recently been raped, murdered and mutilated when she was cutting grass in the forest. Although people in the village had identified the culprit, the police took no action against the perpetrator.

d) Unclaimed Pregnancy and the Illegitimacy of Children

Issues of violence against women in protected forest areas by Nepal Army personnel were raised in Chitwan, Makwanpur and Bara districts during consultations. Army personnel are reported to either lure women for sex or sexually abuse them by force. Instances were mentioned of pregnancies caused by Army personnel with many illegitimate children born in the buffer-zones

around protected forests. Communities are helpless to fight the Army and its “militarization of forests” and accept “Gun Bahadurs” (if the resulting children are sons) and “Gun Mayas” (if the children are daughters) as “children of God”. Such children can become State-less if they are not legitimized so that they acquire citizenship through the mother’s lineage.

Source: Evidence provided to the SESA Team during consultation in Kathmandu (6 December 2013) and focus groups discussions with women in Chitwan (22 November 2013), Makwanpur (23 November 2013) and Bara (25 November 2013) districts.

3.4.6 Social outcomes of REDD+ pilot projects

Critics argue that REDD+ pilot projects have not been effective in promoting the participation of disadvantaged groups. The REDD+ process could not overcome shortcomings experienced in community-based forest management where the poor, women, Dalits and minorities have generally been excluded and marginalized. Women, in particular, did not get the opportunity to participate due to their limited access to public space and low capacity to articulate their concerns (Paudel *et al.*, 2013). The study on REDD+ piloting conducted by the REDD+ Forestry and Climate Change Cell (MoFSC, 2011) concludes that REDD+ pilot projects, by and large, have had positive impacts on the mobilization of NGOs including the federation of CFUGs, indigenous communities, women and Dalits in project implementation. Nonetheless, the study points out that few projects have been able to increase awareness of the rights and responsibilities of indigenous people; and there is a need for all actors to understand rights and responsibilities of various stakeholders of REDD+, especially those of particular groups/people. Otherwise, securing the rights of IPs, women, Dalits and forest-dependent communities will be difficult. The report states that no disaggregated data is available on sex and ethnicity, but fragmented information indicates that most of Indigenous Peoples have participated in most activities. However, evidence shows that the national level forums were more inclusive in terms of sex and ethnicity. In events where IPs only participated, the ratio between male and female participation was satisfactory” (MoFSC/GoN. 2011, p.20).

Nepal’s Forest Carbon Trust Fund (FCTF) has developed criteria to provide carbon payments based on men-women ratio, with 15% of community REDD+ Funds going to women’s empowerment. Accordingly, the REDD+ projects verified and distributed carbon money to communities as per FCPF guidelines for the inclusion of women as a part of integrating gender in REDD+ safeguards and standards (UNDP/UN REDD Programme, WOCAN and LEAF/USAID, 2013). During consultations, Chelibeti CFUG in Chitwan district (a women only group) was cited by HIMAWANTI as an example of utilizing REDD+ pilot project's carbon benefits/funds in an exemplary manner.

However, during a REDD+ programme implementation assessment study jointly carried out by WOCAN and HIMAWANTI (2012), it was realized that the criteria prescribed in the Operational Guidelines of the Forest Carbon Trust Fund (2011) cannot assure that women will benefit from REDD+ piloting. The study team pointed out the risk of women benefiting far less than men from these funds if the formulation of the principles, policies and REDD+ strategy does not ensure mechanisms that favour women. Additionally, the performance-based criteria of the guidelines were judged not to assure women’s equitable participation and benefit-sharing from carbon offsets.

During the SESA Team’s visit to a pilot project area in Chitwan district, the CFUG Executive Committee had been dissolved because the committee members had been found to engage in corruption and misuse of the REDD Carbon Fund. A new committee was elected and its Chairperson expressed his lack of knowledge about REDD+. He stated that REDD+ knowledge, capacity and skills are limited to only those who received training; and are not transferred to other CFUG members. He stated that the Carbon Fund is a very small portion of the income from the Community Forest; so whether or not the REDD+ strategy is implemented, forest-dependent *Chepang* and *Tamang*

communities are determined to conserve forests, biodiversity and water that are essential for agriculture and provide the livelihood base of IPs.

During consultations in Chitwan district, women's groups reported that the 15% of Carbon Funds designated for women's empowerment was too little. It is labelled to be for "women's empowerment", but, in practice, women have seen neither cash nor any action taken to empower women. Individual women were provided with two goat-kids (and these were already suffering from disease). Chitwan women's groups recommended that women should receive 50% (not 15%) of funds provide under REDD+ programme. Furthermore, it should be in 'cash' not in 'kind', and be directly deposited in a women's collective fund rather being distributed to individual women. On the other hand, some respondents felt that caution is needed, as there is the possibility of double counting of benefits when an individual can be identified as an IP or a Dalit, and also as poor and a woman. The need to avoid double counting has been also recognised by the study on REDD+ piloting carried out by the REDD-Forestry and Climate Change Cell (MoFSC 2011).

There is an information gap in REDD+ pilot programme implementation. According to IIED (2013) very few women know about the REDD+ at the local level; and at the national level, only those women who have been working on REDD+ related activities appear to be aware of them. During SESA consultations in Chitwan district, it was reported that information dissemination meetings were organised during the rice planting season when women could not attend. Men in households attended such meetings and reported back to women about REDD+ pilot projects. Respondents reported that they had no knowledge of 'free, prior and informed consent' (FPIC) and were not consulted for their consent.

3.4.7 Conclusions

The social and gender dimensions of the forestry sector have evolved considerably over the years in terms of the gender and social inclusion strategy (MoFSC/GoN 2007), and the emergence of formal and informal forest management institutions and forestry management regimes. Further concerted efforts are needed in the forestry sector to enhance livelihoods and secure poverty reduction - especially for the poor, disadvantaged and socially excluded groups

Nepalese are mainly forest dependent people, but the country's socio-cultural and ecological diversity must be taken into account when forest-related issues are assessed and addressed, and indigenous status, caste/ethnicity and gender such be addressed in a sensitive manner. REDD+ pilot projects have so far enabled forest sector stakeholders at the local level to engage in dialogue about REDD+, express their expectations, and assert their rights and participation in the country's REDD+ initiatives. Appendix 7 provides a summary of views expressed during consultations undertaken by the SESA team.

3.5 LEGISLATIVE, REGULATORY AND POLICY REGIME

3.5.1 Background

The REDD+ Readiness Preparation Proposal (RPP) indicates different strategic options to address the problem of deforestation and forest degradation in Nepal. Many enabling policies are in place in Nepal, but some of the policies needed to implement the strategic options effectively are lacking. This section describes the legislative, regulatory, and policy regime in relation to forest resources management, land use, forest-based enterprises, etc. It reviews relevant acts, regulations and government policies regarding forest resource use, and in relation to traditional use and rights to forest resources. It also analyses constitutional provisions and ILO 169 on indigenous and tribal populations, relevant stakeholder understandings and their implications for REDD+ programs in Nepal. Recommendations for policy reform/development are made based on the analysis.

3.5.2 Historical perspectives

Before the Rana Regime²³ the forests coverage was good and very little attention was given to conserve forests. However, during the Rana Regime, forests encroachment increased due to conflicts of interests among the Rana brothers. The Ranas introduced a number of rules to regulate access to forests and harvesting of forests products. However, they were not effective. The political changes during 1950/51 and political movements of 1979/80 and of 1989/90 caused massive deforestation (Paudel 2002). In Nepal, political change has had significant impacts on forests. The nationalization of forests in 1957 led to deforestation due to its poor forest management and an increasing demand for forest products. People perceived that forest conservation was the responsibility of the state, not of anyone else. By the late 1970s, the government realized that people's needs had to be met first and their intimate involvement was essential to successfully conserve forest resources. Some legislative measures were introduced enabling forests to be managed at a more local level – the government decided to handover the forests as Panchayat²⁴ Forest and Panchayat Protected Forest. But this proved to be unsatisfactory because of the limited authority given to the local people.

3.5.3 Policies, plans, strategies and guidelines relevant to the forest sector

The following policies, plans, strategies and guidelines are relevant to forest management, deforestation and forest degradation in Nepal.

3.5.3.1 Revised Forestry Sector Policy, 2000

The GoN formulated the Forestry Sector Policy in 2000 with an objective to meet the people's basic needs for fuel wood, timber, fodder, and other forestry products on a sustained basis. The Policy introduced a collaborative forest management system, following natural processes, to improve forest and biodiversity in the Terai areas. Regarding resource sharing, it ensured a contribution of 25% of income serviced from government-managed forests to Local Government (DDC/VDCs) and FUGs. But, CFUGs are required to pay the government 40% of the revenues from selling surplus timber.

One of the long-term objectives of the policy is to protect land from degradation by soil erosion, floods, landslides, desertification, and other ecological disturbances, but it has not been possible to implement this properly due to a lack of required institutional support and policy commitment by subsequent governments.

3.5.3.2 The Nepal Biodiversity Strategy and Action Plan, 2013

The Nepal Biodiversity Strategy and Action Plan (2013) recognizes the threat to biodiversity in Nepal and has adopted cross-sectoral and sectoral strategies to conserve biodiversity - from ecosystem to genetic level and covering all ecological zones including protected areas, forests, rangelands, agro biodiversity, wetlands and mountain biodiversity. The strategy focuses mainly on landscape planning, preparation of inventories, incorporation of representative ecosystems within the protected area, establishment of gene banks and property right registration at local level, strengthening research and implementation institutions, establishment of National Biodiversity Conservation Committee to coordinate sectoral and cross-sectoral biodiversity issues and implementation of biodiversity projects through the active participation of people especially women and the local governments. In 2013, the MOFSC began the process to revise the strategy.

²³ The Rana Regime was the period beginning from 1846 to 1950 during which the aristocratic Rana family ruled the country with disregard of democratic norms and values.

²⁴ Panchayat was the lowest administrative unit under the Panchayat political system of self-governance in Nepal in effect from 1962 until 1990.

3.5.3.3 Leasehold Forestry Policy 2002

This policy concerns the management of forests under lease by the people living below poverty line, industry and organizations, and for ecotourism. The policy identifies forest lands for leasehold forestry such as shrub lands, land recovered from encroachment and natural calamities, forests with less than 20% crown cover, and sensitive area that require conservation. Leases can be provided to industry and organizations for forest conservation, development and management purposes. But such forest areas should not be part of larger stocks of block forest area.

3.5.3.4 Leasehold Forestry Policy Guidelines, 2003

The Leasehold Forestry Policy Guidelines 2003 were formulated to promote forestry in degraded land areas. The guidelines identify four categories of land for the production and management of forest under the leasehold forestry: shrub-lands; land reclaimed after encroachment; rehabilitated forest areas destroyed by natural disaster; and forest areas having less than twenty percent crown coverage.

A special procedure is elaborated for providing leaseholds to communities living below poverty line. The focus is eco-tourism, forest protection and tourism development rather than forest production. For industrial purposes, emphasis is given to the production of forest resources and environmental protection.

3.5.3.5 Forestry Sector Foreign Aid Policy Guidelines, 2004

The Forestry Sector Foreign Aid Policy Guidelines are built on the Foreign Aid Policy, 2002 (Ministry of Finance) endorsed by the Government. The guidelines focus mainly on poverty alleviation, peace building, cross-cutting issues such as gender, governance, transparency and equity, and the devolution of authority while designing, implementing, monitoring and evaluating programmes. The guidelines also stress compliance with global conventions and agreements that Nepal has committed to.

3.5.3.6 National Wetland Policy, 2002

The major thrust of the National Wetland Policy is to conserve and manage wetlands through proper utilization, management and sustainable use of the resources involving the active participation of local people, complying with the commitments of Government of Nepal in various international conventions. Wetland is an important ecosystem in Nepal used for collecting biomass, cooking energy and grazing cattle. The conservation of wetland ecosystems helps to minimize pressure on national forests.

3.5.3.7 Collaborative Forest Management Guidelines, 2003

The guidelines are concerned with government managed forests in the Siwaliks, Terai and Inner-Terai. They are based on the welfare of stakeholders at different levels, as per the policy guidelines of the Decentralization Act and Local-self Governance Act. The major focus of the guidelines is on the participation of different stakeholders in forest management - from planning to implementation and monitoring. They emphasize the development of an appropriate system to include socially excluded groups of people and to establish the rights of all such people. They also define responsibilities and a mechanism for equitable distribution of forest resources and access of stakeholders in monitoring and evaluation of forest programmes.

3.5.3.8 National NTFP Policy 2005

The policy aims to maximize economic and environmental benefits by promoting the cultivation and domestication of herbs, their sustainable harvesting from both wild and cultivation, processing of the products and their marketing. And it envisages the holistic development of the herbs and NTFP dimension for poverty reduction and biodiversity conservation in Nepal. The policy lacks a provision for identifying and mitigating risks – particularly overharvesting and loss of biodiversity, but at least

it provides some directions and support to NTFP development. The government has prioritized 30 medicinal and aromatic plants for research and cultivation for Nepal.

3.5.3.9 Climate Change Policy, 2011

The policy aims to address the adverse impacts of climate change and utilize the opportunities so created to improve livelihoods and achieve climate-friendly physical, social and economic development. Its main goal is to improve livelihoods by mitigating and adapting to the adverse impacts of climate change, adopting a low-carbon emissions socio-economic development path, and supporting and collaborating in promoting the country's commitments to national and international agreements related to climate change. The objectives of the policy are to:

- Establish a Climate Change Centre as an effective technical institution to address issues of climate change;
- Strengthen existing institutions;
- Implement climate adaptation-related programmes and maximize the benefits by enhancing positive impacts and mitigating the adverse impacts;
- Reduce GHG emissions by promoting the use of clean energy, such as hydro-electricity, renewable and alternative energies, and by increasing energy efficiency and encouraging the use of green technology;
- Enhance the climate adaptation and resilience capacity of local communities for optimum utilization of natural resources and their efficient management;
- Adopt a low-carbon development path by pursuing climate-resilient socio-economic development;
- Develop capacity for identifying and quantifying present and future impacts of climate change, adapting to climate risks and adverse impacts of climate change; and
- Improve the living standard of people by maximum utilization of the opportunities created from the climate change-related conventions, protocols and agreements.

3.5.3.10 Renewable Energy Subsidy Policy, 2013

One of the major sources of cooking energy used in both urban areas and rural villages in Nepal is forest biomass. Firewood collectors harvest firewood from forests for sale in urban areas. Firewood consumption in urban areas could be minimized by promoting alternative energy. The government recently endorsed a new policy which covers all current issues related to renewable energy, and particularly the justification of subsidy grants. As regards large-scale production, the policy states:

“Waste-to-energy [W2E] is the energy production in the form of electricity or heat from the waste source. The current concept envisions utilizing waste produced in large scale, such as the municipal wastes for energy production through biogas. The concept of Waste to Energy tries to address both the issues of waste management and energy recovery. The subsidy in case of waste to energy plants has been calculated on the basis of the capacity of the installed plant to handle waste in tons of waste per day.”

3.5.3.11 Terai Arc Landscape Strategy Plan (2004-2014): The Strategic Plan for Terai Arc Landscape (TAL), 2004

The vision of the Terai Arc Landscape (TAL) endorsed by the government in 2001 is a *"globally unique landscape where biodiversity is conserved, ecological integrity is safeguarded and sustainable livelihoods of its people are secured"*. The Ministry of Forest and Soil Conservation (MFSC) initiated the development of this Plan to address threats and capitalize on opportunities for conservation and sustainable livelihood to achieve the TAL vision, through consultation with stakeholders. The Strategic Plan analyses the critical threats and underlying causes behind biodiversity loss and environmental degradation, biological and socio-economic conditions of the landscape and reviews existing legislation, structures and institutions so as to develop appropriate and far-reaching strategies. The plan also sets out strategies to ensure to achieve the vision.

3.5.3.12 IEE and EIA forestry sector guidelines

These guidelines aim to facilitate the sustainable use of forest resources for socio economic development and for meeting basic needs of communities. They aim to make proposals for projects in forest areas socially and culturally acceptable, economically feasible and environmentally benign; and to facilitate the identification of positive and negative impacts of programmes implemented in forest areas. The guideline set out the various stages of the EIA process from screening to monitoring and evaluation. They also address development proposals that do not originate from the forestry sector but which affect forest areas.

3.5.3.13 Five Year Plans

Planned development in Nepal began with the introduction of the first five year national plan (FYP) in 1956. The concept of environment and its protection slowly evolved in the context of national planning and with the endorsement and ratification of various international treaties and conventions. Several programs and plans have been developed and implemented to achieve sustainable development in Nepal. Table 3.5.1 highlights the major environmental consideration included and addressed in Nepal's Five Year Plans.

Table 3.5.1: Major environmental mainstreaming initiatives in Nepal's FYP

Periodic Plan	Duration	Major environmental mainstreaming initiatives
1 st FYP	1956-1961	<ul style="list-style-type: none"> • Forest Nationalization Act 1957.
2 nd FYP	1962-1965 ²⁵	<ul style="list-style-type: none"> • Preparation of forest management plan for selected districts, forestation, forest demarcation, and promotion of forest-based industries.
3 rd FYP	1965-1970	<ul style="list-style-type: none"> • Survey of natural resources, forestation and forest demarcation • Sedimentation and water flow measurements in Terai. • Master Plan for Drinking Water and Sewerage in Kathmandu Valley, and emphasis on water quality.
4 th FYP	1970-1975	<ul style="list-style-type: none"> • National and sectoral policies related to environment. • Agricultural land delineation. • Soil and land use surveys. • Watershed conservation in some areas.
5 th FYP	1975-1980	<ul style="list-style-type: none"> • Emphasis on ecological balance. • Conservation of national forests and wildlife. • Reduction of urban pollution. • Promotion of ecotourism. • Encouragement of women's participation in environmental activities.
6 th FYP	1980-1985	<ul style="list-style-type: none"> • Initiation of environmental impact studies of development projects. • Watershed management activities. • Regulations on urban environment. • Environmental aspects included in land use policy.
7 th FYP	1985-1990	<ul style="list-style-type: none"> • Rehabilitation of degraded forests and waste lands • Introduction of environmental-friendly policies and integrated

²⁵ Due to the political change in the country, the second plan was introduced only in 1962, and covered only three years between 1962 and 1965.

Periodic Plan	Duration	Major environmental mainstreaming initiatives
		<ul style="list-style-type: none"> environmental management. • Emphasis of participation of private sector, NGOs, women, civil society in environmental management. • National Conservation Strategy (NCS), 1988. • Master Plan for Forestry Sector, 1988.
8 th FYP	1992-1997 ²⁶	<ul style="list-style-type: none"> • Environment management policies integrated with sustainable economic development and poverty reduction. • Establishment of Ministry of Population and Environment (MOPE). • Preparation of EIA Guidelines, improvement of legislative measures. • National Environmental Policies and Action Plan (NEPAP). • Inclusion of environmental aspects in hydropower, irrigation and industrial development policies. • Environmental Protection Act (EPA).
9 th FYP	1997-2002	<ul style="list-style-type: none"> • Conservation of ecosystems and genetic resources. • Environmental Protection Regulations (EPR). • Sustainable resource management principles (Agenda 21). <ul style="list-style-type: none"> ○ Community-based forestry programmes initiated. ○ Institutional strengthening of line ministries. ○ Environmental standards on air, water pollution and industrial effluents enforced. ○ Legal provisions for national resource conservation and management. ○ Programmes for water pollution control, environmental conservation, forest management and supply of forest products. ○ Involvement of civil society in municipal waste management. ○ Participatory environmental education initiated. ○ Emphasis on training and research programme on environment. ○ Development of environmental management information system. ○ Introduction of market-based instruments for forestry management.
10 th FYP	2002-2007	<ul style="list-style-type: none"> • Long-term goals of environmental management with better governance, pollution control and sustainable use of national resources introduced. • Internalization of environmental concerns into development plans and programs, • Emphasis on links between environment and economic development, and internalisation of environmental concerns into development plans and programmes. • Implementation of national environmental standards. • Implementation of provisions of international

²⁶ The political change occurred in 1990, which caused delay in the introduction of the 8th FYP for two years.

Periodic Plan	Duration	Major environmental mainstreaming initiatives
		<p>environmental conventions, policies for capacity development of local institutions in environmental management.</p> <ul style="list-style-type: none"> • Promotion of women’s participation in environmental management at all levels. • Research on environmentally friendly technologies. • Legal and fiscal mechanisms for controlling industrial pollution introduced. • Adoption of appropriate strategies and working policies. • Introduction of natural disaster management policy.
Interim Plan I	2007-2010	<ul style="list-style-type: none"> • Recognized the crucial role of forest in development and aimed to develop internal market and promote exports; generate employment by promoting forestry, non-timber forest products and forest-based industry and ensure regular supply of forest-based products by long term management of aquatic. • Maintain a healthy environment by making environmental management effective and attain sustainable development through wise use of natural resources. • Emphasis on conservation of natural environment, rehabilitation and sustainable use; and implementation of water, air and noise pollution reduction methods. • Implementation of the country's international commitments and conventions, treaties and agreements to which Nepal is a party; and promotion of Clean Development Mechanism projects. • Strengthening environmental good governance and local bodies, and implementation of environmental management works. • Clarification of the role and responsibility of various agencies involved in institutional development for environmental management; and making, infrastructure related development works environment-friendly.
Interim Plan II	2010-2013	<ul style="list-style-type: none"> • Lays down strong foundation for maintaining forest cover and increasing forest productivity; promotion of forest based enterprises. • Institutionalisation of EIA, and initiation of NAPA action programmes. • Strengthening of mechanism for environmental policy and rules, and capacity-building. • Integrating environmental management with development activities. • Implementation of international conventions related to environmental management. • Public awareness and precautionary programmes (related to environment).

(Source: Khadka et al., 2012p)

The first forest related environmental policy was adopted during the Second Five Year Plan (1962-65), focusing on conserving forests and wildlife. The Sixth Plan (1980-'85) included a national Environment and Land Use Policy and initiated the application of environmental impact assessment (EIA) and incorporated environmental issues with an emphasis on population control in Nepal. The Seventh Plan (1985-90) incorporated environment as a separate sector program with its own objectives and policies. The Plan made EIA mandatory for all major development activities. Similar policies on EIA requirements were continued in the Eighth, Ninth and Tenth five year plans. A National Conservation Strategy (NCS) 1988, and Nepal Environmental Policy and Action Plan (NEPAP), 1993 are the other key policy documents that emphasize the need of conservation and sustainable use of natural resources through active community participation.

During the period of the Seventh Plan (1985–1990) the Master Plan for the Forestry Sector was prepared (MPFS, 1988). This national plan and the succeeding Eighth Plan (1992-1997) emphasised the rehabilitation of degraded forests and waste lands, whilst the Ninth Plan (1997-2002) stressed the conservation of ecosystems and genetic resources.

To meet targeted objectives, the Tenth Plan (2002-2007) focuses on the promotion of community forestry, private forestry and leasehold forestry by generating greater community participation and strengthening communities through various extension programmes. With regard to National forests other than community, private and leasehold forest, the Tenth Plan gives priority to enforcing an Operational Forest Management Plan (OFMP) in the Terai and Siwaliks and a Forest Operation Plan (FOP) in the hills. It also focuses on poverty reduction and envisages the generation of employment opportunities for the rural poor and disadvantaged groups by promoting the harvesting, collection and processing of Non-Timber Forest Products and establishment of forest-based industries. The Tenth plan also envisages the importance of conservation of wildlife and biodiversity. A number of programs have been drawn for the conservation of soil and watershed management in the active participation of communities. Community awareness and extension training programs are envisaged as tools for the awareness building and involvement of the communities in the programs to meet the targets of Tenth Plan.

3.5.3.14 Forestry Sector Security Plan, 2013

This ambitious but practical plan, agreed by the Council of Ministers, aims to provide security to forests and forests resources. One of its strategies is to discourage forest encroachment and to remove encroachers. The Plan envisages that all government stakeholders will perform efficiently and coordinate closely as regards forest security. Under the plan, a Central Forests Security Committee has been established, chaired by the Minister of Forests and with Secretary level representation from Finance and Home Ministries and senior officials of the security agencies. At the district level, the District Security Committee has been tasked to provide security to forests and forests products. If these mechanisms are successful, forest security will lead to positive impact on conservation.

3.5.3.15 Community Forestry Development Programme Guidelines, 2001

These guidelines (MFSC 2001) aim to make the formation and operation of community forestry inclusive and broad-based, and responsive to the needs and priorities of different types of forest users within given communities. The guidelines were amended in 2009 to accommodate public aspirations following the People's Movement of 2006 and also to address recurrent issues in forests management such as distant users, elite capture, and inclusion.

One of the significant provisions in the original Guidelines (2001) is criteria to identify forest users to be included in individual Forest Users Group (FUG). The guidelines suggest six types of users including traditional users, forest resources-dependent households, and distant users who can contribute to forest conservation and who do not have other options for forest products. The Guidelines include significant provisions for forest conservation such as enriched planting in barren forests lands and thinning and pruning of trees for increased forest productivity. They also identify

the roles of different stakeholders in managing community forests. Another approach promoted by the guidelines is self-evaluation to monitor the progress of the action plans.

3.5.4 Analysis of current forest laws, regulations and policies

The current forests laws and policies in Nepal are a combination of some older authoritarian rules and others (the majority) formulated after 1990 following the establishment of democratic governance. Community forestry is one of the pioneering approaches to forest management adopted in Nepal. It was conceived during the authoritarian era but only introduced after 1990. The concept of buffer zone management around the protected areas²⁷ to respond to community needs is another innovative approach. Despite these efforts, the conservation, management and productivity of forests is still not adequate – for several reasons. First, not all drivers of deforestation and degradation²⁸ are well addressed by the laws and policies. These need to be reviewed from different perspectives in order to develop policy options for addressing the drivers of deforestation and forest degradation²⁹ and their underlying causes. Moreover, as conservation is also a dynamic issue, the same approach may not work in a different context. From the viewpoint of the REDD+ process, a number of major issues are considered below.

3.5.4.1 Land tenure, carbon rights and benefit sharing: Enabling fairness and effectiveness in carbon rights and benefit sharing

The current laws and regulations of Nepal envisage that ownership of forests rests either with government or with an individual, but provide for collective use rights which enable community forestry and other forms of participatory forest management in Nepal. In case of all management modalities, except private forests, land tenure rests with government though benefit sharing from forests products differs depending upon nature of the management regime.

Land tenure and carbon rights:

The Forests Act 1993 and forest regulation 1995 are framed under the premise that the ownership of all forests land rests with the government³⁰. Though the right to manage and use forest resources has been given to forest users, actual ownership of forests and land remains with the government and this may raise questions regarding benefits from carbon trading.

3.5.4.2 Community-based forest management

The Forests Act (1993) and forest regulation 1995 envisages various types of forest management modalities as listed in Table 3.5.2.

²⁷ Protected areas include national parks, wildlife reserves, conservation areas and hunting reserves

²⁸ The drivers include population increase and its distribution, poverty, land scarcity Nepal's limited level of economic growth and commercial development, weak governance and cultural factors.

²⁹ Analysis shows some major options that include improvement in policies/regulations; enhanced forest sector governance; improved management practices and technical skills; investment in forestry and non forestry employment generation; demand based land-use planning; transfer of forest management and tenure rights to communities; sensitization of various actors in the sector; and investment in wood efficient and alternative energy technologies. In addition, the development of synergy between the forestry and other sectors, including infrastructure, agriculture, and energy is also critical as a cross-cutting strategy.

³⁰ Section 67 of the Act states: "Land ownership over the forests handed over as community forest, leasehold forest and religious forest and so on shall lie on the Government of Nepal".

Table 3.5.2: Forest management types

Forest management type	Description
Government Managed forests	National forest areas managed by the Government using approved forest management plans
Community forests	A part of national forest handed over to users' groups as community forests to conserve, manage and utilise for their basic local needs
Leasehold forests	Forests on land that has been leased by central or local government agencies to private owners including individuals, co-operatives, institutions, and commercial firms
Religious forests	Forests belonging to religious institutions
Private Forests	Forests or trees raised and managed on privately owned land
Protected Areas	A National forest declared by the Government as a protected forest pursuant to the Forests Act 1993, which considers it have a special environment or scientific or cultural importance
Conservation Areas	Land such as national parks, reserves, protected areas, or other categories gazetted under the National Park and Wildlife Conservation Act 1973
Protected Watersheds	Any land under public or private ownership designated as a protected watershed under the Soil and Watershed Conservation Act 1982

Section 30 of the Forests Regulation 1995 accords priority to community forests over other forest management modalities in line with the National Conservation Strategy. In 2000, the Government introduced Collaborative Forests Management in Terai districts, changing the context of forest management, although neither the Forests Act nor Rules refer to this modality.

The Act also provides that at least 25% of the total earnings of community forests must be expended for forest conservation activities but without considering the costs of forest management. This proportion may be insufficient once climate change related activities are implemented. In contrast, the law requires that each collaborative forest pays to government 50% of its total income. The logic given for applying this high 'charge' is that the Terai forests, where collaborative forest management is practiced, are very rich in resources and are not conserved by the users. However, in future, communities involved in collaborative forest management are likely to face the need to invest more resources in climate change mitigation measures.

Disparity in income of forests users groups

One of the major concerns in the current forests management regime is that there is vast disparity in the level of incomes of forest users groups, depending upon the availability and value of resources. This has direct impact on the conservation of forests and community development works to be carried out by the users groups.

Overcoming elite capture in forests management

In order to avoid the trend of elite control of the forest users mechanism, the rules need to be revised to require all User Group Committees to include at least fifty percent representation of *dalits*, tribal peoples and 'below poverty line' community members. The same percent should be

applied in trainings, sensitization, workshops and other activities at all levels of meetings, discussions and interaction.

3.5.4.3 Private forestry

In the context of REDD+ process, private forests must be encouraged to promote minimizing pressure on national forests. However, there are no incentive mechanisms to promote private forests such as tax rebates, free and massive distribution of seedlings for plantation³¹, buy back guaranty of forest products and separate and special provisions forests certification and authorization. However, authority has been confined to District Forests Offices³², and no such special provisions have been made.

3.5.4.4 Government managed forests

District Forest Offices (DFO) have formal responsibility for government managed forests (GMF) and this includes organising/controlling (law enforcement) the harvesting of forest products and conservation measures under management plans. But these mandates for both conservation and harvesting activities are in conflict. Users of such forests have no role or responsibility for their management, and so it is not surprising that most of the land encroachment and illegal logging in forest areas occurs in this type of forest.

A large proportion of Nepal's Government Managed Forests, especially in the Terai areas, remain unproductive as they comprise either very old trees – which prevent the growth of new trees, or are heavily degraded due to over exploitation.

The Forests Act 1993 includes strict provisions regarding the use of forests areas for development activities. However, it has no compensatory measures to discourage proponents of development projects who try to avoid paying for forest land or compensation (as per the set formula) in cases where using forest areas for development purposes is unavoidable. The current government policy requires project developers to provide a substitute area of land to the government and to plant 25 trees for every one tree cut. But this is not implemented properly due to the lack of additional land for tree planting and disregard of the policy by project developers.

Encroachment of forests land by landless peoples is acute in the western parts of the Terai. In order to address this, the Forest Rules should be amended to include the requirement to prepare plans for promoting agro-forestry in leasehold forests, targeting landless peoples groups who have settlements close to forests areas.

3.5.4.5 Agriculture productivity and food security for small and marginal farmers

The Forest Act 1993 provides for 'below poverty line' groups to managing leasehold forests. Poor household also needs to grow crops such as vegetables and fruits that can provide a cash return. However, ironically, the Act does not allow for such cropping in leasehold forests. It also imposes royalty charge on leasehold forestry revenue other than for those forests given to 'below poverty line' groups. This has inhibited interest in leasehold forestry in Nepal.

3.5.4.6 Law Enforcement

Forest officials have very limited powers to adjudicate in forest cases. The Forest Act gives them limited power to handle only those cases concerned with the illegal collection of forest products in which the product value is less than NRs 10,000. The bigger cases are dealt with by the District Court. Armed Forests Guards are not under the command and control of District Forest Officers and they have a separate reporting channel under the Armed Forests Section of the Department of

³¹ There are no large scale private plantations in Nepal; rather scattered tree plantations in farmland and a few small wood lot plantations. So, private companies are not interested to produce seedlings.

³² For example, under Rule 61 of the Forests Rules, the District Forest Office has the power to register private forests under the Forests Rules

Forests. But such guards do not have necessary weapons to take action against illegal loggers and smugglers.

So far as the investigation and prosecution of offences relating to forests are concerned, the scheme of offences and punishment need to be reviewed. The current ceiling is for District Forest Officers to hear and judge alleged offences which fall below a fine of Rs. 10,000/- or six months of imprisonment. But this ceiling is very low compared to the massive surge in the price of timber. Moreover, there is no law to criminalize acts committed against the climate change related policies.

3.5.4.7 Good governance and anti-corruption

The image of the forestry sector in Nepal has been tarnished by the prevalence of irregularities and corruption. There is no transparency regarding the annual amount of forest products determined by DFOs to be harvested and sold to markets. Various studies conducted by the Government have recommended that action should be taken against those involved in malpractice, including prosecution. The internal control mechanism within the forest administration is too weak to control such practices. It seems that the forests law is applied only to the general public but not against the forests officials. Not a single case has been filed to prosecute a forestry official under the forests law.

3.5.5 Other laws

This section reviews laws in other sector that have relevance to the forest sector. Some of them contradict or make parallel provisions to the forests laws of Nepal, eg the Local Self-Governance Act, 1999³³; the Mines and Minerals Act 1986. Public utility laws that affect forestry include the Public Roads Act of 1974 (which deals with the acquisition of land for the protection of roads), the Irrigation, Electricity and Water Resources Act of 1967, the Electricity Development Policy 2001, and the Canal Management Rules of 1974.

Protected areas include national parks, wildlife reserves, hunting reserves and conservation areas which cover almost half of the total forests areas of Nepal. The National Parks and Wildlife Conservation Act 1973 defines a national park and provides for three other kinds of reserves: strict natural reserves for scientific studies only, wildlife reserves (in effect similar to national parks), and hunting reserves. The government may, if it deems it necessary, declare any area to be a part of a park or reserve, and may take over the ownership of any area so declared. This Act, and the Rules made under it, aim to protect wildlife and control hunting, but they were not successfully enforced. Thus, the Act was amended in 1994 to add a provision for the establishment of conservation areas and buffer zones. A buffer zone is an area between a national park and a settlement of communities. The concept aims to contain people's pressure on national parks and wildlife reserves and to cater for their needs from the buffer areas. Under the amended Act, revenues of a national park are shared (30-50%) with local communities located within any surrounding buffer zones.

The primary purpose of the Soil and Watershed Conservation Act 1982 is to provide legal measures for protecting soil and watersheds by controlling landslides, floods and soil erosion. The Act allows the government to declare any area as a protected watershed. Unfortunately, this Act has not been implemented effectively. The government has not prioritised this Act or established a special programme to implement it. Most soil and watershed conservation initiatives are donor-driven. There is a duplication of efforts on soil conservation and watershed management between the Department of Soil Conservation and Watershed Management and the Department of Water-Induced Disasters Prevention.

Both the Water Resource Act 1992 and the Electricity Act 1992 contradict the Forest Act 1993. Both Acts provide that a licensed person may enter and utilize the land or premises of anyone to operate water resources project or a hydroelectricity project, respectively, and that government will make

³³ The Local Self Governance Act authorizes the local bodies to carry out functions including conservation of forests within their areas and protection of environment, overlapping with the Forests Laws.

such land available for such projects; and most of the land where such projects could be developed is in forests areas. However, the Forests Act, 1993, provides that land in forests areas will be made available only in exceptional cases of need for projects accorded national priority status and only if it does not have significant impacts on environment.

The Local Self-Governance Act, 1999 contradicts the Forests Act and Forests Rules in many aspects.

For example, the former authorizes local bodies to carry out various functions including conservation of forests within their areas and protection of environment, overlapping with the objectives of the Forests Laws. Contradictions and overlaps in the mandates of local bodies and forest administration at the district level need to be removed.

The Mines and Minerals Act, 1985, is administered by the Department of Mines and Geology of the Ministry of Industries. The Act clearly states that all mineral deposits, either on private or public land, belong to the government. But most mines are located within forest areas, and the Forests Act defines "forest products" as including minerals. This anomaly confuses the administration of the two Acts. A notable example is the case of Godavari Marbles, a mining company registered under the Mines and Minerals Act which was operating a successful business to extracting marble. But it was forced to shut down for not obeying directives of the Forests Act.

The Public Road Act, 1974, is administered by the Department of Roads. Under this Act, the government may acquire any land for road construction purposes. There is massive programme of village road construction in all parts of the country, and all forests that are alienated for road surveying are subject to clear felling. Though an EIA/IEE has to be conducted before roads are constructed, the implementation of the recommendations of EIA/IEE is very weak.

3.5.6 Sectorial policies

The National Agriculture policy, 2004, is one of the important policies that influence the forestry sector in Nepal. One of the three objectives of this policy is that natural resources, as well as the environment and bio-diversity, shall be conserved, promoted and properly utilized. The Policy spells out the need to improve forests and other lands and provide support for the best use of marginal lands and pastures and the rehabilitation of degraded forests. The policy provides that waste public lands shall be handed over to target communities to use them under lease agreements, based on their suitability/feasibility for cultivating cash crops such as grass, fodder, agro-forest products, medicinal herbs, producing silk and growing other permanent plants and trees, or their use as horticultural farms. Section 4.2.3 of the policy also provides that bio-diversity shall be conserved, promoted and utilized and the agro-forestry system shall be developed in such a way as to improve the condition of degraded forests and natural reservoirs.

The main aim of the National Wetland Policy, 2002 is to promote healthy wetlands, striking a balance between sustainable development and environment protection. Its major objectives are: conservation, restoration and effective management of wetlands; wise use of wetland resources and sustainable livelihood support; and promoting good governance in wetland management. Programmes and measures implemented under the policy are concerned with combating the effects of climate change on wetlands, identified as necessary under section 5.1.15 of the policy. The effective implementation of the policy will require the enactment of appropriate laws.

The Hydropower Policy, 2001, is concerned with promoting the development and distribution of affordable electric energy to all people by harnessing the huge potential of hydropower in the country. The Policy adopts an integrated approach to economic development, industrialization, flood control, environment protection, creation of employment opportunities in the country. However, it is silent as regards promoting hydropower as an alternative source to traditional firewood fuels.

The Water Resources Strategy, 2002, aims, *inter alia*, to generate hydropower to meet national energy needs and to allow for the export of surplus energy, and to protect the environment and

sustain the biodiversity of natural habitats. The Strategy states clearly (page 9) that the conservation of biodiversity, endemic, rare and endangered species, and habitats such as forests and wetlands, should be given priority in planning, developing and managing water resources. The Strategy also stresses that environmentally acceptable water resources development should justify and minimize destruction of productive ecosystems, including forests and wetlands.

The Nepal Adaptation Program of Action to Climate Change (NAPA) envisions mainstreaming climate change into the national development agenda and contributing to poverty reduction, livelihood diversification and building community resiliencies. The NAPA has identified the following nine major activities:

1. Increasing community-based adaptation through the integrated management of agriculture, water, forests and biodiversity.
2. Building adaptive capacity of vulnerable communities through climate resilient agricultural development
3. Community-based disaster management to facilitate climate adaptation
4. Glacial lake outburst flood (GLOF) monitoring and disaster risk reduction
5. Forest and ecosystem management to support climate-led adaptation innovations.
6. Adapting to climate challenges in public health
7. Ecosystem management for climate adaptation
8. Management of water resources and clean energy supply
9. Promoting climate smart urban settlement

The activities identified by the NAPA need to be integrated in the REDD + preparation and policy review process.

3.5.7 Comparison of laws, policies, plans and strategies

Table 3.5.3 summarises the main laws and regulations described above and how they influence REDD+. Table 3.5.4 compares policies, plan and strategies relevant to the forest sector described in the previous sections. It shows that many policies and plans have provisions that contradict those in others. In order to implement REDD+, these contradictions need to be resolved.

Table 3.5.3: Summary of key Acts and Regulations and their provisions

Act/Regulation	Key Provisions	Influence in REDD+
Forest Act 1993	<ul style="list-style-type: none"> • Section 68 empowers the Government in case of no alternatives, to use a Forest Area for the implementation of a project if the government considers it as a national priority. • If there are no significant adverse effects on the environment, the Government may approve to use any part of a Government Managed Forest, Community Forest, Leasehold Forest or Religious 	<ul style="list-style-type: none"> • Forest area may be used for other activities • Difficult to maintain permanence of carbon stock.

Act/Regulation	Key Provisions	Influence in REDD+
	<p>Forest for the implementation of a plan or project.</p> <ul style="list-style-type: none"> According to clause 32 (4), a community forest users' group is allowed to run industry based on forest products according to a work plan. However, the industrial activities shall be undertaken outside of the forest after obtaining the approval of the concerned agency on the recommendation of the District Forest Officer. 	<ul style="list-style-type: none"> Forest- based industries may demand additional forest product; sustainable management of forest may not be achieved
Forest Regulation 1995	<ul style="list-style-type: none"> Guiding document for implementation of Act, providing regulations for formation of Forest User Groups and management of forest resources. 	<ul style="list-style-type: none"> Helps in conservation and sustainable management of forests. Minimises forest carbon loss due to illegal activities minimizes through active participation of local communities in forest management
Environmental Protection Act, 1997	<ul style="list-style-type: none"> Before implementation, all development project must be subjected to environmental assessment (IEE or EIA depending upon the location, type and size of the project), 	
Environmental Protection Rule, 2054 BS (1997; Amendment, 1999)	<ul style="list-style-type: none"> Obliges the proponent to inform the public on the contents of a development proposal in order to ensure the participation of stakeholders. 	
Local Self Governance Act, 1999	<ul style="list-style-type: none"> Empowers local bodies to conserve soil, forests and other natural resources. Sections 28 and 43 provide VDC with a legal mandate to formulate and implement programs related to the protection/conservation of the environment during the formulation and implementation of a district level plan. Provides more autonomy to 	<ul style="list-style-type: none"> Contradicts with the Forest Act 1993; Community people may not participate in forest management because the Local Self-Governance Act gives them less power in forest management compared to the Forests Act

Act/Regulation	Key Provisions	Influence in REDD+
	<p>DDCs, Municipalities and VDCs.</p> <ul style="list-style-type: none"> • Empowers local bodies to conserve soil, forest and other natural resources and implement environmental conservation activities. • Sections 28 and 43 provide VDCs with a legal mandate to formulate and implement programmes related to environmental protection during the formulation and implementation of district level plans. 	
<p>Soil and Watershed Conservation Regulations 1985 (made under the provision of Article 25 of the Soil and Watershed Conservation Act 1982)</p>	<ul style="list-style-type: none"> • Its objective is to implement soil and water conservation measures • Defines the duty, power and working procedure of the National Commission on Conservation of Natural Resources (NCCNR) and the District Soil and Watershed Coordination Committee (DSWCC). 	<ul style="list-style-type: none"> • Will help improve soil conservation and may be useful for enhancing forest carbon stock in the national forests through conducting programmes for forest management and soil conservation and management in critical watershed including the forest land
<p>National Parks and Wildlife Conservation Act 1973</p>	<ul style="list-style-type: none"> • Provides for the conservation of ecologically valuable areas and indigenous wildlife • Empowers the Department of National Parks and Wildlife Conservation (DNPWC) to: <ul style="list-style-type: none"> (a) declare any area as a national park, restrict nature reserve, wildlife reserve or hunting reserve, and (b) formulate and implement rules and regulations. • Its fourth amendment, 1992 also empowers DNPWC to establish buffer zones around the parks and reserve areas. 	<ul style="list-style-type: none"> • Helps conservation of carbon stocks by its strict conservation policies, programmes and stringent legal provisions aimed at promoting conservation of forests - s one of the major elements of REDD+
<p>Mines and Mineral Act 1986</p>	<ul style="list-style-type: none"> • Article 3 stipulates that rights to mineral resources found in private and government land belong to the government (Department of Mines and Geology, DMG). 	<ul style="list-style-type: none"> • Forest land may be converted to other land use. This leads to deforestation and forest degradation.

Act/Regulation	Key Provisions	Influence in REDD+
	<ul style="list-style-type: none"><li data-bbox="512 253 887 389">• Article 4 empowers the implementation of mineral works (by DMG itself or individuals).	

Table 3.5.4: Comparison laws, policies, plans, and strategies

Laws/Policies/Plans	Climate Change Policy, 2011	Forest Act 1993	Hydropower Development Policy, 2001	Water Resource Act 1992	Electricity Act 1992	Leasehold Forestry Policy 2002	Local Self-Governance Act, 1999	Mines and Minerals Act, 1985	National Parks and Wildlife Conservation Act 1973	Public Road Act, 1974	Revised Forestry Sector Policy, 2000	Soil and Watershed Conservation Act 1982	Nepal Biodiversity Strategy, 2002	Water Resources Strategy, 2002
Climate Change Policy, 2011		O	N	N	N	N	N	N	N	N	N	N	O	O
Forest Act 1993			C ¹	C ²	C ³	O	C ⁴	C ⁵	C ⁶	C ⁷	O	O	O	C ⁸
Hydropower Development Policy, 2001				O	O	N	C ⁹	N	C ¹⁰	N	C ¹¹	N	N	O
Water Resource Act 1992					N	N	N	N	C ¹²	N	N	N	N	O
Electricity Act, 1992						N	N	N	C ¹³	N	C ¹⁴	N	O	O
Leasehold Forestry Policy 2002							C ¹⁵	C ¹⁶	O	C ¹⁷	O	N	O	N
Local Self-Governance Act, 1999								C ¹⁸	C ¹⁹	N	N	N	O	N
Mines and Minerals Act, 1985									C ²⁰	N	C ²¹	C ²²	C ²³	N
National Parks and Wildlife Conservation Act 1973										C ²⁴	O	O	O	C ²⁵
Public Road Act, 1974											C ²⁶	C ²⁷	N	N
Revised Forestry Sector Policy, 2000												O	O	N
Soil and Watershed Conservation Act 1982													O	C ²⁸
Nepal Biodiversity Strategy, 2002														N
Water Resources Strategy, 2002														

Note: O- Overlaps; C- direct contraction; N- neutral

Footnotes to Table 3.5.4

1: *The Hydropower Development Policy (in Point 6.1.2) provides that GoN will make forest land available for a hydro power project if no private land is available. But Section 68 of the Forests Act, 1993 provides that land of forests will be made available only in exceptional cases of need of such land for a national priority-accorded project and only if it does not have significant impacts on environment.*

2: *The Water Resource Act 1992 provides that a licensed person may enter and utilize land or premises of anyone for water resources projects operation and that government will make such land available for water resources projects; and most of the land where such projects could be developed is forests areas. However, Forests Act, 1993 provides that land in forests areas will be made available only in exceptional cases of need of such land for a national priority-accorded project and only if it does not have significant impacts on environment.*

3: *The Electricity Act 1992 provides that a licensed person may enter and utilize land or premises of anyone for a hydroelectricity project, and that government will make land available for such projects; and most of the land where such projects could be developed is in forests areas. However, the Forests Act 1993 provides that land in forests areas will be made available only in exceptional cases for a national priority-accorded project and only if it does not have significant impacts on environment. Moreover, the Electricity Act 1992 provides for making land available on a lease basis, but there are no such provisions in Forests Law and other laws to execute lease agreements.*

4: *The Local Self Governance Act 1999 confers powers to and casts a duty on local bodies to protect the environment and forests and also to sell forest products within their respective areas (eg section 57 of the Act). But the Forests Act 1993 confers all these powers to District Forests Officers. Moreover, in the case of collection and auction of driftwood, sand, boulders and other construction materials in and around forest land, there are constant conflicts between local bodies and district forests officials because of conflicting provisions in Forests law and LSGA.*

5: *The Mines and Minerals Act 1985 confers powers to grant licenses for mines across the country to the Department of Mines and Geology. and rights to licensees to operate mining business. But the Forests Act 1993 prohibits any activity in forests areas other than those stated in Forest Action Plans (section 21 of the Act).*

6: *The Forests Act 1993 and Forests Rules provide for a mechanism, standards and procedures for the collection and harvesting of forests products, but there none of these are applicable in the case of forests products derived from protected areas (national parks, wildlife reserves, conservation areas). To some extent, there is overlapping jurisdiction between authorities responsible for forests and protected areas.*

7: *The Public Road Act 1974 provides for a right of way along highways and roads, but the Forests Act 1993 prohibits any activity in forests areas other than those stated in Forests Action Plans (section 21 of the Forests Act).*

8: *The Water Resource Strategy 2002 prioritises making land available for water resources projects; and most of the land where such projects could be developed is forests areas. However, the Forests Act 1993 provides that land in forests areas will be made available only in exceptional cases of need of such land for a national priority-accorded project, and only if it does not have significant impacts on environment.*

9: *Section 189 of the Local Self-Governance Act 1999 confers power on District Development Committees (DDC) to construct small power projects and generate and distribute electricity, but the Water Resources Strategy 2002 does not address this issue. On the other hand, the Electricity Act 1992 provides that every power producer has to obtain a license from the Department of Electricity. It is unclear whether or not the DDC has to obtain a license to generate electricity if it decides to construct a power project under the LSGA.*

10: *The Hydropower Development Policy 2001 provides for the release of such quantum of water which is the higher of either at least 10% of the minimum monthly average discharge of the river/stream or the minimum required quantum as identified in the environmental impact assessment study report, but the National Parks and Wildlife Conservation Act 1972 does not allow the blocking of rivers and streams in parks and wildlife reserve areas.*

11: *The Hydropower Development Policy 2001 provides for making available forests land for the construction of power projects, but the Revised Forests Sector Policy 2000 accords priority to biodiversity conservation and to ensuring both security and a sustainable livelihood for millions of people living in the eastern Himalayan region.*

12 and 13: *The Water Resource Act 1992 accords priority to the distribution and use of water resources, and the Electricity Act 1992 prioritises the development of electricity generation and distribution, but the National Parks and Wildlife Conservation Act 1973 is very restrictive and allows very narrow room for carrying out such development activities in and around national parks and wildlife reserves, through which most of the potential water bodies run.*

14: The Electricity Act 1992 and the Water Resource Act 1992 prioritise the development of electricity generation and distribution and use of water resources, respectively. However, the Revised Forestry Sector Policy 2000 provides that in order to conserve forests, soil, water and biodiversity while at the same time meeting the basic needs of the people on a sustainable basis, land and forestry resources will be managed and utilised according to their ecological status. The former two Acts do not take into account.

15: The Leasehold Policy 2002 provides that Government may grant degraded forests land on lease to 'below poverty' groups or for industrial purposes, but the LSGA empowers local bodies to take measures to conserve forests including plantation in barren forests land and biodiversity conservation.

16: The Leasehold Policy 2002 provides that Government may grant degraded forests land on lease to 'below poverty' groups or for industrial purposes. but the Mines and Mineral Act 1985 gives sweeping authority to the Licensee to explore mines and mineral irrespective of whatsoever type of land it is.

17: The Leasehold Policy 2002 provides that Government may grant degraded forests land on lease to 'below poverty' groups or for industrial purposes, but the Public Roads Act 1974 empowers Department of Roads to construct public roads and create the right of way in whatsoever type of land it is.

18: The Local Self-Governance Act 1999 provides that a specified percent of royalty from mines will be paid to the DDC, but the Mines Act makes no reference to such a requirement.

19: The Local Self-Governance Act 1999 empowers the DDC to prepare programs concerning forests, plants and biodiversity and to implement them, but these conflicts with the National Parks and Wildlife Conservation Act 1973 which restricts the collection and sale of forests products emanating from such parks and wildlife reserves.

20: The Mines and Mineral Act 1985 provides sweeping authority to a Licensee to explore mines and mineral irrespective of the type of land concerned, but the National Parks and Wildlife Conservation Act 1973 focuses on protection of forests and wildlife

21: The Mines and Mineral Act 1985 provides sweeping authority to a Licensee to explore mines and mineral irrespective of the type of land concerned, it but the Revised Forests Sector Policy 2000 focuses on the protection of forest products and their sustainable use.

22: The Mines and Mineral Act 1985 provides sweeping authority to a Licensee to explore mines and mineral irrespective of the type of land concerned, but the Soil and Watershed Conservation Act 1982 has provisions for zoning to protect critical watershed areas with restriction of development activities including mineral exploration.

23: The Mines and Mineral Act 1985 provides sweeping authority to a Licensee to explore mines and mineral irrespective of the type of land concerned, but the National Biodiversity Strategy 2002 focuses on sustainable use of resources.

24: The National Parks and Wildlife Conservation Act 1973 contains strict measures for the conservation of wild flora and fauna and national parks and reserves through which public roads and other development infrastructures have to be developed. However, the Public Roads Act does not address such conservation requirements.

25: The Water Resources Strategy 2002 focuses only on harnessing of water resources, but the National Parks and Wildlife Conservation Act 1973 contains strict provisions against harnessing water resources from national parks and wildlife reserves.

26: The Public Roads Act 1974 allows the Department of Roads and subordinate authorities to construct roads and create rights of way irrespective of land type, but the Revised Forests Sector Policy 2000 focuses on the protection of forests land.

27: The Public Roads Act 1974 allows the Department of Roads and subordinate authorities to construct roads and create rights of way irrespective of land type, but the Soil and Watershed Conservation Act 1982 has provisions for zoning to protect critical watershed areas with restriction of development activities including the construction of roads.

28: The Soil and Watershed Conservation Act 1982 prohibits any activity in critical watershed areas, but the Water Resources Strategy 2002 does not take into account of such issues.

3.5.8 Traditional use and usufruct rights to forest resources

Forest tenure can be regarded as ‘a bundle of rights’ over a piece of forest, a tree or a group of trees. There are two dominant forms of forest tenure in Nepal that provide rights:

- legal tenure and practice. The right of government to legal tenure is established by the Forests Act, 1993 (section 67) which provides that ownership over land in community forests, leasehold forests and religious forests rests with Government of Nepal.
- traditional group-based tenure.

Several customary resource management systems are still practiced in various locations in Nepal. These systems are still working in areas where the government's presence is negligible. In many cases, they have been effective in preserving forest areas and guaranteeing access to all community members. But it is also the case that management decisions are often feudalistic, taken by a few village leaders (Acharya *et al* 2008). The government recognizes only group-based tenure arrangements for national forests, including Community Forests. The management plans for such groups is a contractual document setting out the arrangement of tenure rights over forest resources. In order to effectively implement the REDD+ programme in Nepal, it will be necessary to address the issue of tenure rights.

3.5.9 International commitments

To date, Nepal has become a party to 26 multilateral environmental agreements (MEAs) and has adopted a number of legal and policy measures for implementation of the treaty obligation arising out under those MEAs. The obligations assumed by the country require a number of measures to be taken to mitigate climate change and the impacts on the environment, as follows.

Article 3 of the 1992 Convention on Biological Diversity places an overriding obligation on State Parties, *inter alia*, to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or to areas beyond the limits of national jurisdiction. This obligation acknowledges that environmental issues like climate change are no longer the issues of national importance alone, and that they have trans-border implications.

The 1992 UN Framework Convention on Climate Change obligates the State parties, *inter alia*, to take climate change considerations into account in their relevant social, economic and environmental policies and actions, and employ appropriate methods, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change. Articles 4 (f) and (g) require State Parties to:

“promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies”.

Nepal is an accessory to the Kyoto Protocol (1997, entering into force in 2005) that set internationally binding emission reduction targets. The Protocol established the Clean Development Mechanism (CDM)³⁴ under which the Parties not included in Annex I (like Nepal) will benefit from project activities resulting in certified emission reductions. The Carbon Trade Facility (CTF) is one of the CDM measures. For maximizing the benefits from the CDM, Nepal needs to increase its stock of tradable carbon which is possible only through promoting renewable alternative energies and conserving forests.

³⁴ The purpose of the Clean Development Mechanism is to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3 of the Convention

Nepal is also a party to the ILO Convention on Indigenous and Tribal Peoples (C169) which aims to ensure separate identity of Indigenous and Tribal Peoples. Under this Convention, the primary obligation of the State is to develop, with the participation of the peoples concerned, co-ordinated and systematic action to protect the rights of these peoples and to guarantee respect for their integrity. Article 2 of the Convention requires the government to promote the full realisation of the social, economic and cultural rights of these peoples with respect for their social and cultural identity, their customs and traditions and their institutions. One of the major requirements of the Convention is to obtaining the free prior and informed consent (FPIC) of Indigenous and Tribal Peoples when taking decisions that affect their lives and interests such as displacement or their resettlement for development or other purposes. Since obtaining FPIC is not possible and desirable for all decision-making on matters related to Indigenous and Tribal Peoples, policies and procedures need to be developed to clarify how, where and from whom such FPIC has to be obtained.

Indigenous and Tribal Peoples (ITP) identified in Nepal live close to most of Nepal's forests, so a balance has to be struck to protect their legitimate interests and overall national interests³⁵. Moreover, since most of the settlements in the country are occupied by a mixture of ITP and peoples of other origin, securing rights and interests only of the ITP is rather difficult. For that purpose, policies need to be adopted so that the ITP are consulted well in advance where there are settlements of solely ITP and their interests are well-taken care of; and a consultation process is conducted with all local communities where there are mixed settlements. While reviewing the forests law from this perspective, attention needs to be paid to the major provisions of the Convention and the fundamental rights guaranteed to all citizens (and all peoples).

The United Nations General Assembly adopted the Declaration on the Rights of Indigenous Peoples (UNDRIPs) in 2007. This aims to secure the right to full enjoyment, as a collective or as individuals, of all human rights and fundamental freedoms as recognized in the Charter of the United Nations, the Universal Declaration of Human Rights. The Declaration states, *inter alia*, that indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired. It also asserts that indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired. The Declaration further provides (in Article 26) that States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned.

While preparing policies and programmes concerning forest conservation and mitigation of the effects of climate change, special provisions will be needed to respect and apply, to the extent possible, the traditional knowledge and practices of indigenous communities.

3.5.10 *Gender mainstreaming policies and strategy*

Since the mid-1990s, especially after the Beijing Conference in 1995, the government has made significantly increasing commitments to gender equity and equality and the empowerment of women in its policies, plans and programmes. A Ministry of Women was established in 1995 and the National Planning Commission introduced a Gender and Development (GAD) approach in the Ninth Five Year Plan (1997-2002), with gender mainstreaming as a strategy to enable women and men to participate equally in public and private life and realize their full potential in development.

³⁵ There is much debate about the suitability and applicability of the ILO Convention in Nepal given the nature and types of tribal peoples living in the country. It is argued that some of such peoples such as Newars are elite people not requiring such protection.

Nepal's Poverty Reduction Strategy Paper (PRSP) was developed to serve as a foundation for the Tenth Five Year Plan (2002-2007). It identified gender and inclusion as its main strategies for reducing poverty. Instead of relying only on targeted programmes, the Tenth Plan tried to address gender and caste related issues by mainstreaming all of the four pillars of PRSP along with envisaged strategies to achieve gender equality and empowerment of women. The Plan set out a gender mainstreaming policy for the forestry sector. It proposed several procedures and actions:

- a participatory approach to poverty alleviation through income/employment generation on the basis of "gender equality";
- elimination of existing gender discrimination through institutionalizing gender sensitization;
- women's leadership in the sector to be increased especially through their access to community and leasehold forestry; and enhancement of their management capabilities;
- adherence to gender equality in all forestry sector human resources development;
- gender sensitization component to be increased quantitatively and enhanced qualitatively in all forestry sector training.

The Three Year Interim Plan (TYIP) (2008-2010) emphasized post-conflict reconstruction, rehabilitation and reconciliation, and continued the long-term goal of poverty reduction through gender mainstreaming and social inclusion.

During the same period, the Ministry of Forestry and Soil Conservation established a "Gender Equity Working Group" to implement Vision-2020.

The forestry sector Gender and Social Inclusion Strategy (2007) includes the following mission statement:

"Ministry of Forest and Soil Conservation is a gender and social equity sensitive and socially inclusive organization practicing good forest governance to ensure equitable access to, benefits from, and decision making power over, forest resources of all stakeholders"

The strategy aims to address gender and social inclusion by attaining institutional vision of i) gender and equity sensitive policy and strategy, ii) equitable governance, iii) gender and equity sensitive organizational development and programming, and iv) equitable access to resources and benefits (MoFSC, 2007).

Apart from the above strategy, a policy framework on "gender and environment" has been put in place. The government has formulated a National Plan of Action to implement the Beijing Platform for Action for the empowerment of women (MoWCSW, 2004). It identifies several strategies to implement the action plan as regards women and environment:

- i. Women and environment related legal reform ;
- ii. Women's proportional participation in environment related activities;
- iii. Making environment related policies gender sensitive, and adopting gender responsive budgeting for the environment-related programmes;
- iv. Establishment of an institutional mechanism to address the impact on women of environmental policies and programmes;
- v. Women's representation in monitoring committees and their participation in the monitoring process related to technology development, training, programme implementation.

The Action Plan includes the following activities on women and environment:

- i. Ensuring women's representation in the Environment Conservation Council, Management Committee, various agencies, organizations and user committees through policy change and legal framework;
- ii. Quota for women in environmental education;
- iii. Ensuring access of women to environmental information and education;
- iv. Awareness raising of women about environment and local technology; and mobilizing NGOs for this;
- v. Special subsidy for poor households for alternative energy and biogas;
- vi. Enhancing women's capacity in technical and managerial skills in environment related fields;
- vii. Initiation of gender responsive budgeting in the environmental sector.

Nepal is also signatory to many international human rights related conventions and declarations, which call for the elimination of all forms of gender based discrimination, including those in access to education, health and other services. The Convention on the Elimination of all forms of Discrimination against Women (CEDAW), signed by the GoN in 1991, commits Nepal to constitutional and legal equality, particularly in the fields of education, health, citizenship, property and employment. General Recommendation 19 also seeks to guarantee freedom from all kinds of violence and sexual exploitation.

Thus, in its national level policies and plans, the government has emphasized the importance of women in all spheres ranging from household to community and national level. Realizing the increased potentiality of women in the socio-economic and political sectors, the government has increasingly provided more space for the increased participation of women. In addition, in 2002, it established the National Women's Commission, to look after women's rights issues and take appropriate protective and defensive measures to address such issues and problems encountered at all levels and in any form, eg domestic violence, women's right to properties and representation in the key positions with fair proportions.

Box 3.5.1 lists the main provisions of key international instruments concerning gender issues.

Box 3.5.1: Provisions of instruments and commitments to address gender concerns relevant to REDD+

Interim Constitution of Nepal-2007

- Article-13 "*Right to equality*" includes non-discrimination on the basis of sex; special measures through enactment of laws for protection, empowerment and advancement of women; and equal remuneration and social security for equal work.
- Article-20 "*Women's rights*" states that there shall be no discrimination just because a person is a woman; each woman shall have reproductive health and fertility rights; there shall be no physical, mental or any other form of violence against women and such act shall be legally punishable; and sons and daughters shall have equal inheritance right.
- Article-34 (4): "*Directive Principles of the State*" states that the economic exploitation or any form of economic disparity will be prohibited including the one based on gender; and promotes equality in the economic benefit distribution.

UN Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)

- Article-8: "*Right to International Representation*" affirms the representation of women on equal terms with men and without any discrimination; the opportunity to represent the government at the international level including seminars and conferences, etc.; and to

participate in the work of international organizations.

- Article-14: *“Rural women”* establishes rural women’s rights to participate in the elaboration and implementation of development planning at all levels; to benefit directly from social security programmes; to obtain all types of training and education, formal and non-formal; to participate in all community activities; to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity, transportation, water supply and means of communication.
- Article-15: *“Equality before the law”* accords to women equal rights of legal capacity and the exercise of that capacity in civil matters identical to that of men. Additionally this article accords women the same rights as men in the freedom of movement.

Beijing Platform for Action (BPFA)

- Critical Area-4: *“Violence against women”* commits to take integrated measures to prevent and eliminate violence against women, study the causes and consequences of violence against women and the effectiveness of preventive measures, and eliminate trafficking in women and assist victims of prostitution and trafficking related violence.
- Critical Area-7: *“Women in power and decision making”* commits to take measures to ensure women’s equal access to and full participation in power structures and decision-making; and increase women’s capacity to participate in decision-making and leadership.
- Critical Area-9: *“Human rights of women”* commits to promote and protect the human rights of women, through the full implementation of all human rights instruments, especially the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW); and ensures equality and non-discrimination under the law and in practice through achievement of legal literacy.
- Critical Area-11: *“Women and the environment”* requires involving women actively in environmental decision-making at all levels; to integrate gender concerns and perspectives in policies and programmes for sustainable development; and to strengthen or establish mechanisms at the national, regional and international levels to assess the impact of development and environmental policies on women.

Rio Earth Summit -Agenda 21, Principle- 20

- In conjunction with the Rio Declaration on environment and development and the principles for the sustainable management of forests to be implemented "from then (June 1992) and into the twenty-first century", states *“Women’s vital role in environmental management and development; and the need of their full participation to achieve sustainable development”*.

UNFCC’s declarations and decisions

- Cancun COP-16 (in 2010) on reducing emissions from deforestation and forest degradation (REDD+) requested countries *“to address, inter alia, drivers of deforestation and forest degradation, land tenure issues, forest governance issues, gender considerations and the safeguards.”*

- Doha Decision 23/CP.18 (in 2012) proposed “Promoting gender balance and improving the participation of women in UNFCCC negotiations and in the representation of Parties in bodies established pursuant to the Convention or the Kyoto Protocol” and the recommendation to the UNFCCC Secretariat for COP 19 to ensure gender balance in UNFCCC process, gender sensitive climate policy and capacity development activities towards the implementation of Doha Decision 23.
- Warsaw COP-19 subsequently endorsed Doha Decision 23 on November 2013 highlighting “needs for strengthened gender equality in the UNFCCC process through gender balance in the UNFCCC process, capacity building on gender-sensitive policies and implementation, and gender-sensitive climate policies”.
- Furthermore, to comply with the World Bank’s Operational Policy (OP) under the Forest Carbon Partnership Facility (FCPF); critical points of reference are OP 4.10 on *Indigenous women, youth and children* as forest dependents and OP 4.20 *gender and development* for minimizing, mitigating or compensating for adverse effects of REDD+ programme and ensuring social and economic benefits to women, men, youth and children.

3.6 INSTITUTIONAL REVIEW

The section reviews REDD+ implementation activities to date – and their institutional dimensions, and institutions at national and district levels which are likely to play a role in REDD+ and ESMF implementation:

National – Ministries (plus subsidiary departments) responsible for forestry, environment, agriculture, roads, energy and local government (in terms of roles in coordination, technical support and training).

District – DDC, DFO, District Education Office, DADO, DSCO, DWCO (in terms of screening and monitoring REDD+ projects or activities).

Local – VDC, User groups, ward citizen forums (in terms of monitoring REDD+ projects or activities)

3.6.1 REDD+ implementation activities to date

3.6.1.1 ICIMOD/ANSAB/FECOFUN REDD+ Pilot Project

This REDD+ pilot project, “Design and Setting up of a Governance and Payment System for Nepal’s Community Forest Management under Reduced Emission from Deforestation and Degradation (REDD)”, was undertaken between 2009 and 2013 by the Asia Network for Sustainable Agriculture and Bio-resources (ANSAB), International Centre for Integrated Mountain Development (ICIMOD) and Federation of Community Forest Users, Nepal (FECOFUN). Financial support was provided by the Norwegian Agency for Development Cooperation (NORAD). The project covers about 10,000 ha focused on three watersheds: Charnawati watershed in Dolakha district; LudhiKhola watershed in Gorkha district; and KayerKhola watershed of Chitwan district.

The project involved the provision of seed money (funded by NORAD) to particular Community Forest User Groups (CFUGs) involved in the development and testing of an institutional mechanism to ensure equitable benefit sharing and forest carbon payments to local communities. In addition, it aimed to

demonstrate the feasibility of a REDD payment mechanism in community forests by involving local communities - including marginalized groups - so that deforestation and forest degradation can be reduced by linking sustainable forest management practices with economic incentives. The project focused on the concerns of indigenous and marginalized people and local communities that are dependent on forests by involving them in the design and functioning of a national-level REDD+ governance and payment mechanism that supports community forestry at grassroots level.

This piloting emphasized socio-economic criteria more than carbon sequestration. The criteria, indicators and processes for fund mobilization did not address equity issues. According to a study by the REDD Cell, local stakeholders have expressed their view that further revision and improvement of the criteria and indicators is needed to maintain balance between social justice, equity and environmental integrity. There is also a growing concern among stakeholders in the three involved watersheds that consistency regarding the benefit distribution process and mechanisms is needed between REDD+ guidelines and community forestry guidelines (REDD Cell, 2013).

Further analysis of the concerns of stakeholders regarding the pilots shows that there was a significant transaction cost associated with participation for marginal benefit (Maraseni *et al.*, forthcoming). Moreover, they were concerned about the exclusion of private, leasehold, government, protected forest. Furthermore, other policy-related issues such as carbon rights and land tenure need to be addressed for effective implementation of REDD+. The rights to carbon and the benefits deriving from it have not yet been explicitly defined in laws or policies for community forestry—leading to conflicting claims.

The government argues that, since it owns the land, the carbon benefits should accrue to the central government (as stated by government representatives in REDD+ policy forums). On the contrary, pro-community actors, especially FECOFUN, argue that the rights to carbon benefits should remain with local communities, since they are the ones managing the forests. Such controversies have created confusion when devising mechanisms to share REDD+ benefits (Khatri *et al.* 2010, as cited in Bhusley & Khatri, 2011). The piloting, awareness-raising and policy-making processes have maintained a narrow focus on a national approach to REDD, and a distinct bias toward community forestry. This bias is due largely to the active engagement and ascendancy of FECOFUN in all aspects of REDD+ readiness, the influence of donors and NGOs who have traditionally supported community forestry, and the acquiescence of other actors (Bhusley & Khatri, 2011).

However, from the experience of the piloting projects, it can be concluded that using the existing institutional structure of various federations for outreach and consultation processes is relatively effective. In the future, the existing institutional structures of the forest federations and their community and governmental alliances could be used in a wide range of circumstances.

A pilot exercise was carried out in the Terai Arc Landscape (TAL) to develop a standard method for measuring forest carbon and to generate forest carbon data, with technical assistance from WWF-Nepal. This pilot has enhanced the capacity of local people in forest carbon assessment, forest carbon monitoring, and also the capacity of government institutions located in the concerned districts.

Institutional structures for the pilot project

The project established a Forest Carbon Trust Fund (FCTF) as the focal body of the project. The FCTF created institutional mechanisms for channelling and utilizing funds at central, watershed and ground levels (Box 3.6.1):

Box 3.6.1: Institutional structures established for the ICIMOD/ANSAB/FECOFUN REDD+ pilot project

Central level

Forest Carbon Trust Fund (FCTF) Advisory Committee. The FCTF acted as a steering committee and was formally established in June 2011 with a US \$ 100,000 seed grant from NORAD. Its main aim was to develop capacity-building systems that can be used in implementing REDD+ nationwide. The priority was given to ensuring that payment mechanisms are equitable in the local communities. The committee includes members from REDD Cell, NEFIN, ICIMOD, ANSAB, FECOFUN, DNF, HIMAWANTI, one representative from each watershed REDD Network, and any other organizational representative with consent of existing members of advisory committee. The major roles and responsibilities of the FCTF Advisory Committee included:

- Supervision of fund distribution to ensure effective, efficient and transparent implementation of the programme.
- Provision of financial and technical advice to the Watershed Fund Advisory committee and the Water shed REDD Network; and
- Review of the financial performance of the FCTF.

Program Management Unit (PMU). The PMU comprised members from ICIMOD, ANSAB and FECOFUN. It was mainly responsible to oversee all the activities of pilot project, collect and manages biophysical and socio-economic data generated by baseline studies and periodically received from the Watershed REDD Network. When approved by the FCTF Advisory Committee, the PMU released payments to the Watershed REDD Network. It also made fund disbursement plans. After the disbursement of payments, the PMU prepared an expenditure statement and report and submitted this to the FCTF Advisory Committee.

Verification Agency: The FCTF Advisory Committee selected the Environmental Resource Institute (ERI) Pvt. Ltd; as an independent verification agency (Khatri et al, 2011). The Agency had responsibility to verify the databases presented by the Watersheds REDD Network (WRN) and CFUGs and to monitor changes in carbon stock, corresponding payments and socio- economic changes in the community.

Watershed level

Watershed Fund Advisory Committee (WAFAC). The WAFAC was responsible for the Watershed REDD Network and provided strategic support in distributing REDD+ payment to CFUGs. It comprised members from each District Forest Office (DFO), District Development Committee (DDC), NEFIN- District coordination Council-DDC, and FECOFUN- District level and Watershed REDD network.

Watersheds REDD Network (WRN). One Watershed REDD Network was established in each of the participating watersheds, consisting of a member from each CFUG Executive Committee. The WRN met every month to share lessons, solve problems and disputes associated with REDD+ activities in their area.

Monitoring Committee (MC). A Monitoring Committee for each watershed comprised one representative from each District Soil and Watershed Conservation office and District Forest Office, a local technician from ANSAB, one member from each district-level organization of marginalized groups (Dalits) and women's' network. Its responsibility was to ensure that claims were received, payments made, and databases accurate, and to monitor changes in carbon stock and socio-economic aspects.

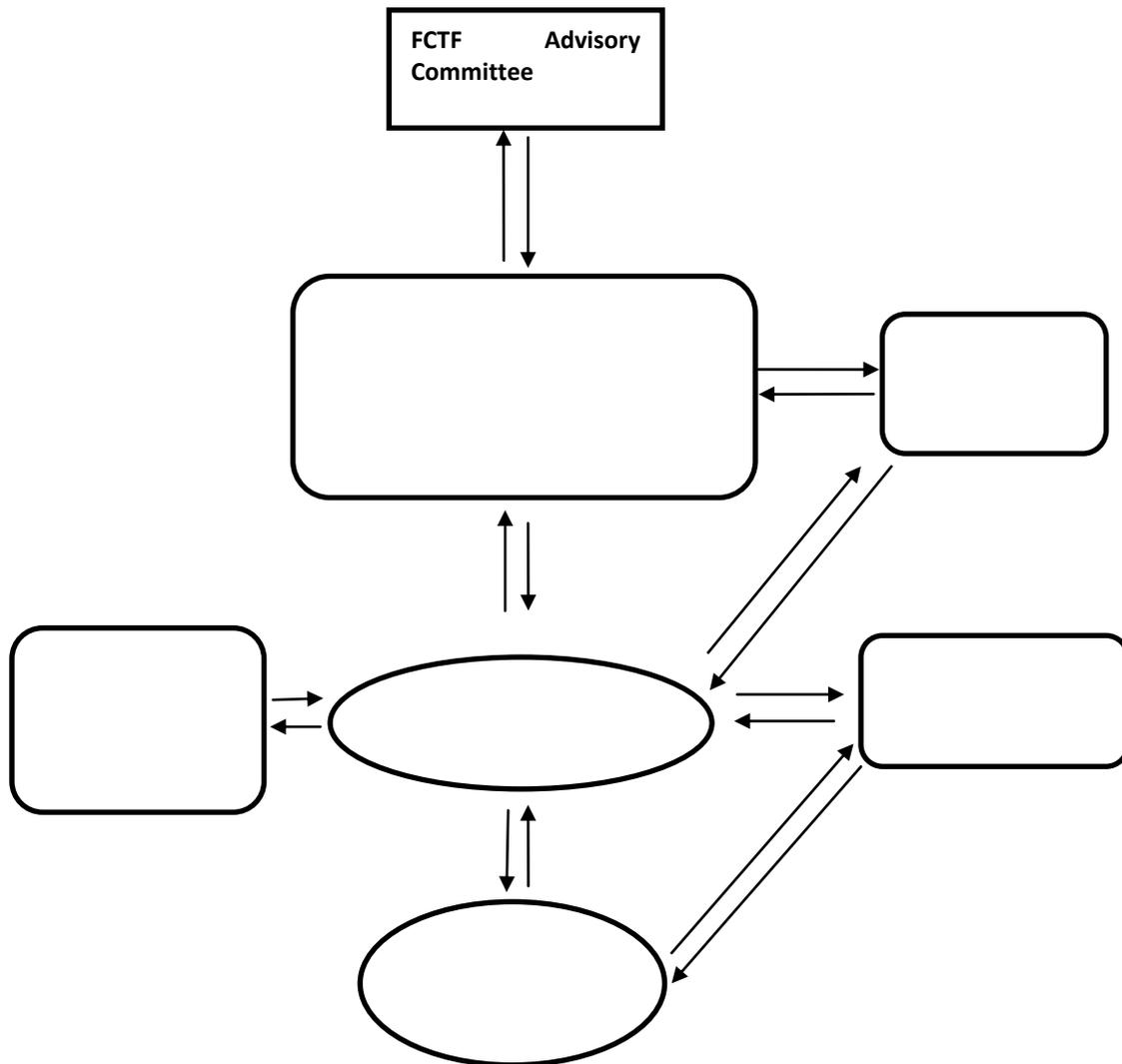
Ground level

Community Forest User Groups (CFUGs). CFUGs have been established for each community forest in the watersheds, and each CFUG has its Executive Committee that utilizes the fund.

Institutional arrangements for fund flow

Figure 3.6.1 illustrates how funds were distributed by the REDD+ pilot project. The pilot project’s fund flow mechanism operated from the central level to CFUGs. CFUGs in each watershed were first required to complete a forest carbon survey, complete the carbon databases and provide socio-economic data prior to submitting a claim invoice to the Watershed REDD Network. The invoice also included the tentative plan for the utilization of the claimed fund as per FCTF’s guidelines. The CFUGs also assisted the WRN in Carbon measurement. The WRN compiled the claim invoices from all CFUGs in the watershed and prepared a watershed-level claim invoice, which was then presented to the Watershed Fund Advisory Committee (WAFAC). The monitoring committee (MC) verified the accuracy of presented data. Subsequently, the WAFAC approved the claim and sent it to the PMU. The latter compiled the claim invoices from all watersheds and prepared payment slips stating the amount of fund and passed these to the central FCTF. The FCTF then distributed the seed grant to the WRB via the PMU. The payment was based on the performance of the watershed according to four criteria developed by the FCTF Task Force: carbon sequestered by the forest, number of poor households, number of IP households, and the female population.

Figure 3.6.1: Fund flow mechanism for the ICIMOD/ANSAB/FECEOFUN REDD+ Pilot Project



The WRN distributed the grant to the each CFUG in the watershed in two instalments, half yearly. The payment was based broadly on the following criteria:

- Baseline carbon stock and carbon increment/additionality;
- Social safeguards: numbers of households of Dalits, Poor and IPs, and the number of women.

The Monitoring Committee ensured that the funds received by the CFUGs were utilized as per the FCTF guidelines. The latter includes that 40% of seed grants should be directed to forest management, 20% to pro-poor activities, 10% to IPs, 15% to women and 15% to Dalits.

CFUGs spent the money on activities to reduce deforestation and forest degradation. The WRN required each CFUG to complete a claim invoice form on the basis of the aforementioned criteria and to forward it to the District REDD Network and Watershed REDD Network.

Post project monitoring

Currently post project monitoring is being undertaken at district and local levels of the REDD+ pilot fund mobilization of NORAD Seed grant. A report on this monitoring will be submitted to the REDD Apex Body. ICIMOD is due to publish a final status report on the pilot project.

3.6.1.2 Lessons From REDD+ Pilot Projects

Apart from the ICIMOD/ANSAB/FECOFUN pilot project described in section 3.6.1.1, a number of others have also been implemented by NGOs in Nepal at different levels. They all include two main types of activities:

1. Readiness at national and subnational level: capacity building; provision of information; measurement, reporting and verification (MRV); and developing safeguards – with the overall objective to establish a conducive environment for REDD+ implementation.
2. Emission reducing activities: mostly technological interventions in activities such as conservation agriculture, efficient production of biomass energy, sustainable forest management - combined with development of capacity at local level (eg organizational skills, supporting access to inputs, value addition of products, access to credit and markets, etc.).

The pilot projects are thus broad-based particularly because of the need to contribute to the national readiness processes, inform policies and demonstrate what works and what does not. As a result, high level initiatives are mixed with more practical interventions to support land users in changing practices and in some cases directly benefiting from cash payments.

The REDD Cell conducted a study of five different such REDD+ pilot projects (including the ICIMOD/ANSAB/FECOFUN project) (REDD Cell, 2011). Table 3.6.1 compares these initiatives.

Publications recording the experience of this pilot project have been widely used for training at national and regional level in Asia and the Pacific region (REDD Cell, 2013, p.28). Analysis of the concerns of stakeholders regarding the pilots shows that they lacked sufficient awareness of REDD+, and felt that too much emphasis was given to technical aspects (eg carbon mapping). They could not identify the tangible benefits of the projects. Moreover, they were concerned about the exclusion of private, leasehold, government, and protected forest. Furthermore, other policy-related issues such as carbon rights and land tenure need to be addressed for effective implementation of REDD+. The rights to carbon and the benefits deriving from it have not yet been explicitly defined in laws or policies—even for community forestry—leading to conflicting claims. The government argues that, since it owns the land, the carbon benefits should accrue to the central government (as stated by government

representatives in REDD+ policy forums). On the contrary, pro-community actors, especially FECOFUN, argue that the rights to carbon benefits should remain with local communities, since they are the ones managing the forests. Such controversies have created confusion when devising mechanisms to share REDD+ benefits (Khatri *et al.* 2010, as cited in Bhusley & Khatri, 2011). The piloting, awareness-raising and policy-making processes have maintained a narrow focus on a national approach to REDD, and a distinct bias toward community forestry. This bias is due largely to the active engagement and ascendancy of FECOFUN in all aspects of REDD+ readiness, the influence of donors and NGOs who have traditionally supported community forestry, and the acquiescence of other actors (Bhusley & Khatri, 2011).

A desk review of the REDD pilot project activities and consultations undertaken by the REDD Cell in 2011 drew the following major lessons:

- The project has been able to establish FCTF, Advisory Committees and a Monitoring Committee at watershed level, and seed grants have been provided in three watersheds to test the functions of these committees and guidelines. The lessons from fund transaction, benefit-sharing and governance will be high value in national strategy development.
- From the experience of the piloting projects, it can be concluded that using the existing institutional structure of various federations for outreach and consultation processes is relatively effective. So, in future, the existing institutional structure of the federation/alliance can be used to a large extent wherever possible.
- A number of activities under the REDD pilot project have implemented capacity building programmes, particularly providing training on the social and technical dimensions of REDD+ to local leaders, eg (REDD, Cell, 2011):
 - Plan Vivo;
 - RECOFTC Grass-roots Capacity Building Program for REDD+ in the Asia-Pacific
 - WWF's Reducing Poverty in Nepal; and
 - NEFIN's Climate Change and Partnership program.

These training activities have been found to be effective and the concept of REDD+ has been transferred to the local level. However, the geographic coverage of such projects has been very low.

- Although all the piloting activities have a good relationship with the REDD-Forestry and Climate Change Cell, the coordination among the projects (five different projects as mentioned in table 1) is very weak in terms of their implementation at field level, and has resulted duplication of efforts.
- There is good coordination between FUGs, REDD networks and project implementing partners at local level. WRNs have also been established to enhance coordination and collaboration. However, whilst information and lessons are shared at the central level, there is weak coordination amongst projects themselves (even though they are implemented in the same areas) (REDD Cell, 2011, p30). The coordination between government agencies, particularly with DFOs and projects is also very weak (REDD Cell, 2011, P.33).

Table 3.6.1: List of organizations involved in Piloting REDD+ in Nepal

(Source: REDD Cell 2011)

Project Name → Project Details ↓	Grassroots Capacity Building Programme [RECOFTC & FECOFUN]	Climate Change and Partnership (NEFIN)	Reducing Poverty in Nepal (WWF)	Setting up of Governance and Payment System (ICIMOD, ANSAB & FECOFUN)	Plan Vivo Project (LFP)
Approach	Capacity-building of various stakeholders (Org & individuals) through training adopting cascade approach.	Capacity-building through training and workshops and advocacy and lobbying through various media.	Capacity-building of various stakeholders through training and action research.	Learning from piloting and demonstrating on various REDD+-related activities (baseline information, forest carbon measurement & benefit-sharing mechanism).	Piloting & enhancing learning & capacity-building amongst local communities & other government and non-government stakeholders.
Coverage	16 Districts (Dadeldhura, Kanchanpur, Kailali, Bardia, Surkhet, Banke, Dang, Kapilvastu, Rupandehi, Nawalparasi, Sindhupalchowk, Kabhre, Bhaktapur, Morang, Ilam & Jhapa.	40 Districts covering most of those from mid-hills & Terai.	14 Districts (Rautahat, Bara, Parsa, Makawanpur, Chitwan, Nawalparasi, Rupandehi, Kapilbastu, Dang, Banke, Bardia, Kailali, Kanchanpur & Argakhachi.	3 Watershed Areas (Charnawati River in Dolakha District, Lusikhola River in Gorkha District, & Kayarkhola River in Chitwan District.	3 VDCs in 4 Districts (Baglung – Resha & Damek, Dhankuta – Budimorang & Khuwaphok, Rupandehi – Saljhandi & Suryapura, and Dang – Rampur & Laxmipur.
Target Group	CFUGs, local stakeholders, civil society, schools, colleges, youth clubs, Aama Samuha, etc.,	Indigenous people of the project areas.	District-level government agencies (DFOs) and other stakeholders.	The project targets around 105 CFUGs covering about 10,000 ha of forest area & more than 18,000 households.	Local forest user groups of different types & their member households at VDC level.
Focused Theme	<ul style="list-style-type: none"> Needs assessment Development of outreach materials Develop trainers at different levels 	<ul style="list-style-type: none"> Awareness-raising & capacity-building. Advocacy & lobbying. 	<ul style="list-style-type: none"> Capacity-building (training) on Carbon measurement, socio-economic survey, & awareness-raising. Action research on Carbon measurement. 	<ul style="list-style-type: none"> Capacity-building on baseline information, forest Carbon measurement & benefit-sharing mechanism. Field testing and demonstration 	<ul style="list-style-type: none"> Improving degraded forest Enhancing forest stocks Reducing forest degradation and deforestation Livelihood improvement of targeted households.

3.6.1.3 Nepal's REDD+ preparation

Nepal's Government has established a three-tiered institutional mechanism for implementing REDD+:

- REDD+ Multi-sectoral, Multi-stakeholder Coordinating and Monitoring Committee - as the apex body;
- REDD+ Working Group (RWG) - at the operational level; and
- REDD-Forestry and Climate Change Cell - as the coordinating entity.

All three bodies have been working together to prepare the REDD+ National Strategy and Implementation Plan. In addition, a Stakeholder Forum has been established to engage a wide range of stakeholders in the entire REDD+ process. Nepal is currently undergoing a restructuring process, so these institutional arrangements will be adjusted in line with the new Constitution

3.6.1.4 Institutional arrangements for dealing with climate change

Climate change has been adopted by the Government of Nepal (GON) as a national issue. However, institutional arrangement is still a challenge for its effective internalization. Some institutional arrangements have been established. For example: the Ministry of Science, Technology and Environment (MoSTE) has been designate as the focal agency; the REDD Cell has been formed to address forestry dimension of climate change under Ministry of Forests and Soil Conservation. However, cross sectoral coordination and cooperation has been weak and/or limited. The lack of coordination is also evident in international agencies working in REDD and climate change (Lamsal & Bhandary, 2009). Similarly, coordination with the local government agencies has also been a challenge due to conflicting provisions in the Forest Act 1993 and Local Self Governance Act 1999 over the rights and ownership of the forestry products. Hence an important aspect of this paper is its review of the institutional set up, mandates, strengths and weaknesses of key institutions as regards addressing environmental and social issues related to REDD+ implementation.

3.6.2 Summary of government institutional arrangements to address environmental and social concerns

Nepal has a well-established legal system to implement and include environmental and social safeguards in development activities. The various laws, policies, rules and regulations are described in section 3.5 and include the Environmental Protection Act (1996) and the Environment Protection Rules (1997). Many sectoral laws also include provisions for integrating environmental aspect into development activities.

MoFSC and the Ministry of Science, Technology and Environment (MoSTE) are the main ministries responsible for coordinating the integration of environmental and social consideration in the REDD+ process. Both ministries have an Environment Division which oversees environmental and social impact of forest related activities. The MOSTE has responsibility to approve EIAs and related reports for all sectors. But many ministries have Environmental Divisions or Sections to oversee the environmental and social impact of development activities. The National Planning Commission Secretariat also has an Environmental Division that assists the integration of environmental and social issues in development planning.

3.6.3 Review of institutions

Recently, the REDD Cell (2014) submitted an Emission Reductions Program Idea Note (ER-PIN) to the Forest Carbon Partnership Facility (FCPF). It includes a useful overview of key institutions operating in

the forestry sector – both governmental and non-governmental, and indicates their potential role in emissions reduction. Adapted from this overview, Table 2 summarises the role of these institutions and their potential role in REDD+. This table supplements the analysis of key institutions relevant to the forest sector presented in this section.

Table 3.6.2: Key institutions operating in the forestry sector and their potential role in REDD+

NAME	DESCRIPTION	POTENTIAL FUNCTION IN RELATION TO REDD+ STRATEGY
Government ministries and Departments		
Ministry of Forests and Soil Conservation (MoFSC)	<ul style="list-style-type: none"> Highest forestry sector authority mandated for sustainable development of country's forests and watersheds including biodiversity and NTFPs conservation Four technical divisions (Planning and HR, Foreign Aid Coordination, Environment and M&E) and five departments [1) Forests (DoF), 2) Forest Research and Survey (DFRS), 3) National Parks and Wildlife Conservation (DNPWC), 4) Soil Conservation and 5) Plant Resources] 	<ul style="list-style-type: none"> Primary institution responsible for coordinating and implementing the REDD+. Liaison with national and international stakeholders
Ministry of Finance (MoF)	<ul style="list-style-type: none"> The central government authority responsible for rationale allocation of public finance ; better management of public expenditure; enhanced mobilization of both internal and external resources; greater performance in public investments and strengthening of public enterprises productive capacity; open and simple foreign exchange policies and regulation, and prudent fiscal and monetary policies 	<ul style="list-style-type: none"> Liaison with donors and support MoFSC to implement the REDD+ Strategy. Play required functions according to the evolving REDD+ Strategy, including raising funds and benefit sharing
Department of Forests (DoF)	<ul style="list-style-type: none"> The oldest and largest department of MoFSC mandated to operationalize the forest management and development policies of Nepal. Three technical divisions e.g. i) national forests, ii) planning and monitoring and iii) community forestry in the centre and District 	<ul style="list-style-type: none"> Implementation of the REDD+ Strategy at district level through District Forest Offices Liaise with REDD Cell (or its successor) to implement such programmes

NAME	DESCRIPTION	POTENTIAL FUNCTION IN RELATION TO REDD+ STRATEGY
	forest offices (DFOs) in all districts. Each DFO has one or more sub-district or Ilaka offices and each ilaka office has two or more range posts with a team of field level staff led by a forest ranger	
Department of National Parks and Wildlife Conservation		<ul style="list-style-type: none"> Implement emission reduction strategies mainly related to conservation of forest and enhancement of forest carbon stocks in protected areas through Warden's offices.
Department of Soil Conservation and Watershed Management		<ul style="list-style-type: none"> Implement soil conservation and erosion control measures in liaison with REDD Cell.
Department of Forest Research and Survey		<ul style="list-style-type: none"> Measurement and monitoring of carbon and non-carbon benefits, liaising with DoF
Ministry of Science, Technology and Environment (MoSTE)	<ul style="list-style-type: none"> The principal ministry in charge of formulation and implementation of policies, plans and programmers pertaining to science, technology and environment; Five of its sections are directly related to environment/REDD+: <u>Environment Standard Section</u>, <u>Environment Assessment Section</u>, <u>Climate Change Section</u>, <u>Sustainable Development and Adaptation Section</u>, <u>Clean Development Mechanism Section</u>, <u>Scientific Research and Development Section</u>. 	<ul style="list-style-type: none"> As a focal point of UNFCCC, take the REDD+ learning to negotiations. Provide advice and feedback to MoFSC on effective implementation of REDD+ Strategy. Play required functions as per the evolving REDD+ ESMF.
Ministry of Agriculture (MoA)	<ul style="list-style-type: none"> Envisioned to improve the standard of living of the people through sustainable agricultural growth by transforming the subsistence farming system to a competitive and commercialized one. 	<ul style="list-style-type: none"> Product diversification for food security. Improved crop variety and livestock for increasing production and productivity. Supplementary activities to support agro-forestry in private farm land.
Non-governmental organisations		

NAME	DESCRIPTION	POTENTIAL FUNCTION IN RELATION TO REDD+ STRATEGY
WWF, Nepal		<ul style="list-style-type: none"> • Provide technical support to the government in development and implementation of REDD+ Strategy. • Assist the government in raising fund for implementation of the REDD+ Strategy • Contribute to changing policies to make REDD+ friendly at policy level
Hariyo Ban		<ul style="list-style-type: none"> • Provide financial and technical support to the government on REDD+ Strategy implementation
FECOFUN/ NEFUG	<ul style="list-style-type: none"> • A nation-wide network of CFUGs to strengthen their role in forestry sector policy making process. • Advocacy of CFUGs' rights and safeguards 	
NEFIN	<ul style="list-style-type: none"> • An autonomous national- level umbrella organization of indigenous peoples/nationalities; also a member of the UN Working Group on Indigenous Populations. • Provides umbrella for 48 indigenous member organizations from across Nepal. • Advocates IP's rights and safeguards at policy level and works on capacity-building of IPs on REDD+ at ground level 	
DANAR	<ul style="list-style-type: none"> • Advocates for dalits' rights over natural resources 	
ACOFUN	<ul style="list-style-type: none"> • Advocates for the rights of Collaborative forest user groups, especially those who are in distant locations and excluded from the process. • Very active at district level. 	
HIMAWANTI	<ul style="list-style-type: none"> • Aims to promote women's access to natural resources and benefits accruing from NRM to women. • Organizes capacity-building and networking activities for women to raise their awareness in REDD+ policy processes 	

NAME	DESCRIPTION	POTENTIAL FUNCTION IN RELATION TO REDD+ STRATEGY
	<ul style="list-style-type: none"> Active in knowledge-sharing on various policies, including REDD+ 	
NAFAN	<ul style="list-style-type: none"> A common forum of rights-based NGOs working on socio-economic development, gender equality and access of underprivileged and marginalized communities to natural/environmental resources. 	
Research institutions (e.g. Forest Action)	<ul style="list-style-type: none"> A research think tank actively engaged in generating knowledge and evidence for influencing public policy processes and empowering forest and natural resource dependent communities. Played an active role since the beginning of REDD+ process, primarily through research and publications. 	
Academic Institutions (TU/KU...)	<ul style="list-style-type: none"> Undertakes training on forestry and natural resource management. Has capacity and facilities to conduct independent research and analysis. 	
ICIMOD	<ul style="list-style-type: none"> Technical capacity on GIS, remote sensing and land use change analysis. 	
RECOFTC	<ul style="list-style-type: none"> Regional research institution that contributes to cross-country learning on REDD+. Implements grassroots level capacity-building activities. Develops capacity-building materials on REDD+. 	
IUCN		<ul style="list-style-type: none"> Use of the Red Data List of endangered species to monitor contribution of REDD+ to biodiversity conservation and enhancement

(Source: REDD Cell 2014)

3.6.3.1 Ministry of Science, Technology and Environment (MoSTE)

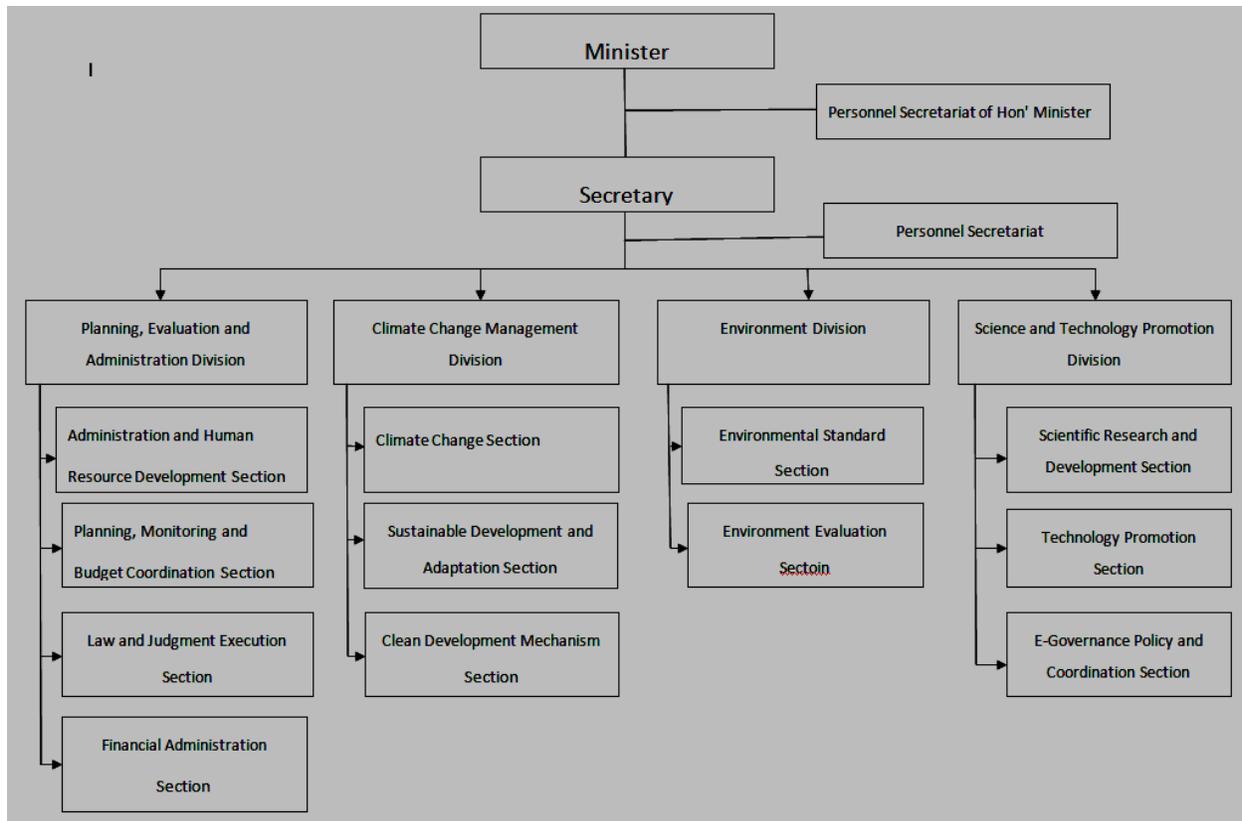
Government responsibility for environmental concerns has been subject to a series of changes since 1987 when the importance of environmental issues was first acknowledged by establishing an Environment Division within the National Planning Commission. Ministerial responsibility for the environment now rests with the Ministry of Science, Technology and Environment (MoSTE). The mission of the MOSTE is “to create a policy environment and institutional strength for promoting scientific research, innovation and capacity building to achieve sustainable practices and technologies, to minimize risks on life support systems, thus contributing to sustainable development.” The Divisional structure of MoSTE is shown in Figure 2. However, it does not include departments and institutions described below.

Divisions and Sections related to environment within MoSTE

As depicted in Figure 3.6.2, there are two Divisions within MoSTE directly related to environment, each with several sections:

- Environment Division
 - Environment Standards Section - responsible for research on environmental standards, ensuring their enforcement, and preventing pollution; and
 - Environmental Evaluation Section – responsible for ensuring that developmental activities are carried out in an environmentally friendly manner.
- Climate Change Division
 - Climate Change Section;
 - Sustainable Development and Adaptation Section; and
 - Clean Development Mechanism Section.

Figure 3.6.2: Divisional structure of the Ministry of Science, Technology and Environment



The Environmental Division of MoSTE has the following major roles.

- Formulation of policies and legal documents for environmental management and conservation;
- Approval of EIAs and IEEs;
- National and international level coordination and cooperation;
- Coordination of, and providing guidance to, MoSTE's implementing sections and institutions³⁶; and
- Preparation of strategies and standards as well as some guidelines, eg for low carbon emission and climate change policy.

The Environmental Division is headed by a Joint Secretary and supported by two Assistant Secretaries and two Section Officers. A key problem is that senior environmental positions in the Ministry are currently filled with personnel who lack environment related qualification or background. Thus, for technical and higher level inputs, MoSTE has been hiring experts or a team of experts on an ad hoc basis for particular tasks as temporary consultants. Section officers (mainly) in MoSTE's Environment Division have received training in policy development and disaster management (eg training on disaster risk reduction related to climate change provided by UNDP) and have participated in different national and international activities.

The Environmental Protection Act (EPA) 1996 describes the environment as consisting of three components: physical, biological and socio-economic. However, the Ministry has been focusing more on pollution, biological issues, engineering, legislation and other scientific aspects of the environment.

³⁶ Besides other sections and institutions the following bodies are directly responsible to the Environmental Division: Environmental Standard Section, Environmental Assessment Section, Department of Environment. There is also an (inactive) Environmental Protection Council.

Existing MoSTE personnel mostly have a technical and scientific background. Social and economic aspects are largely ignored and lack a specific section with focal responsibility for such concerns.

In 2013, the Ministry appointed 14 Climate Change Officers for 14 districts in the Mid and Far Western Development regions to support the LAPA (Local Adaptation Programme of Actions for climate change) process. However, these positions are temporary and on a contract basis. These officers could contribute to ESMF implementation if additional budget and time are allocated.

The Alternative Energy Promotion Center (AEPC) has established an Energy and Environment Section within each of Nepal's 75 District Development Committees (DDC). It is headed by an Engineer (either civil, electrical or mechanical, or from agriculture engineering background) supported by one Technical Assistant. But some projects have also supported the positions of Environmental Officer in some districts. For example, in Ilam District, the Strengthening of Environmental Administration and Management at the Local Level in Nepal (SEAM-N) project has funded one Environment Officer within the Energy and Environment Section with responsibility to conduct different environmental related activities. At present this officer is responsible for promoting the concept of a "green and clean Ilam city"). However, the Energy and Environment Section is mainly focused on promoting alternative energy in the district, mainly biogas and occasionally micro-hydropower.

For the effective implementation of ESMF, a section officer in the Environment Section of the Environmental Division should be appointed with an environmental qualification and background, and knowledge on emerging environmental issues such as REDD+, to handle both environment and forestry related activities. A section with responsibility for social concerns is needed within MoSTE to support implementation of ESMF, particularly to work on the issues related to indigenous people, lower castes, and poor, disadvantaged and marginalized groups and communities.

Institutions under MoSTE

The MOSTE provides direction to 13 institutions for which it is responsible:

1. Department of Hydrology and Meteorology
2. Department of Environment
3. Department of Information Technology
4. Nepal Academy of Science and Technology
5. Alternative Energy Promotion Centre
6. Office of Controller of Certification
7. National Information Technology Centre
8. B P Koirala Memorial Planetarium, Observatory
9. Climate Change Council
10. Science and Technology Council
11. Information Technology Council
12. Environmental Protection Council
13. Multi-Sectoral Climate Change Initiatives Coordination Committee (MCCICC)

One of the criticisms of the environmental administrative arrangements in the country is that MoSTE has horizontal institutional setup covering different areas. But, it lacks any vertical institutional structures to reaches the districts and local levels.

Department of Environment

Under recent restructuring, the Department of Environment was established by Cabinet decision on 27 July 2012 as one the three Departments and Eleven Institutions within MoSTE. The Department is

located in the IT Park in Panauti Municipality of the Kavrepalanchowk District, some 28 km North East of Kathmandu.

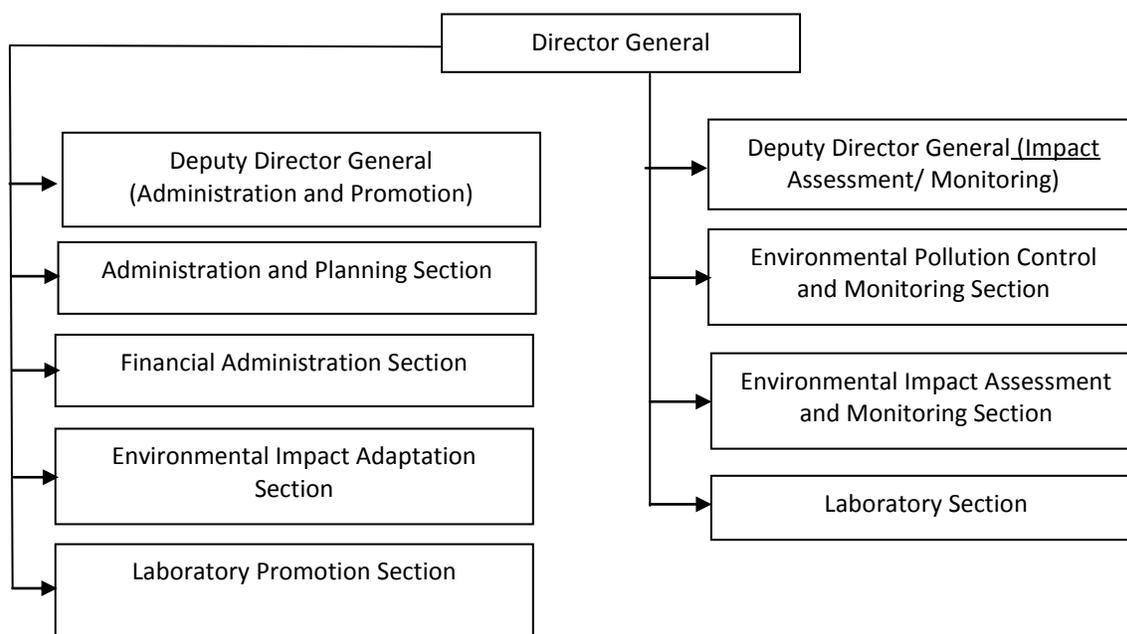
This new Department has been established as the focal organization for streamlining environmental related activities in Nepal. It also has responsibility to monitor emissions from brick kilns and vehicles, chemical pesticides, and human activities that may have an impact on the air, water, noise, food and human health. In addition the Department will regulate and monitor waste materials produced by industries and hospitals, polythene bags and other human activity, as well as undesirable gases or compounds produced by factories and agricultural activities. At the same time the Department is responsible for implementing and maintaining the standards in compliance of the Environment Protection Act (EPA), 1996, and Environment Protection Regulation (EPR), 1997.

The Department provides technical assistance to MoSTE in formulating policies and laws related to the environment, and supports and liaises with relevant line agencies and stakeholders working on environmental sector issues.

According to its mandate, the staffs of this new Department are drawn from different disciplinary groups which show the importance of the Department in cross cutting issues.

The department has a staff of 54 officers, with seven Sections. It is led by a Director General and two Deputy Director Generals (see Figure 3.6.3). More importantly, the department has appointed 16 Environmental Inspectors, responsible for monitoring, evaluating various environmental projects, and dealing with the approval of EIA reports forwarded from other ministries. These Inspectors have a BSc-level qualification. But the department is now working with the Public Service Commission to raise the qualification required for appointment as an Environmental Inspector - from BSc to MSc in environmental science, environmental engineering or environmental management.

Figure 3.6.3 : Organogram of Environment Department of MoSTE



Department of Environment staffs are qualified to support the implementation of the environmental aspects of ESMF at national, regional and district levels. But they will require a budget allocation for

such work and time to be made available in the work schedules, and will need training on the specifics and modalities of the ESMF. But the Department currently lacks skills on social issues. The establishment of a section with such responsibilities would help, and at least one member of staff (preferably more) will need to be trained on emerging social and gender related issues linked to the environment, and to REDD+.

3.6.3.2 Ministry of Forests and Soil Conservation

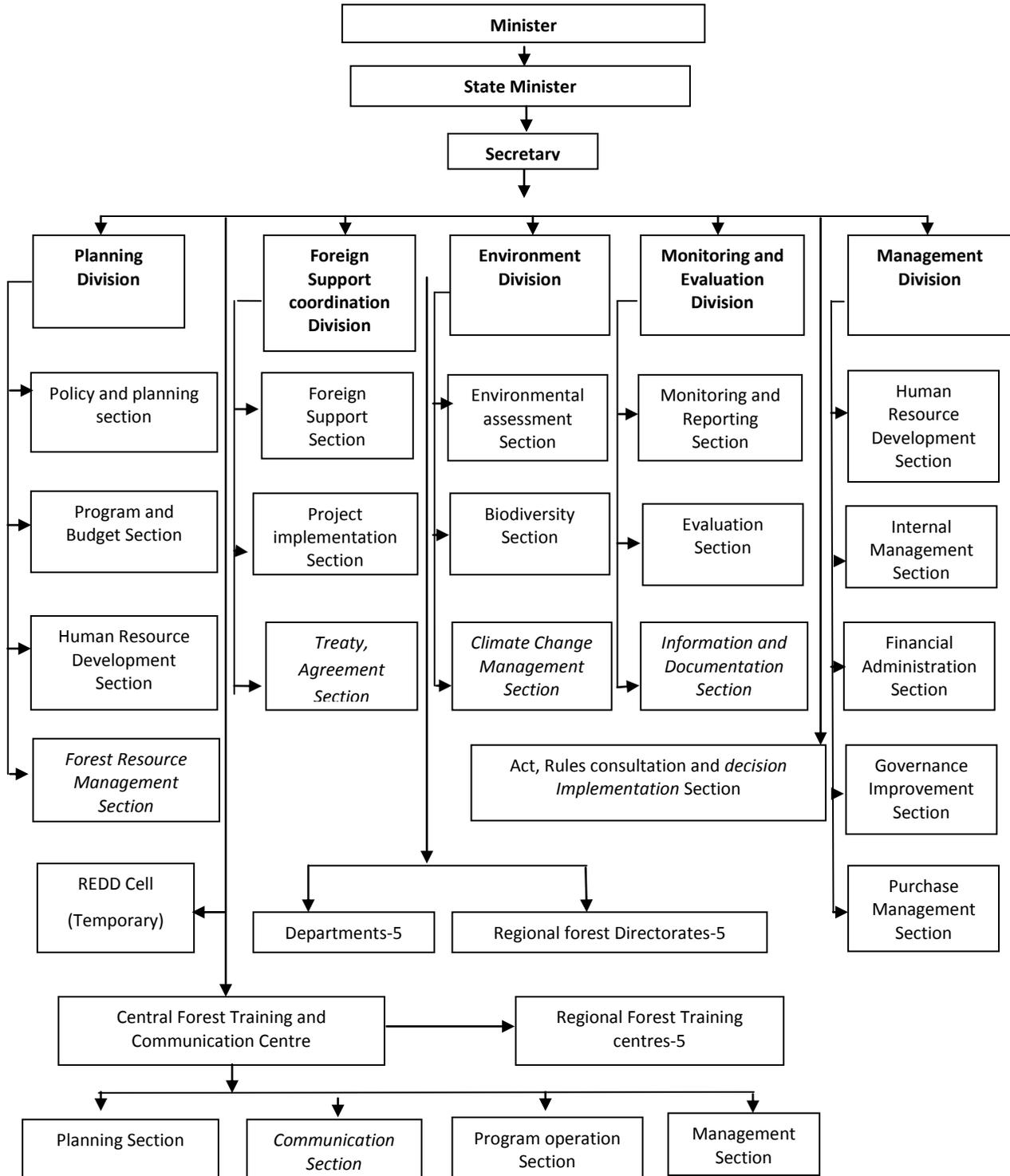
The Ministry of Forests and Soil Conservation has major five Divisions including an Environmental Division (Figure 3.6.4). There is no separate Division responsible for social development, rather social issues are addressing by different Divisions during the preparation of policies and strategies and through high level coordination and meetings.

Environment Division

The Division is responsible for:

- Approving IEEs of projects implemented by the Ministry and its subsidiary bodies, and forwarding EIAs (both TORs and EIA reports) to the Ministry of Environment for review and approval
- Preparing biodiversity, environmental, and wildlife components of Nepal's Biodiversity Strategy, and coordinating their implementation (as envisaged in Nepal's Biodiversity Strategy Action Plan, Revision 2013) and biodiversity mapping;
- Inter-ministerial coordination and inter-governmental coordination on IEE/EIA and biodiversity related activities;
- Representing Nepal in discussions and meetings regarding international treaties, agreements and conferences and foreign aid agreements that concern forests;
- Providing guidance and suggestions on environment activities and projects within the forestry regime to the forestry departments.

Figure 3.6.4: Organogram of the Ministry of Forest and Soil Conservation



Note: The italics in the organogram are currently sections or divisions that are provided for have not been established

The Environmental Division is headed by a Joint Secretary, supported by two Under Secretaries and two Section Officers (Environment Evaluation Section and Biodiversity Section) – with a botany or forestry background. Moreover, there is one Climate Change Management Section but it is inactive. Training and workshops on IEE/EIA and biodiversity management and conservation have been provided from time to time (it is not the regular programme based on the government policy and plan (forestry, EIA/IEE, Biodiversity conservation). Division staff have a minimum bachelor degree qualification, usually in forestry or science with a specialization on botany.

The creation of a section within the Environment Division to address social issues is necessary, and existing staff of the Environment Division need technical training to play their role in implementing the ESMF.

Department of Forests

Forest administration in Nepal has evolved over the last fifty years, reflecting changing government priorities and emphasizing people's needs and environmental considerations. In earlier years forestry in Nepal was less concerned with development. Official administration of forests began with the establishment of *Ban Janch Adda* (BJA) in 1934, which was mandated to protect and use forests in the Terai. This office functioned until 1956 when the office of the Chief Conservator of Forests was established. This office supervised three circles (development regions) - east, west and central - and 13 forest divisions. In 1976, the office of the Chief Conservator became the Department of Forests (DoF) and the number of circles increased to nine covering the whole country. The number of forest divisions was increased to 40. To focus on soil conservation and wildlife protection, two additional departments were created in 1974 and 1979, respectively: the Department of Soil Conservation and Watershed Management and the Department of National Parks and Wildlife Conservation.

Following the government's decentralization policy, the DoF was reorganized in 1983 with the creation of Regional Directorates (RD) and 75 District Forest Offices. RDs were headed by the Regional Directors and District Forest offices were headed by District Forest Controllers. In 1993, the Department was further restructured. Currently there are 74 District Forest Offices, each headed by a District Forest Officer and 92 Ilaka Forest Offices and 698 Range posts.

The main mandate of the DoF is to manage the country's forest resources for the conservation of the natural environment and to supply forest products to the people. Its specific functions include:

- Protection, management and utilization of forests and conservation of natural resources;
- Planning, implementation and coordination of forestry development activities;
- Support and facilitate the Ministry of Forests and Soil Conservation on policy formulation;
- Increase people's participation in forest management; particularly in plantation and resource conservation in forests;
- Contribute to the economic development of the country through revenue generation from forest products; and
- Improve the livelihood of the community through implementation of effective forestry programmes.

The department of forest has no separate social development and environmental Division, Sections or unit. There are two Divisions:

- The National Forest Division has three Sections: Forest Management, Forest Products Utilization, and Forest Protection. Its main functions are:
 - Preparation of operational forest management plans, and providing guidance and coordination for their implementation;
 - Development of leasehold forestry to uplift the livelihoods of people below the poverty level;
 - Development of leasehold forestry for institutions;
 - Improvement of the supply system of forest products and their proper utilization;

- Maintenance of the database of forestry-related products and utilization; and
- Conservation of the forests of the country.

The Division is headed by a Joint Secretary (as Deputy Director General), assisted by an Under Secretary. Each Section is headed by second class Forest Officers, supported by an Assistant Forest Officer.

- The Community Forest - with three Sections: Community Forestry, Private and Agro-forestry, and Tree Improvement. Its main functions are:
 - Guiding and coordinating the community forestry development programme/projects;
 - Implementing participatory forestry development programmes;
 - Providing information and technical support to the private sector for the development of private forestry;
 - Developing and promoting appropriate agro-forestry systems;
 - Identifying appropriate tree seed sources, establishment of seed orchards, and promoting silvicultural systems.

This Division is also headed by a Joint Secretary (as Deputy Director General) and he is also the Chief of REDD+ Cell), assisted by an Under Secretary. Each Section is headed by second class Community Forest Officers, supported by an Assistant Community Forest Officer.

Staff appointed in the Department of Forests has a forestry background. Some staff have responsibility for environment-related work such as IEE and EIA, and they will need technical training and allocated budget and time to support implementation of the ESMF. The Department has many experts in community forestry. A social section could be established within the existing structure with staff provided with training on emerging social and gender related issues.

Department of Soil Conservation and Watershed Management

In response to the critical rates of soil erosion and watershed degradation in the country, the government established the Department of Soil and Water Conservation in August in 1974 under the then Ministry of Forests. In 1980, it was renamed the Department of Soil Conservation and Watershed Management (DSCWM) to better represent its roles and responsibilities of watershed management. The structure of the Department was reorganised in 1993 and again in 1997. At present DSCWM provides soil conservation and water management (SCWM) service to 73 of Nepal's 75 districts through 56 District Soil Conservation Offices (DSCO). 14 of the DSCOs are classified as "Ka" (headed by a Gazetted Class II Officer) and 42 as "Kha" (headed by a Gazetted Class III Officer) categories. 11 of the Kha DSCOs are temporary offices. Altogether, the DSCWM has 640 staffs of which 532 are permanent and 108 are temporary.

DSCWM has been planning, implementing and monitoring soil conservation and watershed management programs/activities based on the principles of integrated watershed management. To reflect the multi-dimensional needs of SCWM measures, DSCWM is staffed with multi-disciplinary personnel covering foresters, agriculturists, civil engineers, chemists and geologists and others.

The main objectives of the DSCWM are:

- to assist in maintaining ecological balance by reducing pressure from natural hazards such as floods, landslides and soil erosion through conservation and development of important watersheds of the country; and
- to maintain land productivity, reduce soil erosion and contribute in development infrastructure protection by scientific management of watersheds.

Its responsibilities include:

- Preparation of land use developing plans for watersheds and sub-watersheds in different parts of the country;
- Preparation of community integrated watershed management plans for natural hazard prevention, infrastructure protection and development and land productivity conservation;
- Implementation of community soil conservation programmes such as water resource conservation, income generation activities, soil conservation etc.;
- Mobilization and empowerment of groups (eg farmers' group, womens' group) for the conservation of watersheds and sub-watersheds;
- Research and studies; preparation, management and update of watershed information system; and monitoring and evaluation of programmes;
- Identification of nationally important watershed areas at risk (vulnerable to natural disasters such as gully erosion, landslides, floods);
- Preparation of policies and guidelines for soil conservation and watershed management; and
- Coordination and cooperation among stakeholders, foreign organizations involved in/supporting soil conservation and watershed management.

The Watershed Management Division of the DSCWM provides a watershed information system, technology development for watershed management and soil conservation, and disseminates information on soil conservation. The staff of the Division all has a technical background. It is headed by Joint Secretary and has four Branches (see Figure 3.6.5):

- Watershed Information Management Branch - headed a Watershed Management Officer and supported by an Assistant Watershed Management Officer, Senior Divisional Geologist and Cartographer;
- Technology Dissemination Branch - headed by a Technology Dissemination Officer and supported by an Assistant Technology Dissemination Development Officer, Soil Chemist and Laboratory Assistant;
- Watershed Management Branch- headed by a Soil Conservation Officer, supported by an Assistant Soil Conservation officer, Ecologist, Overseer and Soil Conservation Assistant; and
- Technology Development Branch - headed by a Technology Development Officer and supported by an Assistant Technology Development Officer, Soil Chemist, Laboratory Assistant and Soil Conservation Assistant.

Some personnel in the DSCWM should receive training so that they can contribute to implementing the environmental aspects of the ESMF. A social Development Officer will need to be appointed to deal with social aspects.

Figure 3.6.5: Structure of the Department of Soil Conservation and Water Management



Department of National Parks and Wildlife Conservation (DNPWC)

The Department of National Park and Wildlife Conservation (DNPWC) was established in 1980 within the MoFSC. Previously, since 1972, there had been a Conservation Section under the Department of Forest in 1972. The creation of the Department acknowledged the growing importance of national parks and wildlife reserves in Nepal, and aimed to strengthen and manage them more effectively.

The DNPWC is the administrative authority in Nepal for the Ramsar Convention; management authority of the fauna under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); and focal institution of the World Heritage Convention (UNESCO), Global Tiger Forum (GTF) and Convention on Biodiversity (CBD).

The DNPWC is committed to the conservation and management of the country's rich and diverse biological diversity, and for the regulation of protected areas and biodiversity in Nepal. It is responsible for a network of protected areas that include 10 national parks, 3 wildlife reserves, 6 conservation areas, 1 hunting reserve, and 12 buffer zone areas. These protected areas cover 34,185.62 sq. km (23.23%) of the total geographical area of the country.

The overall goal of the DNPWC is to conserve wildlife and outstanding landscapes of ecological importance for the well-being of the people.

The primary objective of the Department is to conserve the country's major representative ecosystems, unique natural and cultural heritage and give protection to the valuable and endangered wildlife species. It encourages scientific research for the conservation of genetic diversity. In achieving its objectives, the Department implements regular programmes regarding the management of national parks, wildlife reserves, conservation areas, hunting reserves, buffer zones, hattisars (elephant stables) and non-timber forest products. This work includes key activities such as habitat management, species conservation, anti-poaching operations, conservation education, and ecotourism promotion in and around protected areas.

The specific objectives of the DNPWC include:

- To conserve rare and endangered wildlife, including floral and faunal diversity, by maintaining representative ecosystems;
- To conserve and manage outstanding landscapes of ecological importance. Habitats and key animals;
- To support the livelihoods of local people near protected areas through buffer zone and conservation area management programmes, including community participation; and
- To promote and regulate ecotourism consistent with biodiversity conservation, and for improvement of socio-economic condition of local communities.

The Department is headed by a Directorate General, supported by a Deputy Directorate General. There are four Sections (National Parks, Conservation Areas, Wildlife Reserves, and Hunting Reserves). Each section is headed by a Joint Secretary and supported by two Under Secretaries, a Conservation Officer and Assistant Conservation Officer. The sections are all responsible for addressing social issues arising in their work such as park and people conflicts, community income generation, and empowerment.

DNPWC officers working on environment and social issues should receive training on the framework and implementation modalities of ESMF.

REDD Forestry and Climate Change Cell

As indicated in section 3.6.1.1, the REDD-Forestry and Climate Change Cell (usually shortened to REDD Cell), has been established as the coordinating entity amongst the three-tiered institutional mechanism set up to achieve REDD readiness activities in Nepal and develop the REDD+ strategy. These activities are guided by the Readiness Preparation Proposal (R-PP) which was approved by the

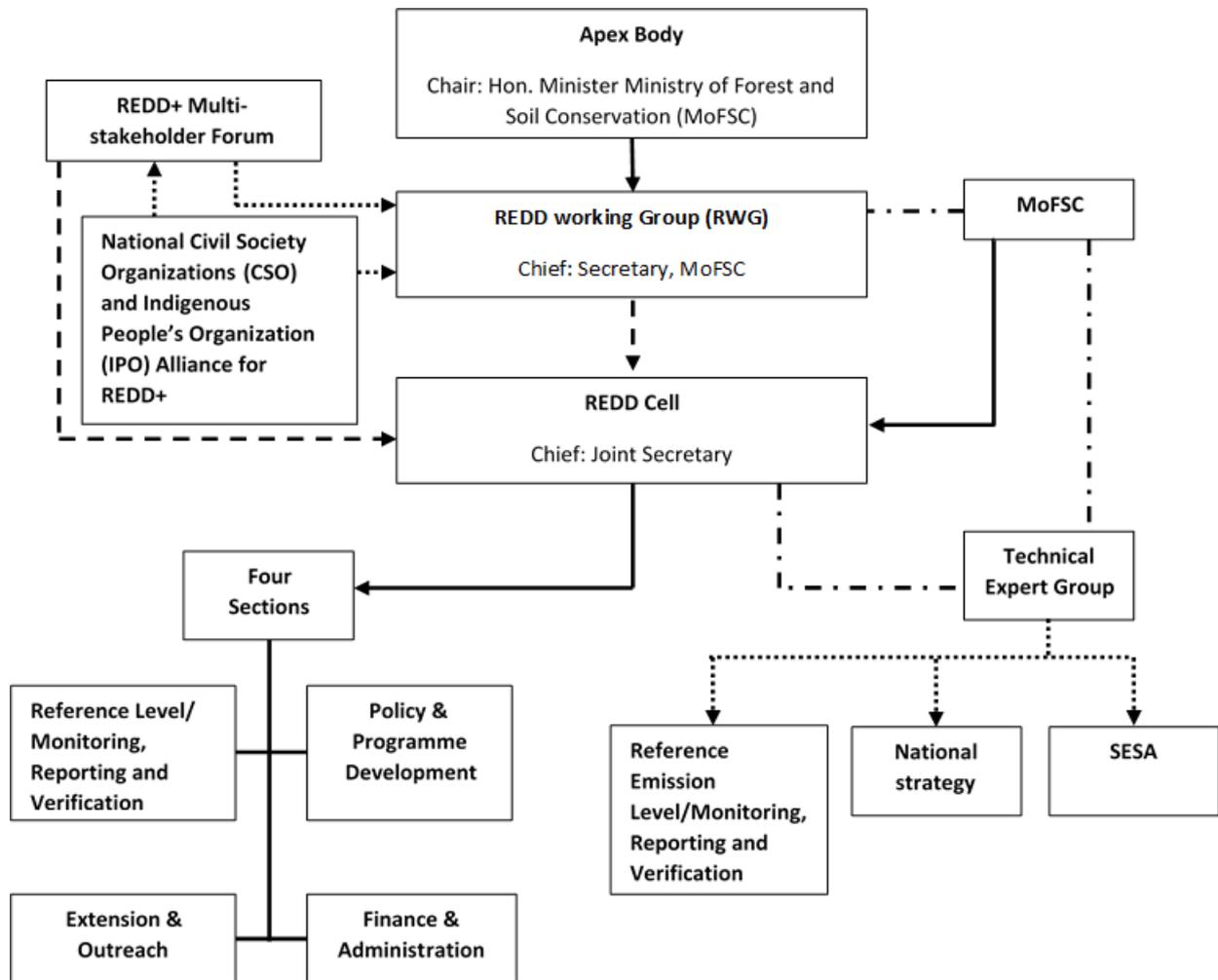
Forest Carbon Partnership Facility (FCPF) of the World Bank in 2010. The FCPC has provided Nepal with a grant to implement the activities outlined in the R-PP.

The REDD Cell is headed by a Joint Secretary¹-level member of the staff of Ministry of Forests and Soil Conservation. It has four Sections (see Figure 3.6.6):

- The *Policy and Program Development (P&PD) Section* is responsible for developing REDD+ related forestry policies and monitoring their implementation, and is headed by a Section Chief at Under-Secretary 2 level. The Section proposes programmes related to REDD+ readiness, including the development of capacity-building programmes.
- The *Monitoring, Reporting and Verification (MRV) Section* is responsible for developing reference level, the monitoring and verification system and carbon accounting system. It is jointly headed by two Under Secretary-level staff, serving as focal points for Measurement, Reporting and Verification (MRV) and Reference Emission Levels (REL) work, respectively.
- The *Extension and Outreach (E&O) Section* takes the lead in designing and disseminating REDD+ information, extension and capacity-building activities for different stakeholders, including the government, civil society, and private sector. In addition, it provides feedback to the REDD Cell and various stakeholders, to ensure that their concerns are properly addressed during the REDD implementation process.
- The *Finance and Administration (F&A) Section* manages the budget, financial reporting to development partners, and other logistics of the REDD Cell. It ensures the legitimacy of financial plans and provides guidance and support to programme planning and implementation. To support the section, consultants have been hired on procurement and financial management for the readiness staff complement includes one Joint period. It is headed by Account officer and supported by two consultants

Figure 3.6.6: Institutional structure for REDD Governance in Nepal

(Source: Adopted from REDD Cell (2013, p.15)



During the preparation of the R-PP and grant agreement stage, the staff of the REDD Cell comprised three Under Secretary-level technical foresters, one midlevel technical forester, one accountant, and two office assistant. Now its Secretary (who also heads the Community Forestry Division under the Department of Forests), five Under Secretary-level technical foresters, three Forest Officers, one Accounting Officer, one procurement management consultant, one financial consultant and two office assistants (REDD Cell, 2013, p. 16). But the capacity of the REDD Cell remains limited and is a challenge in providing the leadership and coordination required to complete the overall REDD + Readiness process.

Since the staff of the REDD Cell are deputed from other departments or divisions of the MFSC, they are frequently transferred – impeding continuity and learning. As one REDD-Cell staff member commented "The existing human resources of the REDD-Cell are not adequate to effectively execute the current role. Moreover, REDD+ is a new issue for many of us [the staff] and therefore it takes time to understand the issue and support the process." The institutional capacity of the REDD-Cell has been identified to be partly responsible for the delay in R-PP implementation (Khatri & Paudel, 2013).

However, despite these limitations, REDD Cell staff have frequently participated in national and international conferences, training events and workshops as both participants and resource persons.

This has enhanced their capacity and confidence to take a leadership role in the REDD+ readiness processes.

The REDD Cell has also substantially enhanced its capacity to manage the procurement processes effectively and efficiently, following the World Bank's Procurement Guidelines. It has engaged major consultants from international firms to conduct studies on REL, MRV, SESA, etc. REDD Cell has been supported in these efforts by a procurement management consultant. With support of specialists, the REDD Cell has finalized its procurement activities for next 18 months of the grant extension. As an evidence of the enhanced capacity of the team, the World Bank has changed most contracts from 'prior' to the 'post' review category.

3.6.3.3 REDD Multi-stakeholder Forum and REDD+ CSOs and IPOs Alliance

A **REDD Multi-stakeholder's Forum** has been established in 2009, which functions as the principal outreach and communication platform for the REDD+ Readiness process in Nepal. REDD Cell frequently organizes meetings of the Forum to update the participants and discuss progress with REDD+ Readiness, and to seek feedback from participants. The Forum includes representatives from the private sector, civil society, media, government organizations, community-based organizations, local and international NGOs, donors, academia, research organizations and all other stakeholders interested in REDD+ activities.

REDD+ has emerged relatively recently and its approaches and methods are evolving and dynamic. The REDD Cell has formed an Experts Working Group to provide technical backstopping to the REDD Working Group. To date, expert working groups have been formed for REL/MRV, SESA/ESMF, and the National REDD+ Strategy. In addition, a Steering Committee under the leadership of MoFSC Secretary has been formed to oversee the studies conducted for REDD readiness. These expert groups are continuously providing technical support to the REDD Cell.

Similarly, CSOs and IPOs working in forestry and REDD+ have formed a platform – **the REDD+ CSOs & IPOs Alliance, Nepal** – to discuss and develop a common understanding on REDD+ on behalf of Civil Society Organizations and Indigenous Peoples Organizations. It was established in September 2009, initiated by FECOFUN, NEFIN and other CSOs working on forestry and REDD+. 23 organizations, including women and Dalits, are currently actively involved in this alliance. The main objective of the Alliance is to advocate for developing a justifiable REDD+ framework and mechanism in Nepal, and to empower and build the capacity of CSOs and IPOs in the contemporary issues of REDD+. FECOFUN serves as the secretariat for the Alliance and organizes regular meetings/workshops (REDD Cell, 2013).

3.6.3.4 Coordination between MoFSC and MoSTE

MoFSC is one of the most mature ministries in Nepal, with both horizontally and vertically institutional structures, and it is responsible for forestry at central level and, through its subsidiary bodies, at district and local levels. But this narrow focus means that, whilst it has some expertise to deal with climate change issues, it lacks sufficient capacity to address environmental and social issues. MoSTE is Nepal's formal focal point for climate change (responsible for managing the country's engagement in the UN Framework Convention on Climate Change). The REDD Cell is a temporary body with responsibility to address climate change issues within MoSTE in relation to the carbon trade. The major work of the Ministry is to formulate the plan and policies (for instance MoSTE have more focused on Environment Evaluation and Standards issues while MoFSC have its focus on Forest and Biodiversity conservation) and to coordinate with other ministries and funding agencies with regard to its programmes. But there is lack of inter-ministerial coordination in preparing plans and programmes. Although MoSTE and MoFSC have similar objectives, there is no formal institutional linkage between them (Acharya, Dangi, Tripathi, Bhandari, Bhuseley & Bhattarai, 2009). Cross-sectoral coordination and cooperation is weak and very limited. Though high-level

multi-stakeholder forums have been formed, and strategic plans have been formulated, action regarding coordination at the operational level has been lacking (ibid.).

3.6.3.5 Ministry of Agricultural Development

The mission of the Ministry of Agricultural Development (MoAD) is to promote knowledge-based farming by transferring modern agricultural technologies through mass media communication and developing effective linkage between research and extension system. Its key objectives are to:

- Reduce poverty through increased agricultural production and productivity.
- Make Nepalese agricultural products competitive in the regional and world markets by developing the foundation of commercial and competitive agricultural systems.
- Conserve the natural resources, environment and ecological diversity and utilize them for sustainable agricultural development.

The MoAD has five Divisions: Administration (Headed by Joint Secretary); Monitoring and Evaluation (Headed by Joint Secretary); Gender Equity and Environment (Headed by Joint Secretary); Planning (Headed by Joint Secretary); and Agriculture Business Promotion and Statistics (Headed by Joint Secretary)

The MoAD also has three Departments: Agriculture; Food Technology and Quality Control; and Animal services. There are five Regional Directorates and 75 District Agricultural Development Offices (DADO) and 75 District Animal Services Offices. But none of these has an environmental branch or units.

Gender Equity and Environment Division

This division was established in 2005 given the predominance of women farmers in Nepal and the need to enhance their skills and knowledge and to promote gender equity and environmentally friendly agriculture. The Division's objectives are:

- Gender mainstreaming in overall program related with agriculture development; and
- Mitigating the negative impacts of environmental degradation in agricultural production and enhancing sustainable agriculture development.

Its mandate includes:

- Enhancing the skills and knowledge of women farmers giving due respect to women farmers for their contribution in agriculture sector in Nepal;
- Increasing the income generating opportunities of women farmers to achieve gender equity and lay the environment for them to become agriculture entrepreneur;
- Developing the statistics on gender baseline related with agriculture sector; and
- Developing the policies and guidelines to mitigate the negative impacts of environment degradation and biodiversity conservation.

Under this Division there are three other Sections with a total staff of 16 officers:

- Gender Equity Section (Headed by Under Secretary from Agriculture Background, One Livestock Development Officer and One Food Research Officer);
- Agri-Environment and Biodiversity Section (Headed by Under Secretary from horticulture Development Background and One Horticulture Development Officer); and
- Gender Coordination Section (Headed by Undersecretary from Agri-Economics background supported by Agri-economics officer and Agriculture Communication officer).

The responsibilities of the Agri-Environment and Biodiversity Section cover:

- Approval of IEEs for agricultural sectors 'industries' such as poultry, pesticides and fertilizers, and forwarding EIA/TORs and reports to the Ministry of Environment for review and approval;
- Preparation of IEE and EIA guidelines for agriculture sector activities;
- Annual publication of Agriculture and Environment Journal on the occasion of World Environment Day;
- Preparation of standards, (eg for organic farming) and standards for primary agriculture production and processing;
- Preparation of policies (eg agriculture development, gender equity, sustainable agriculture and biodiversity conservation) and strategies (eg for low carbon emissions and climate change); and
- Intergovernmental and inter ministry level coordination and cooperation.

The staff of this division have an agricultural background (eg agri-economist, livestock development officer, horticulture office). It is questionable that they have the competence to handle programmes related to the environment (eg IEEs and EIA reports – which are forwarded to MoSTE) and gender equity.

Department of Agriculture

The Department of Agriculture (DoA) has overall responsibility for agricultural growth and development. Its broad objective is to support and help achieve food security and poverty alleviation by the transformation of agriculture through diversification and commercialization, and its main responsibilities are to:

- Increase agricultural production based on geographical diversity;
- Support food security by increasing food production and maintaining the internal supply of food stuffs;
- Increase the production and productivity of raw material for agro-industries;
- Support the production of produce with a comparative market advantage management Increase the availability of off-farm employment by supporting small industries and enterprises;
- Support the promotion of agricultural exports and import substitution;
- Support poverty alleviation by increasing employment opportunities for small, marginal and women farmers;
- Screen and standardize technologies by doing adaptive research; and
- Strike a balance between agricultural development and conservation.

The DoA is headed by the Director General (DG), with three Deputy Director Generals (DDGs) responsible for: Planning and Human Resources; Monitoring, Evaluation and Management; and Technology Transfer and Co-ordination. It has five sections: Planning and Human Resource; Monitoring and Evaluation; Technology Transfer and Coordination; Accounts; and Administration.

The Department also has a number of Programme Directorates, national programmes, Regional Directorates, farms/centres, laboratories, quarantine check post and other offices. However, the DoA has no environmental division or section, and its regional and district level offices also lack units to deal with environmental issues.

The DoA and the Department of Livestock Services (DoLS) have made some institutional arrangements for the control of plant and animal diseases, and soil management. The *Plant Protection Directorate* (PPD) of the DOA is responsible for implementing national plant protection programmes as specified by Pesticide Act (1990), Pesticide Regulations (2000), and Plant Protection Act (2008). The PPD also helps government to formulate plant protection policies. The PPD has three major activities: control import and export of disease and pests infected plants and plant products; registration and management of pesticides; and control of crops disease and pests. The PPD's quarantine programme is responsible for ensuring that the traded plants and plant products are free from diseases and pests. The PPD operates various plant quarantine offices and plant protection

laboratories which work with the Plant Protection Officers (PPOs) of District Agriculture Development Offices (DADOs). The Pesticide Registration and Management Section (PRMS) of the PPD is responsible for the registration and management of pesticides in Nepal. The PRMS issues licenses to importers, formulators, and retailers of pesticides and also monitors the use of pesticides. Discussion with concerned stakeholders indicated that this office lacks adequate staff and laboratory facilities to execute its functions effectively. Updated data on the quantities of pesticide used in Nepal is not available. The PRMS has the responsibility to collect such data, but it has not been able to do so due to lack of adequate manpower.

The *Soil Management Directorate* (SMD) of the DoA manages 5 regional soil testing laboratories to provide soil management advice. However, they are not properly equipped.

The DoA needs to establish an environment and social section with two officers with environmental and social backgrounds, respectively. They will need training on how to support implementation of the ESMF.

Department of Food Technology and Quality Control (DFTQC)

This Department is primarily responsible for implementing the Food Act 1966 and third amendment 1992, and for ensuring safety of food products. It has five regional offices. Each regional office has a small laboratory and about 10 staff, although only 5 to 6 staff are usually working that means post are not filled or other words understaffing.

A food inspector has appointed within the District Administration Offices of each of the 20 Terai districts including those in the mid- and far-western regions. But there are no such inspectors in the hills and mountain districts of these regions. Instead the Regional Offices in these regions are mandated to look after food safety. But due to inadequate staff and budgetary resources, they visit those districts only once or twice a year. The DFTQC has 4 food quarantine check posts equipped with small laboratory facilities.

Nepal Agriculture Research Council (NARC)

The Minister for Agricultural Development chairs the Council of the **Nepal Agriculture Research Council** (NARC). This is the main organization responsible for agriculture research in Nepal. It has an Environment Section within its Planning and Coordination Division which mainly deals with agriculture biodiversity issues.

3.6.3.6 Ministry of Energy

The Ministry of Energy was established in 2010, when the former Ministry of Water Resources was split into separate ministries: one responsible for energy, the other for irrigation. Its key objectives are the management of production of energy for the expansion of industrial and economic activities. It prepares policies and strategies for producing, transmitting and distributing electricity, and related plans, and is responsible for the utilization and management of water resources in Nepal.

The Ministry has four Divisions responsible for: administration; legal matters; planning and programme; and policy and foreign coordination. Within the latter Division is an Environment Section with two senior divisional engineers and one engineer. But there is no such section with responsibility for social development issues.

Environment Section

The responsibilities of the Environment Section include:

- Provision of project establishment for construction after evaluation of environmental assessments required under the Water Resource Policy and Electricity Policy;
- Forwarding EIAs [TOR and/or completed EIA reports] to the MoSTE for approval;
- Approval of sectoral IEEs;

- Intergovernmental, inter-ministry level coordination for preparation and implementation of effective environmental management policies; and
- Studies of total energy consumption and preparation of strategies to achieve essential energy needs.

Due to its heavy workload, the Environmental Section is being divided into two parts: Environment Section A (Headed by Joint Secretary and supported by one Under Secretary and One Section Officer); and Environment Section B (Headed by one under Secretary and one section officer). Both sections are responsible for approving IEEs and forwarding TORs and EIA reports to MoSTE, and for monitoring and supervising projects after completion of IEEs. Furthermore they also represent the ministry in public hearings for energy project EIAs. In 2012/13, 40 IEEs and 7 TOR were approved.

Rural and Alternative Energy Section

This section is part of the Planning and Programme Division. It is headed by an Under Secretary, supported by a Section officer. The section is responsible for:

- Preparing necessary policies and programmes to expand electricity services to the rural areas of Nepal;
- Identifying the areas where the national grid can be made accessible and preparing the framework for rural electrification in inaccessible areas;
- Preparing policies and plans to expand solar and wind energy in rural areas;
- Providing subsidies to individuals/institutions with a license develop micro-hydro projects in rural areas producing up 1000 kw; and
- Transferring royalties from licensed electricity production companies to DDCs and VDCs or Municipalities.

Observations

An environment officer and a social development officer should be appointed in the Environment Section with responsibility to coordinate support and inputs to implementing the ESMF, and be provided with technical training and a budget allocation. Consideration should be given to establishing a Social section.

3.6.3.7 Ministry of Physical Infrastructure and Transport

This Ministry was established in 2000. It has four Divisions: administration; works and transport; planning, monitoring and evaluation; and foreign aid and standards. The Ministry's responsibilities are to prepare policies and plans as well as legal documents for:

- Construction of roads, railways, waterways, etc.;
- Construction of horse and foot trails, and their maintenance;
- National and international coordination for physical development;
- Approval of IEEs of all activities under this ministry and evaluation of EIAs and forwarding them to MoSTE for approval; and
- Provision of guidance and suggestions to its implementing body.

The Planning, Monitoring and Evaluation Division has an Environmental and Social Section with responsibilities for:

- Preparation of plans and policies for environmental conservation;
- Contributing to the design programmes on social and gender equality;
- Coordination and cooperation with various organizations for environmental conservation; and
- Work on IEE and EIA, and disaster management.

There is a need to provide technical training for staff of the Environmental and Social Section on how they can support and input to the ESMF, with sufficient budget and time resources allocated. These functions should be separated from their regular environment and social duties.

3.6.3.7 Ministry of Federal Affairs and Local Development

The Ministry of Local Development was established in 1980, and was converted to the Ministry of Federal Affairs and Local Development (MoFALD) in 2012. MoFALD is the focal organization for local development and operates at all levels from national to local (VDCs and Municipalities). Its role is coordination, cooperation, facilitation, and monitoring and evaluation of activities undertaken by local bodies (75 District Development Committees, 58 Municipalities and 3915 Village Development Committees) as well as initiatives of development partners.

The Ministry has adopted a participatory development approach to its work and promotes social inclusion, capacity building of indigenous people, lower caste, marginalized and oppressed local communities to ensure sustainable, balanced and broad-based development on equity and social justice. The ministry has been working in the area of local resource utilization through the active participation of local people and strengthening and empowering local people such as poor, disadvantage, women, lower caste and marginalized people and bringing them into the main stream.

Environmental Management Section.

This Section in MoFALD's Municipal Management Division is headed by an Under Secretary and supported by one section officer and two assistant section officers. It mainly works in a management role, with experts hired to undertake the higher level activities, and has responsibilities for:

- Urban, rural and community environmental management and sustainable development policy and plan preparation, preparation of guidelines, and related research and studies;
- Evaluation and approval of IEEs carried for different activities undertaken by the Ministry;
- Evaluation of EIAs.
- Environmental friendly local governance;
- Development of the Sanitation and Solid Waste Management Policy;
- Development and of an environmental management information system (EMIS);
- Environmental awareness-raising at municipal/municipality, rural and communities' level;
- Preparation of environmental standards and guidance for their implementation and monitoring; and
- Linkage and coordination among national and international organizations related to environmental management.

Gender and Social Inclusion Section

This Section is headed by an Under Secretary and supported by two section officers, two assistant section officers and one computer operator (total 6 staff). This section has responsibilities for:

- Preparing ministry policies and plans for gender equality and social inclusion and plans for local bodies such as Municipalities /DDC and VDC;
- Coordinating with other ministries and departments regarding issues of gender equality and socially inclusive environment arising in their respective areas of responsibility;
- Contributing to the implementation and coordination of the ministry's gender equality and social inclusion programme.
- Supporting the institutional development of the central and district level Gender Mainstreaming Committees, and the district level Indigenous People's Committee and Lower Caste Committee and building their capacity to address gender equality and social inclusion issues; and
- Helping to implement Gender Equality and Social Inclusion (GESI) programmes through government, non-government and civil society organizations.

MoFALD has well established sections dealing with environment and social issues, but they will need adequate time and budget resources, and additional capacity-building, to engage in and support ESMF implementation.

3.6.4 District level analysis

3.6.4.1 District Development Committee

The current structure of local governance in Nepal was put in place after the restoration of democracy in 1990. Since the Local Self Governance Act was passed in 1998, District Development Committees (DDCs) have been responsible for planning and programming exercises within districts and for implementing them. However, for almost the last 15 years, there have been no DDC elections. In their absence, only national level projects falling under the authority of the Central Government have been implemented in districts – by Local District Officers (government officials).

Each DDC has an Environment and Energy Section headed by Electrical Engineer supported by a technical assistant, and a Social Section headed by a Social Development Officer supported an assistant and one accountant. At the next level, under the DDCs, are Village Development Committees (VDCs) – the smallest administrative unit (see Section 3.6.4.4)

The Energy and Environment Section of the DDC is concerned with:

- Alternative energy promotion;
- Environmental awareness raising;
- Improved cooking stoves distribution;
- Protection of forests (coordination with District Forest Office);
- Studying the feasibility of solid waste management and environmental friendly bio-briquette;
- Internal and external coordination to carry environmental activities.

The Social Development Section of DDC is responsible for implementing programmes for bringing all social parties (poor, women, marginalized, disadvantaged, lower caste, indigenous people) into the mainstream by empowering them through income generation activities and capacity-building. Its main activities include:

- Skill training, empowerment, motivation, journalism training for lower caste people;
- Implementing the *Bisheswor programme* for the poor involving training and income generation activities;
- Self-employment programmes for youths;
- Income generation training;
- Awareness activities and skills training; and
- Programmes for women, ethnic groups lower caste and disadvantage groups.

DDC Energy and Environment officers are focused mainly on promoting energy at the VDC level, as they are funded by Alternative Energy Promotion Center. Though there is provision to appoint an Environment Officer under the Environment Regulations, 1997, Environment Officers have not been appointed in all the DDC. In some districts, projects have supported the funding of an Environment Officer are within the Energy and Environment Section (eg the Strengthening of Environmental Administration and Management at the Local Level in Nepal (SEAM-N) project in Ilam District). But all DDCs will need at least one Environment Officer to handle ESMF requirements. Whilst Social Development Sections of DDCs are fully occupied in implementing their own internal programmes, they could handle the social issue related to REDD+. But staff of both sections will require technical training on ESMF, together with budget allocations and time being dedicated for such activities, particularly the screening and monitoring ESMF- REDD+ projects/activities. As part of the DDC (the apex body within the district), these Sections can provide coordination as regards REDD+ projects/activities with other government offices at district level.

District Forest Office

The District Forest Office (DFO) is the main implementing body of the Department of Forests at district level. There are 74 such DFOs in Nepal. Mustang has no DFO - its role and responsibilities here are carried out by the District Soil Conservation Office.

The DFO is headed by a second class Forest Officer (the District Forestry Officer – also termed DFO), supported by an Assistant Forestry Officer (AFO). DFO concentrate on forest-related activities and have no separate environment and social section. In the REDD+ pilot districts, a representative of the DFO has participated in meeting so of the Watershed Fund Advisory Committee (WAFAC) and the Monitoring Committee (REDD Cell, 2011).

All the environment and forest management activities of the DFO are conducted under the Development Unit (*Bikas Sakha*) headed by two Rangers (forest technicians). The Unit is responsible for protecting, promoting and managing forests within the district. Its main role is the surveying and inventory of community forests, leasehold forests and national forests as well as assisting in preparing operational plans for all forest areas. This unit also carries various training and awareness-raising activities, eg for forest management, plantations, and nursery establishment. It is also responsible for some legal procedures concerning illegal activities such as causing deforestation, starting forest fires, illegal harvesting and poaching and forest encroachment. Training on forest survey and inventory work and conducting IEE/EIA are provided to the staff from this unit.

DFOs have a demanding workload but have limited staff, expertise and budgets and would find it difficult to engage in screening and monitoring REDD+ projects and plans. But it seems that they have been playing a positive role in implementing the REDD+ pilot studies - which have both environment and social related issues.

In order for the DFO to contribute to and support ESMF implementation, an officer (with an appropriate environmental and social background/qualification) will need to be appointed for this purpose, and training provided, as well as budget resources made available.

Other District Offices

Each district has an Education Office, District Agriculture Development Office, Soil Conservation Office, and Women's Development Office, with its own mandate and specific programmes. Most District Agricultural Development Offices (DADOs) have one Plant Protection Officer (PPO) who is primarily responsible for plant protection activities within the district. The PPOs provide backstop services to Agriculture Service Centres (ASCs) within the district. The District Livestock Offices (DLSOs) have technicians trained in veterinary medicine and animal sciences who are responsible for monitoring the use of animal growth hormones and veterinary medicines. However, the coverage by DADOs and DLSOs is inadequate.

The District Forest Office (DFO) and the District Soil and Watershed Conservation Office (DSWCO) are responsible for monitoring forest and soil conditions within the district. In practice, development projects set up separate institutional arrangements for dealing with environmental and social issues.

Most NGOs do not have separate units in their organizations to deal with environmental issues.

However, NGOs have experience in dealing with environmental problems as most donor projects now make an environmental management component in funded activities mandatory. National level NGOs working in the mid-western and far-western development regions (eg CEAPRED, LIBIRD, and SAPPROS) have good experience and expertise in environment management.

Each of the organisations described in this section can contribute to the ESMF with minimal added skills. But they have heavy workloads and limited available time to undertake ESMF activities. Hence there will be a need to:

- Provide the staff of these offices with the necessary budget and technical training regarding ESMF implementation, and for their parent Ministries to ensure that they can dedicate time to ESMF activities; or
- Hire separate staff (qualification could be +2 level) to work on ESMF activities.

Local Level (Village Development Committees and Voluntary Groups)

As noted in Section 3.1, **Village Development Committees** (VDCs) are the lowest level of administrative unit in Nepal. Each VDC is further divided into nine wards, each of which elects a representative to the VDC. VDCs are considered as grassroots political institutions, through which the people are expected to participate directly in the planning, programming, and implementation of development programmes and projects at the local level. The municipalities are also divided into wards, which range from 9 - 35. The number of wards varies as per the size of the town.

The staff of the VDCs are overloaded by the tasks they are responsible for whilst there are still no elected representatives. They have a heavy workload concerning Ward-level programmes and projects and interfacing with local people.

There is provision for every VDC to hire a Technical Assistant through the Local Development Offices (DDC). But not every VDC has done this. So to implement the ESMF at VDC level, the remaining Technical Assistant Posts could be filled and all such Assistants given skills training to engage in ESMF – particularly monitoring REDD+ projects and programmes. But if there is no possibility for VDCs to hire such Technical Assistants, then budget resources will be required and time made available for VDC to engage in such monitoring.

At the local level, there are many **voluntary groups** and other bodies such as Community Forest User Groups, School Management Committees, Ward Citizens Forums, Farmer's Groups, Mothers Groups, Saving and Credit Groups. These groups actively participate and work in coordination with government and non-government offices and officials for the welfare of society and villages. They undertake local level monitoring work from long time. With some training and skills development, and with some added allowances, they can easily engage in monitoring REDD+ projects and activities.

3.6.5 Conclusions

Effective coordination across institutions engaged in REDD+ will be critical for the successful implementation of the REDD+ Strategy, and particularly for implementing the ESMF.

For the REDD Readiness process, the government has established various structures: the REDD+ Multi-sectoral, Multi-stakeholder Coordinating and Monitoring Committee - as the apex body; the REDD+ Working Group (RWG) - at the operational level; and the REDD-Forestry and Climate Change Cell - as the coordinating entity. It will be necessary during the preparation of the actual REDD+ Strategy to recommend the structures for the implementation and coordination of the REDD+ strategy itself and for coordination across all concerned bodies at international, national and local levels. Figure 1 shows those mechanisms established for the ICIMOD/ANSAB/FECOFUN Pilot Project. Other pilot projects have also experimented with other mechanisms. These will all require to be analysed.

The ESMF makes recommendations on mechanisms for its implementation. In our view, it will be necessary to establish a formal unit within the REDD+ coordination architecture within MoFSC to coordinate all environmental and social assessment and monitoring process related to REDD+, with additional arrangements at district and local levels. Coordination of these mechanisms should be with MoFSC so that they are closely aligned with all other coordination procedures for overall REDD+ implementation. But there will, of course, need to be close liaison and cooperation with other line ministries, agencies and bodies (based on future Programs/projects) that have particular expertise and responsibilities relevant to ESMF implementation, particularly MoSTE as regards formal approval

of EIA reports. And it is clear that both the proposed coordination unit for ESMF and other ministries/departments, districts and local bodies will need considerable training, budget resources and time to undertake their functions – these are elaborated in the ESMF.

Formal coordination is needed between MoFSC and MoSTE (which has responsibility for implementing the environmental assessment legislation, and is also the focal body of UNFCCC for Nepal) Such coordination is require on environment issues and projects for the effective implementation of ESMF-REDD+. Section 3.6.3.3 has already reflected on the current lack of effective coordination between these ministries in preparing plans and programmes. We conclude that the currently dormant Climate change Section under MoFSC should be made active in order to contribute to climate change aspects of REDD+ implementation. We also recommend that a coordinating mechanism should be established (with representatives from MoFSC (particularly the proposed Assessment and Monitoring Unit), MoSTE, other relevant line agencies as well as experts. This national level mechanism would be tasked to align work on environmental and social issues related to REDD+ implementation.

In section 3.6.1.1, examples of pilot projects are described that have involved developing and testing of institutional mechanisms to ensure equitable benefit sharing and forest carbon payments to local communities. The REDD Cell (2011) commissioned a review of these projects and drew a number of useful lessons (see section 3.6.1.2). These will need to be taken into account and further consideration given to the establishment of mechanisms to ensure shared benefits actually reach stakeholder groups. The ESMF includes monitoring elements that incorporate tracking that this happens in practice.

4 STRATEGIC OPTIONS FOR REDD+ IN NEPAL

4.1 BACKGROUND

This chapter presents an outline of REDD+ strategy options as a basis for the SESA to screen and assess possible environmental and social impacts, and issues related to REDD+ programmes in Nepal. Since the REDD+ strategy has not yet been developed, the options presented below are derived primarily from a number of key documents, as advised and provided by the REDD Cell:

- Ministry of Forests and Soil Conservation. **Nepal's REDD Readiness Preparation Proposal (R-PP), 2010-2013. (2010)**. Revised report addressing issues from PC6 resolution, submitted October 2010. Government of Nepal.
- Paudel, N., Khatri, N., Karki, R. and Paudel, G. (2013). **Drivers of Deforestation and Forest Degradation and responses to address them in Nepal**. Report submitted by ForestAction to UN-REDD Programme in October 2013.
- Bhujel, D.R., Shrestha, B.B. and Niraula, R.B. (2013). Study on Invasive Alien Species (IAS) as Drivers to Deforestation and Degradation of Forests in different physiographic regions of Nepal. BS JV API.
- Kanel, K.R., Shrestha, K., Tuladhar, A.R. and Regmi, M.R. (2012). **A Study on the Demand and Supply of Wood Products in Different Regions of Nepal**. Nepal Foresters' Association, Kathmandu, Nepal.
- Baral, N.R., Acharya, D.P. and Rana, C.J. (2012). **Study on Drivers of Deforestation and Degradation of Forests in High Mountain Regions of Nepal. Volume I: Main Report**. Community Forestry Research and Training Centre (COMFORTC), Kathmandu, Nepal.

Some additional suggestions and information obtained during stakeholder consultations have been used to structure the recommended strategic options. The chapter also summarises the drivers and proposed strategies described within these five documents (section 4.3), and then presents fourteen recommended strategic options (section 4.4).

4.2 INTRODUCTION

4.2.1 UNFCCC engagement and proposed scope of REDD+

Nepal has engaged with the REDD+ process under the United Nations Framework Convention on Climate Change (UNFCCC) since the 13th Convention of the Parties to UNFCCC in 2007, and now belongs to both the **Forest Carbon Partnership Facility (FCPF)** (revised R-PP submitted in October 2010) and **UN-REDD Programme** (October 2009). Since then, a \$200K FCPF Formulation Grant has been mostly disbursed and a Supplemental Grant Agreement for \$3.4m has been signed (March 29, 2011). Development of the three-tier **institutional framework** for REDD+ was initiated in 2009, and now includes a REDD Apex Body, REDD Working Group, and REDD Forestry and Climate Change Cell.

As described below, various overarching elements help frame REDD+ in Nepal (and are relevant to the preparation of strategic options for REDD+), such as the vision for REDD+, envisaged scope of REDD+ activities and co-benefits, and climate change adaptation priorities.

According to the R-PP, the stated **vision** for REDD+ refers to the importance of emission reductions, livelihoods and institutional aspects:

“by 2013 and beyond, our greenhouse gas emissions resulting from deforestation and forest degradation will be significantly reduced by forest conservation and enhancement, by addressing the livelihoods concerns of poor and socially marginalized forest dependent people, and by establishing effective policy, regulatory and institutional structures for sustainable development of Nepal's forests under the forthcoming new constitutional framework.”

In line with the diversity of forest types, management regimes, drivers of deforestation and emission reduction opportunities, the strategic options proposed in the R-PP cover REDD+ in its broadest sense, with five activities considered for payment under REDD+ schemes: **reducing deforestation; reducing forest degradation; sustainable management of forests; conservation of forest carbon; and enhancement of forest carbon stock**. According to ForestAction 2013 report, Nepal is considering the adoption of a **jurisdictional and nested approach** to implement REDD+ (nested approaches allow for subnational REDD+ projects within national REDD+ programs and policies).

Nepal's REDD Readiness Progress Fact Sheet (June 2013) reports that Nepal submitted an idea note on co-benefits to UNFCCC prior to the 38th session of Subsidiary Body for Scientific and Technological Advice (SBSTA, one of two permanent subsidiary bodies to UNFCCC). Nepal has identified six types of **REDD+ co-benefits** together with proposed indicators and means of verification:

- Enhancement of local livelihoods;
- Increase in the value of biodiversity;
- Better ecosystem services to people and environment;
- More resilient ecosystems for climate change adaptation;
- Improved governance, institutional setup and policies for natural resource management at local to national levels; and
- Contributions to meeting objectives and targets of many international Conventions.

While Nepal has recognised the opportunity to engage in climate change mitigation through REDD+, the country has placed a high development priority on strengthening the adaptive capacity of communities in the face of climate change. After all, Nepal has been ranked as the fourth most vulnerable country to climate change worldwide and already feels the impacts in various sectors central to peoples' livelihoods and the national economy (e.g. agriculture, water, energy, health and biodiversity). The high relevance of both **adaptation and mitigation** in Nepal requires attention to help ensure synergies in corresponding activities.

In terms of setting useful context, the R-PP presents a number of **underlying principles**:

- Regarding alignment with national priorities:
 - Alignment of REDD+ strategy with overall development strategy; and
 - Link with national priorities for poverty reduction and enhancing livelihoods of forest-dependent people.
- Regarding multi-stakeholder engagement and coordination:
 - Coordination between sectors to ensure sustainability and avoid conflicts;
 - Multi-stakeholder involvement reflecting diversity of actors; and
 - Utilising and building capacity of existing multi-stakeholder institutions.
- Regarding forest-specific needs:
 - Capture and fully value the range of ecosystem benefits from forests;
 - Link carbon ownership rights and land tenure, and clarify issues of rights to forests;
 - Recognise role of forests in climate change adaptation and mitigation; and
 - Build on successful participatory approaches to forest management and benefit sharing.

4.2.2 Overview of forest status, policies and measures

The geographical and physiographic context of forests in Nepal and rates of deforestation and land degradation are described in section 3.2.

The complex mosaic of agriculture and forests and complexity in drivers of deforestation and forest degradation (DD) are linked to wider topographic, physiographic, socio-economic and cultural diversity in Nepal. Accordingly, drivers of DD vary in their severity by physiography. For example, the main drivers of DD in the Terai (where the highest deforestation rates occur and where there are

generally high opportunity costs associated with agriculture) are illegal harvesting, encroachment, forest fire and unregulated grazing. In contrast, unplanned and unregulated infrastructure (rural roads) is the main driver of DD in the Middle Hills, while illegal timber export (to Tibet) and timber for house construction, fuel wood and the use of fire to stimulate the regeneration of pastures for livestock are the main drivers of DD in the High Mountains

Since 1957, successive five-year National Development Plans have progressively referred to the roles and functions of forests in conservation, meeting subsistence needs, poverty reduction, participatory approaches and ecosystem services. The current plan covers the period 2013-2016. It gives high priority to addressing poverty, agricultural development, road and hydropower construction, while on the forestry front it places a strong emphasis on forest protection, biodiversity and ecosystem services.

Guided by the Forest Act 1993, National Park and Conservation Act 1973, Forest Sector Policy 2000 and related policies and strategies, current forest sector measures include protected area establishment and enforcement, introduction of participatory and community-based forestry, strengthening of law enforcement and increased regulatory control, introduction of conservation programme in Churia region and sustainable forest management practices in Kapilvastu district.

While the State owns all forest, there are several forest management regimes³⁷: protected areas (23% of total national territory); protected forests; government managed forest; community forests (25% forests); leasehold forests; religious forests and private forests. Following significant reforestation and afforestation in the 1970s and 1980s to address soil erosion and fuel wood shortages, community involvement has been found to reduce DD (especially in the Mid-Hills - now experiencing 1.5% biomass increase annually) and therefore contribute towards forest conservation and carbon enhancement.

Wider policy and legislative support for forest management includes the Land Use Policy 2012 (which aims to maintain 40% of the land as forest land and introduces a number of positive measures relating to use of arable land, infrastructure development, resettlement and tree planting), the Rural Energy Policy 2006 and Subsidy Policy for Renewable Energy 2013 (which promotes improved biomass technologies among other measures), and numerous anti-corruption laws, national institutions (including the Centre for Investigation of Abuse of Authority and two parliamentary committees) and initiatives. Meanwhile, Nepal's National Adaptation Plan of Action (NAPA) strongly emphasises sustainable forest management and recommends state support for diverse strategies to reduce pressure on forests.

4.3 REVIEW OF KEY DOCUMENTATION

Based on the key references listed in section 4.2.1, the following sections summarise the drivers of deforestation and forest degradation and the strategies that have been proposed to address.

4.3.1 Nepal's Readiness – Preparation Proposal (R-PP), 2010-2013

4.3.1.1 Background

The R-PP contains six components: organise and consult; prepare the REDD strategy; develop a reference scenario; and design a monitoring system; schedule and budget; programme monitoring and evaluation framework. Of greatest relevance to this review, component 2 (*Prepare the REDD strategy*) includes four sections: (1) Assessment of Land Use, Forest Policy and Governance; (2) REDD Strategy Options; (3) REDD Implementation Framework; and (4) Social and Environmental Impacts.

³⁷ Acharya *et al.* (2008), for example define two broad categories of forest tenure: private forest and national/government forest. The latter contains subcategories of management regimes including protected forests, government managed forest, community forests, leasehold forests and religious forests.

4.3.1.2 The drivers of deforestation and forest degradation

Annexes 2a.1 and 2b.1 identify nine **drivers**:

1. High dependency on forest and forest products (timber, firewood and other NTFPs);
2. Illegal harvest of forest products;
3. Unsustainable harvesting practices;
4. Forest fire;
5. Encroachment;
6. Overgrazing;
7. Infrastructure development;
8. Resettlement; and
9. Expansion of invasive species.

The R-PP also discusses various **challenges and underlying causes** in relation to these drivers that are domestic in nature:

- Socio-economic factors (demographics), poverty, land scarcity, status of Nepal economic growth and commercial development;
- Governance issues such as weak natural resource management and administration (particularly noticeable for 63% forest under government control), rent-seeking attitude, cultural factors and political interference;
- Importance of political stability for policy implementation, and uncertainty over impacts of proposed federal governance system under development of new Constitution;
- Conflicts over jurisdiction and authority, for example between Forest Act 1993 and Local Self Governance Act 1999 regarding forest management and benefit sharing;
- Unclear land tenure, use rights, and policy and planning;
- Anti-corruption challenged by non-transparent and unaccountable practices of political parties, and lack of technical expertise, information systems and public cooperation;
- Conflicts between protected area authorities and people, especially Terai and Siwaliks (as well as between adjacent and distant users);
- Market failure due to forest product marketing mechanisms, and insufficient technical inputs for sustainable management of forests (widening supply-demand gap);
- Declining relative share of budget to forest sector, and inaccurate estimation of forest sector contribution to GDP;
- Food security due to low productivity requiring land management and possibly reforms;
- Poor coordination, planning and implementation, especially infrastructure projects, but also the need for harmonisation of policies for food security, forest, water and climate change; and
- Cross border illegal trade (India-Nepal).

4.3.1.3 Proposed strategies

The R-PP lists 165 strategic options grouped by the nine drivers (and underlying causes) of carbon emissions from deforestation and the degradation of forests (see Annex 2b-1 of R-PP). Realistically, this is too many strategic options to be assessed during a SESA and even for tracking effective implementation, requiring consolidation and/or reformulation. The executive summary of the R-PP lists the following preliminary grouping of strategic options:

- Improvement in policies/regulations;
- Enhanced forest sector governance;
- Improved management practices and technical skills;
- Investment in forestry and non-forestry employment generation;

- Land-use planning (in the three physiographic regions);
- Transfer of forest management and tenure rights to communities;
- Sensitization of various actors across sectors;
- Investment in wood efficient and alternative energy technologies; and
- (As a cross-cutting strategy), harmonization of policies and programmes across sectors, particularly infrastructure, agriculture and energy.

4.3.2 Forest Action Nepal report on the drivers of deforestation and forest degradation

4.3.2.1 Background

Based upon Nepal's request to the UN-REDD Programme for Targeted Support, ForestAction Nepal was contracted to undertake a study³⁸ on strategies for addressing the drivers of DD with special attention to issues related to transparency, accountability and corruption. This national level study adopted a political ecology perspective to better understand the socio-cultural and political drivers as well as the policies and measures to address these drivers.

ForestAction Nepal followed a framework for understanding the drivers of DD developed by Geist and Lambin (2001), which separates visible and immediate, i.e. *proximate* causes (land-based human activities such as biomass extraction, agricultural expansion and expansion of infrastructure, and natural drivers including fire and invasive alien species) from *underlying* causes (fundamental socio-economic and institutional forces).

4.3.2.2 The drivers of deforestation and forest degradation

The report identifies **four main proximate causes** (with all showing an increasing trend with the exception of unsustainable harvesting of fuel wood):

- Illegal logging (ranked as highest priority although scale not quantified. Affected by political uncertainty. Mostly in lowlands. Law enforcement forms main response).
- Encroachment (140,000 ha distributed to landless over past 40 years although another approx. 100,000 ha due to uncontrolled encroachment. Planned resettlement and encroachment are a threat in Terai and Churia).
- Road construction (scale not quantified).
- Fuel wood consumption (84% households in the country use fuel wood for cooking and other purposes, with forest land contributing to over 80% of total fuel wood supply. Overall, supply is expected to exceed demand by 2020).

Others drivers include grazing, shifting cultivation, other infrastructure development, forest fires and alien invasive species.

Most proximate drivers have common underlying political and governance issues (in addition to economic and technological issues). For example, prolonged political transition, weak state institutions and deeply-rooted, vested interests are the causes of corruption, weak law enforcement and rent seeking that are, in turn, largely responsible for illegal logging. The report identifies the following **underlying causes**:

- **Economic**
 - Increased demand for forest land and products: especially timber and fuel wood (predicted shortages in Terai). Market access and high price of substitutes are also important issues
 - Poverty: declining size of land holdings increases pressure to harvest forests products and to engage in illegal activities.
- **Policy, institution and governance**

³⁸ A separate study focussed on national level fund management arrangements.

- Poor transparency and participation: current multi-stakeholder bodies are an improvement on historical (State-controlled, low citizen ownership) policy processes, although lack of deliberate and inclusive forest policy process presents various challenges (manipulation by powerful actors, avoidance of contested policy issues, limited opportunities for stakeholder inputs) have resulted in contestations (e.g. Terai).
- Corruption: pervasive and expanding, presenting challenges in land administration and affecting licensing for timber harvesting and road construction. Various misconducts in forest sector, including political/senior official (policy-making), district (regulation/enforcement) and community levels (implementation), contractors and non-forestry agents.
- Weak law enforcement: capacity, structural issues and corruption affecting government (e.g. unplanned settlement and encroachment in Terai and high altitude areas near Tibet).
- Weak tenure: while community based forest management is shown to reduce DD, unclear, weak and insecure forest tenure arrangement is a cause of DD in Terai. Devolvement of forest management to local government present challenges, while regional and ethnic identity centred political movements have had land/natural resources at centre of demands.
- **Socio-political**
 - Prolonged political transition and instability: Creating environment favourable for illegal activities and misconduct. Also uncertainty over implications of federalism on REDD+.
 - Differentiated and fragile society: Historical oppression, subjugation and marginalisation based on differentiation of class, caste, ethnicity, gender and spatial dimensions, with social marginality directly associated with ecological marginality (living in marginal lands in high numbers and poverty) resulting in their impression as culprits of environmental crises. This requires attention to social justice to address social difference and inequity.
- **Demographic drivers**
 - Population growth: High population growth (and changing consumption behaviours) linked to demand projections, with highest population density and deforestation rates in Terai.
 - Migration: Search for better opportunities, including from Hills to Terai (reacting to food insecurity pressures and environmental degradation in Hills, but leading to increased pressure for forest land and products in Terai), rural to urban (leading to increased demand for forest products), and temporary migration abroad. At same time, migration (and remittances) having positive effect on conservation in Hills as pressures on forest reduce. Some agricultural land is also being left fallow, allowing the land to return to scrubland and forest.
 - Conflicts: Forested lands have also been locus of social conflicts.
- **Technological drivers**
 - Low forest productivity: Poor technology used in forest extraction and management.
 - Low agricultural productivity: Poor technology and inputs and limited use of improved and sustainable technologies, also linked to poor governance and lack of financial resources.
 - Lack of technology for more efficient energy consumption.
- Poor road infrastructure limits access to more productive and efficient resources use and limited access to markets.

4.3.2.3 Proposed strategies

The report by ForestAction Nepal presents six strategies grouped around the following broad concepts (with the first four closely related to the four identified drivers and the last two related to important underlying drivers):

- Sustainable management of forests and Protected Areas;
- Long-term food security for small and marginal farmers;
- Environmentally-friendly road construction and maintenance;
- Energy access and efficiency;

- Governance reform; and
- Strengthened law enforcement.

4.3.3 BS JV API study on invasive alien species

4.3.3.1 Background

The Ministry of Forests and Soil Conservation (REDD-Forestry and Climate Change Cell) commissioned an assessment of the impact of invasive alien species (IAS) on forest degradation and deforestation. Sampling took place in the Terai and Siwalik (Chure) regions and included forests under different management regimes (protected area forest inside the national parks and wildlife reserves, buffer zone community forests, community forests, and the government owned national forests). The study looked into distribution, intensity, trends and impacts.

4.3.3.2 Drivers of deforestation and forest degradation

In general, IAS start to colonise degraded forests as ‘passengers’ of deforestation and forest degradation. Subsequently, as they gradually spread, they become ‘drivers’ by disrupting the forest regeneration process. The number of IAS was found to be generally higher in eastern and central Nepal than in the western region. Among the 13 IAS found in the forests of the terai landscape, *Chromolaena odorata*, *Mikania micrantha*, *Lantana camara*, *Ipomoea carnea* ssp. *fistulosa* and *Parthenium hysterophorus* were the most common and problematic species.

4.3.3.3 Proposed strategies

The following strategies were recommended to cope with the problems of IAS in forest ecosystems:

- Minimizing disturbance and avoiding over-exploitation of the biological resources in natural forests;
- Enrichment planting of native species in degraded forest where natural re-growth of trees is slow or severely disrupted by IAS;
- Community participation; and
- Awareness raising.

4.3.4 Nepal Foresters’ Association report on the demand and supply of wood products

4.3.4.1 Background

In order to better understand forest carbon removals from, or storage in, the forests of Nepal, this study analysed future projection of demand and supply of wood (fuel wood and timber) in a geographically disaggregated form.

The study found that some of the Terai forests would be prone to deforestation due to a shortage of wood (fuel and timber), while the rest of Nepal would not be vulnerable to deforestation at a macro level (with a surplus in the hills and mountains). However, difficult terrain and the high cost of transportation prevents the transport surplus wood from the hills to the Terai.

4.3.4.2 Factors influencing demand

The demand and supply of forest products depends not only on biophysical factors inherent in different ecological regions of Nepal, but also on the policy regimes:

- Regulatory policies relevant to Forestry, Agriculture, Mining, Road Construction and Maintenance, Hydropower, and other Energy related policies;

- Fiscal and monetary policies such as foreign currency exchange rates, royalty fixation of forest products, subsidies and taxation on tree plantation, wood production, timber and fuelwood supply and trade, commercialization and processing;
- Pricing policies affect the demand and supply of wood products in Nepal, for example, export tax, dual pricing policies on wood products sold by CFUGs, floor pricing of logs (timber) by government, LPG and kerosene pricing by Nepal Oil Corporation;
- High level of control by the government of Nepal on timber market, with restriction of timber from national forests leading to price increases and illegal harvesting;
- Transfer of forest staff, uncertainty of political environment, on-and-off administrative directives and guidelines and the rent seeking culture of Nepali society;
- Economic growth of the country affects purchasing power of citizens.

4.3.4.3 Proposed strategies

Various reforms in policies are recommended to address issues facing wood products demand and supply:

- Policy consistency (reduce frequency of changes, and consistency between sectors);
- Transparency in harvest volumes and pricing;
- Forest management to enhance productivity in Terai;
- Equity in CFUGs and operational plans;
- Reforms to trade regulations;
- Promote value addition in Hills;
- Intensive tree planting programme in Terai; and
- Improved information and data collection.

4.3.5 COMFOTC report on drivers of deforestation and degradation in high mountain regions of Nepal

4.3.5.1 Background

The RPP identified forest fire, illegal logging and grazing as critical drivers of deforestation and degradation in High Mountain forests. This study was commissioned by the Ministry of Forests and Soil Conservation (REDD-Forestry and Climate Change Cell) in 2012 to examine the nature and extent of major drivers of deforestation and forest degradation in the High Mountain regions³⁹ of Nepal. The study also assessed the current and future consumption of wood products (timber and fuelwood) and non-wood products.

4.3.5.2 Drivers of deforestation and forest degradation

Forests under government management regimes in the lower temperate region and sub-alpine and alpine areas are under extreme pressure from fodder and firewood gathering. They show a higher level of degradation in terms of quality, species diversity and density. In contrast, in the majority of high altitude forests managed by local communities, there have been various positive impacts with restoration of forest cover, improving forest quality and reducing the wanton exploitation of trees for wood and fodder.

The report describes *six proximate causes* of deforestation and forest degradation in the high mountain region (with the first three deemed to be the most critical causes):

³⁹ Forests in the High Mountains can be broadly grouped into four broad types (montane/Himalayan moist temperate forest, Himalayan dry temperate forest, sub-alpine forest, and alpine scrub) and occur at an altitude of between 2,000 and 5,000 metres. High Mountains account for 42% of the country's land area, 16% population, 27% livestock, 63% endemic plants, while forests cover 30-34% total forest area and 48% total standing timber.

- Forest fire (high levels of incidence – mostly intentional – and vulnerability of mountain forests)
- Over grazing (clearance for pasture, fodder and timber/firewood)
- Indiscriminate product extraction (especially firewood, timber and NTFPs)
- Illegal trade (including transboundary trade, especially timber and firewood)
- Infrastructure expansion (roads, hydropower, tourism)
- Development of new economic frontiers

In addition, the report describes a range of **underlying causes**:

- Demographic factors
 - Lifestyle changes
 - Migration to new urban centres
- Policy and institutional factors
 - Policy gaps on unique high mountain issues
 - Limited government capacity
 - High altitude areas lacking formal institutional arrangements
- Governance factors
 - Governance of local forest institutions (FUGs)
 - Political fragility
 - Staff transfers and law enforcement
- Economic factors
 - Investing revenues for forest management
 - Market pricing
 - Trade regulation
 - Inter- and intra-group equity
- Cultural factors
- Lack of research and development

4.3.5.2 Proposed strategies

The report presents the generic challenges, changing attitudes, perceptions, knowledge and values regarding high mountain communities among major stakeholders/actors, and raising the voice and influence of high mountain communities in national-level, political decision making. The following four perspectives/strategies are recommended:

- Redefinition in attitude and ethics (equitable distribution of benefits and costs) regarding mountain actors;
- Knowledge and capacity development, and management of high mountain forest resources;
- Developing collective vision and common understanding including strengthened coordination; and
- Reforming policy and institutional arrangements (e.g. community forest management, benefit sharing) adapted for high altitude.

4.3.6 Important considerations from the reviewed documents

With regards to understanding the nature of drivers and their impacts:

1. The **complexity of drivers is attributed to diversity** in ecological, socio-economic and cultural conditions (e.g. Terai - illegal logging, timber smuggling and encroachment; Hills - fuel wood collection and road construction; Mountains - logging and fuel wood), as well as diversity of tenure regime and management options (e.g. Government-managed and community-managed). Simple policy solutions will not therefore address such complexity.

2. An **improved understanding** of the scale of current impact of DD, future projections and potential for influencing is required for developing policies and measures to address the drivers. In general, there is a lack of standardised data collected nationwide on drivers and their impacts, meaning that analysis of strategic options may rely to a large extent on more qualitative measures.

With regards to identifying best means to address drivers:

3. The **proximate drivers encompass non-forest sectors, especially agriculture, infrastructure and energy**, all of which therefore need to be embraced within the policy process to address DD. The challenge is to balance the need for considering drivers beyond the forestry sector while also promoting broader economic development and poverty reduction goals. Incentives primarily from REDD+ financing should identify and mitigate potential negative impacts of these sectors. Aligning sector policies and programmes towards an integrated climate resilience development path requires all sectors to be clear on their implementation roles.
4. Due to importance of underlying causes, the policies and measures need to consider strategies beyond economic incentives to also cover **incentivising institutions to reform policy, governance (including anti-corruption) and land and forest tenure (including rights to carbon)**. The continuing political crisis, poverty and inequality all pose crucial challenges in addressing DD. Community forestry and other community-based and participatory arrangements offer opportunities, although they are also not without their weaknesses.
5. Insufficient recognition of the above two points appear to be major reasons for **ineffectiveness of existing policies and measures** (and preparedness):
 - Some **mismatches between causes and measures**, for example over-emphasis on applying law enforcement, and over-emphasis on measures within forest sector.
 - **Poor implementation** of measures due to limited institutional capacities, inadequate resourcing, weak inter-agency coordination, corruption and uncertainty in light of prolonged political transition.

With regards to other issues of importance for consideration during development of a REDD+ strategy:

6. Indigenous Peoples, Vulnerable Groups and women as specific stakeholders do not appear to have come out strongly in the documents in terms of proposed strategies and specific actions.
7. In light of the anticipated move towards federalism, there is a need to consider governance as well as cost/benefit sharing between central government, federal units (that will emerge in the near future) and community based natural resource management groups.
8. Assessing the extent to which REDD+ strategy options contribute to reducing emissions and co-benefits need to use criteria that assess effectiveness, efficiency and equity:
 - In terms of effectiveness, proposed actions need to be analysed not only in terms of their potential for emission reductions, but also the extent of:
 - Additionality (ensuring the change would not have happened during business as usual, i.e. without the REDD+ intervention);
 - Risk of non-permanence (risk that positive changes are short-lived); and
 - Controllable leakage (displacement of pressure/driver to another location).
 - In terms of efficiency, the transaction, opportunity and implementation costs associated with proposed actions need to be known in order to establish viability and potential for scaling up. In the context of Nepal, non-financial/non-economic factors need to be taken into consideration while conducting cost-benefit analysis, e.g. women's time-use and drudgery.
 - Of relevance to equity is the evaluation of alternative mechanisms for benefit distribution at project, sub-national (including within village communities, even to the extent of intra-household distribution) and national levels. It is equally important to understand the link

between drivers of deforestation and forest degradation with commodities and gender. Value chain analysis can offer insights on who is involved and likely to be affected by the strategic options for REDD+.

- Further, the contribution of proposed actions should be assessed from the different perspectives of conservation of biodiversity, poverty reduction, social and gender equity and economic development at different levels.

4.4 RECOMMENDED STRATEGIC OPTIONS FOR THE BASIS OF SESA

4.4.1 Proposed options

The 14 strategic options developed for the SESA⁴⁰ are listed in Box 4.1. In brief they are:

- SO1 Land tenure, carbon rights and benefit sharing;
- SO2 Community-based forest management (formal and customary);
- SO3 Promotion of private forestry;
- SO4 Government managed forests for conservation of biodiversity and maintenance of fragile ecosystems and land;
- SO5 Conservation of biodiversity and ecosystem services outside Protected Areas;
- SO6 Payment for ecosystem services;
- SO7 Agriculture productivity and food security for small and marginal farmers;
- SO8 Energy access and efficiency;
- SO9 Environmentally-friendly infrastructure planning, construction and maintenance;
- SO10 Forest and non-forest enterprises;
- SO11 Law enforcement;
- SO12 Good governance and anti-corruption;
- SO13 Land use planning for each of the physiographic regions; and
- SO14 Institutional architecture.

The choice of options recognises that addressing policy problems such as REDD+ requires not only an understanding of the more visible and objective issues (c.f. proximate causes), but also the complexity of actors and their interactions (c.f. underlying causes).

4.4.2 Linkages between strategic options

Most of the proposed options listed in Box 4.1 are built around the drivers and proposed strategies identified in the R-PP and above-mentioned references. Tables 4.1, 4.2 and 4.33 indicate these linkages. Some options are based on suggestions made during consultations conducted during the SESA.

Box 4.1: Strategic options developed for SESA purposes

SO1: Land tenure, carbon rights and benefit-sharing - enabling fairness and effectiveness in land tenure, carbon rights and benefit-sharing.

Clear and long-term carbon tenure and benefit-sharing mechanisms will provide incentives for sustainable management and clarity on beneficiaries of performance-based payments.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

- SO1a Define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation
- SO1b Increase and ensure access to forests by women, Indigenous Peoples, vulnerable groups, forest dependent people, and other marginalised people, including reform at national and local levels to address (fragmentation) and inequity
- SO1c Establish clear and legally defined benefit-sharing mechanisms that can deliver to grassroots levels
- SO1d Establish and strengthen (gender-sensitive) grievance-addressing mechanisms
- SO1e Enhance local (forest related) voices to influence decision making at all levels

SO2: Community-based forest management (formal and customary) – strengthening institutional arrangements, technologies and sustainable management practices in forests under different tenure and management regimes.

⁴⁰ As described earlier, these strategic options have been prepared for the purpose of the SESA in the absence of a National REDD+ Strategy.

Sustainable management of forests increases the supply of timber and fuel wood and discourages illegal or unauthorised activities.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

SO2a Implement sustainable management of forests (practices, technical skills and technologies including forest fire management) that enhances forest productivity under community based forest management)

SO2b Build public (local communities, wider civil society, government and private sector) awareness (sense of responsibility) and promote attitude change towards understanding the real value of forest products and services in the context of climate change and REDD+

SO3: Promotion of private forestry - promotion of plantations of faster growing species (particularly native) creating mosaic landscapes.

The development of plantations at scale is required to meet changing demands for forest products at scale and rehabilitate degraded land.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

SO3a Promote private plantations to meet domestic and cross-border demands for timber, particularly promoting restoration and rehabilitation of degraded areas.

SO4: Government-managed forests for conservation of biodiversity and maintenance of fragile ecosystems and land.

In accordance with international agreements (Convention on Biological Diversity), the Government of Nepal has established protected and conservation areas to promote flora and animal diversity as well as fragile ecosystems (e.g. riparian and mountain forests) in the country. The World Commission on Protected Areas of IUCN has called countries to set aside at least 10% of their territories to meet that objective. The government of Nepal has established parks, reserves and conservation areas to meet this objective and REDD+ provides additional incentive to protect carbon stocks and co-benefits.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

SO4a Establish and strengthen protected areas and Integrated Conservation and Development Projects, and promote participatory models for protected area management and ecotourism

SO4b Prepare national forestry strategy through multi-stakeholder process, incorporating specific strategies for the Mountains, Terai and Middle Hills regions

SO4c Improve and execute existing district forest management plans and fire management plans

SO5: Conservation of biodiversity and ecosystem services outside protected areas

Forest resources under different management and use regimes are also home to endemic and threatened flora and fauna. REDD+ implementation can use the Nepal Red List⁴¹ baseline assessment to aid interventions and prevent future decline in species representation in the different ecosystems and monitor the impact of increasing carbon stock on conservation of threatened/endangered species.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

SO5a Biodiversity conservation in managed ecosystems for sustaining livelihoods (including through local land use planning; and complementary implementation of CBD and UNFCCC (REDD+ co-benefits)

SO6: Payment for ecosystem services - to support adoption of improved land productivity, efficient and sustainable use of resources by land users.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

SO6a Develop and promote Payment for Environmental Services (PES) for sustainable agriculture interventions.

SO6b Develop and promote PES for reduced emissions, watershed management and biodiversity conservation.

SO7: Agricultural productivity and food security for small and marginal farmers - reducing forest encroachment through more equitable access to productive land, increased productivity with agriculture intensification and creation of off-farm employment opportunities.

⁴¹ The IUCN Red List of threatened species uses established criteria applied globally in order to focus management and conservation attention.

Safeguarding the interests and rights of small scale and subsistence farmers who may be impacted by REDD+ policies is central to ensuring compatibility with climate change adaptation and resilience-building prerogatives.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

- SO7a Agro-ecological zoning (maximising production potentials for each land category) at national and local levels.
- SO7b Agricultural intensification (increasing productivity through climate smart agriculture, including agroforestry, and use of alternative sources of fertiliser)
- SO7c Promote the application of Sloping Land Agriculture Technologies [contours with fodder trees/grasses in *bari* lands]
- SO7d Promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies)
- SO7e Promote multi-purpose fodder management, stall feeding and scaling up of fodder reserve systems, especially silage and hay, for use during slack periods
- SO7f Promote access to crop & livestock breeding and husbandry improvement programs
- SO8 Energy access and efficiency - ensuring access to affordable, reliable and sustainable sources of energy to all.**

Builds on policy and programmatic foundations within rural energy policy and periodic development plans to help safeguard the energy needs of rural, poorer populations while improving the sustainability and efficiency of fuel wood production and use.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

- SO8a Sustainable management of natural wood fuel resources.
- SO8b Active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber.
- SO8c Increase investment and access to fuel wood efficient and alternative energy technologies (including improved kilns and cooking stoves), for forest-dependent poor and marginalised people, and to reduce urban demand for fuelwood.
- SO8d Promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro, solar power) linking the energy end-use to enterprise development/income generation.
- SO9: Environmentally-friendly infrastructure planning, construction and maintenance - ensuring that location and applied technologies minimize both direct and indirect impacts on forest cover and carbon stocks.**

Recognises the importance of roads as the backbone of the economy with increased connectivity, mobility and profitability of rural economy that generate both farm and off-farm employment. Also recognises the importance of other key areas of rural infrastructure development relating to tourism and hydropower.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

- SO9a Ensuring sustainability of rural road construction and maintenance by considering environmental, social and economic aspects
 - SO9a(i) Ensure integrated local-level road route planning, implementing, monitoring and evaluation of road projects through democratic and inclusive decisions, decentralised and participatory planning
 - SO9a(ii) Provide for compulsory tree planting to substitute forest cleared for roads
 - SO9a(iii) Use of sustainable technologies, and inbuilt maintenance and repair arrangements
 - SO9a(iv) Ensure effective IEE and EIA for all forest land use conversion for road construction
- SO9b Other infrastructure - ensuring sustainability of rural infrastructure development and maintenance by considering environmental, social and economic aspects
 - SO9b(i) Ensure integrated local-level planning, monitoring and evaluation of infrastructure development projects (implementing, monitoring and evaluation of construction projects through democratic and inclusive decisions, decentralised and participatory planning)
 - SO9b(ii) Provide for compulsory tree planting to substitute forest cleared for infrastructure development

SO9b(iii) Ensure effective IEE and EIA for all forest land use conversion for other infrastructure development (including tourism ventures, expansion of settlements)

SO10: Forest and non-forest enterprise - promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people.

Enterprises bring income-generating opportunities and promote economic activity, with sustainable forest enterprises incentivising forest management while diversification to non-forest enterprises may reduce pressures on forests.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

SO10a Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector (for both timber and NTFPs, including ecotourism) producing finished forest products for domestic and export markets

SO10b Scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural and urban (poor) areas to reduce forest dependency and demand for forest products

SO10c Promote vocational education and skill-based training opportunities for both forest and non-forest enterprise development for economically poor and marginalized

SO10d Improve access by poor to alternative technologies (eg small sawmills carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc)

SO10e Promote underdeveloped markets (e.g. NTFP, ecotourism) and pilot alternative and more efficient distribution and marketing mechanisms for forest- and non-forest based enterprises (e.g. community-based, private, local-government-based)

SO10f Strengthen the organisation of enterprises through the development of associations, cooperatives, federations, etc. as appropriate

SO10g Develop financing schemes accessible to poorer land users and women who lack collateral

SO10h Develop policies and capacity to encourage private investment in efficient and alternative timber technologies (e.g. bamboo housing, timber drying, timber treatment, timber processing)

SO10i Establish a mechanism for periodic analysis of demand and supply of forest products by geographic region, and develop distribution programmed to address demand-supply gaps

SO10j Develop a mechanism to engage the private sector in forestry for the entire value chain of forest products, from planting to end-product development.

SO11: Law enforcement - strengthening the capacity and independence of the forest agency (personnel, systems, legal provisions, etc.) and trial and justice system, and improve functional collaboration and cooperation among government agencies, CSOs, media and private sector.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

SO11a Undertake institutional reform to increase accountability and transparency of all concerned agencies at all levels

SO11b Strengthen the incentive (to address illegal harvesting activities) and punishment system for both government officials and community-based forest management groups

SO11c Restructure and reorient/sensitize Government staff and HRD systems to reduce corruption (including Department of Forests) to ensure offenders are sacked

SO11d Work with media to 'name and shame' individuals and organizations involved in illegal forest products trade

SO11e Create better awareness (of forest-related laws) and capacity (for enforcement) amongst all law enforcement agencies e.g. police, armed police, army, border police, on forest law enforcement issues

SO11f Expand participatory forest management systems to forest areas where law enforcement is difficult

SO11g Introduce pilot participatory M&E mechanisms of law enforcement at different levels

SO11h Sensitize border authorities and explore cross-border law enforcement collaboration with Indian and Chinese (Tibetan) authorities.

SO12 Good governance and anti-corruption - increasing accountability and transparency including meaningful and effective engagement of all relevant stakeholders and contributing to preventing and punishing corruption.

Linked to the need to establish a clear link between governance reform, reduction in DD and increase in payment to local forest managers.

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

- SO12a Facilitate open and constructive debate on key forest governance issues, management modalities, ways to resolving existing contestations and conflicts;
- SO12b Support decentralized, participatory and community based governance models;
- SO12c Adopt REDD+ international standards on participation, inclusion and informed decisions;
- SO12d Support capacity building of relatively weaker actors, local communities, IP organisations and women's organisations/mothers' groups; and
- SO12e Sensitize various actors on issues of forest sector governance and politically-induced encroachment, including political parties through parliamentary committees.

SO13: Land use planning for each of the physiographic regions - determining the optimal land uses across the physiographic regions (Terai, Siwalik, Mid-Hills and Mountains) according to potential and in support of decision-making

Land use planning helps to determine areas that need rehabilitation or restoration and can result in enhancement of carbon stocks. Making use of spatially explicit mapping of current, in pipeline and potential investments can support the decision making and finding compromise solutions (trade-offs and choices of low carbon and emission reducing development options).

Indicative activities derived from R-PP, other key reference documents and SESA consultations:

- SO13a Establish spatially explicit information systems on land use potential, allocations and potential conflicts/complementarity with REDD+ strategic options
- SO13b Conduct multi-stakeholder, integrated planning processes at regional/landscape and national levels, in order to seek consensus building, validation and clarify sector and extra-sector commitments to land use recommendations
- SO13c Establish mechanisms for monitoring, reporting and verification of land use changes (and their impacts on commitments to achieving emissions reduction and enhancement at sub-regional/jurisdictional and national level)
- SO14 Institutional architecture - building REDD+ institutional architecture and processes that enable equity (as well as efficiency and effectiveness).

Links to R-PP vision that specifically mentions the need to address the livelihood concerns of women, poor and socially marginalized forest dependent people. A central need is collaboration and coordination among diverse actors to ensure sustainability and avoid conflicts, especially in light of proposed new federal structure.

Indicative activities derived from R-PP, other key reference documents and SESA consultations (noting that this section does not include all aspects of REDD+ institutional architecture, but actions that are most connected with the consideration of safeguards):

- SO14a Ensure development of national REDD+ financing mechanism (including benefit sharing process), and MRV systems
- SO14b Ensure adequate representation of women, poor and socially marginalized land users on key local decision-making bodies and processes
- SO14c Promote and establish decentralized and accountable multi-stakeholder forest governance structures and support multi-stakeholder district forest sector planning
- SO14d Strengthen coordination mechanisms for promoting policy and planning linkages among the MoFSC, National Planning Commission, and ministries responsible for finance, infrastructure, energy, land reform and agriculture.
- SO14e Analyse fiscal policies and opportunities for raising national funds to support climate change mitigation including performance-based payment mechanisms.

Table 4.1. Overlap between elements of Nepal’s R-PP and strategic options assessed by the SESA

		Information derived from Nepal’s REDD Readiness Preparation Proposal, 2010-2013	Reference to activities under strategic options assessed by SESA
Drivers	Underlying causes	Strategic options	
High dependency on forests	Poverty and lack of livelihood alternatives	<ul style="list-style-type: none"> Scale up investment in non-forestry sector employment programs targeting rural areas to reduce forest dependency Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector Provide vocational education Create skill-based training opportunities for economically poor and marginalized peoples Establish environmental tax mechanism and use revenues to generate employment alternatives for FDPMPs Channel local government resources (matching funds and resource leverage) to FDPMPs to promote livelihood improvements Promote PES mechanisms for the income generation among forest-dependent poor and marginalized peoples 	10b 10a 10c 10c 10b 14e 6b
	Limited access to fuel/timber alternatives	<ul style="list-style-type: none"> Increase investment and access to alternative energy technologies for FDPMPs Promote access to technologies that enhance fuelwood efficiency and promote fuelwood substitution for FDPMPs Pilot wood-substitute building materials (e.g. bamboo housing) Promote cost-effective wood technologies (e.g. particle board, pressed board) for FDPMPs Promote greater access for FDPMPs to alternative energy subsidies Develop user-friendly policies that subsidize private plantations and on-farm, multipurpose tree planting for fuelwood and timber 	8c, 8d, 10d 8c 10h 10h 10g 8b
	Inefficient forest product use	<ul style="list-style-type: none"> Promote fuel-efficient cook stoves and fuelwood technology for FDPMPs Develop policies that encourage private investment in efficient and alternative timber technologies Pilot and promote use of more efficient wood technologies Explore and pilot environmentally sound alternatives to wood use (including wood recycling and recovery) Implement sustainable management of forest that enhances forest productivity under different forest management regimes Build capacity in improved and cost-efficient forest product utilization technologies Build public awareness and promote attitude change to real value of forest products 	8c 10h 10h 8c, 8d, 10h 2a, 4a, 8a 10h 2b
Issues of illegal harvesting	Weak law enforcement and impunity	<ul style="list-style-type: none"> Institute forestry sector institutional reform to increase accountability and transparency of all concerned agencies Strengthen the incentive and punishment system for both government officials and CBFM groups Restructure and reorient/sensitize the GoN staff and HRD systems (including DoF) to ensure removal of offenders 	11a 11b 11c 11d 11e, 12a

	<ul style="list-style-type: none"> ● Work with the media to ‘name and shame’ individuals and organizations involved in illegal forest products trade ● Create better awareness and capacity amongst all law enforcement agencies on forest law enforcement issues ● Expand participatory forest management systems to forest areas where law enforcement is difficult ● Pilot and implement effective, participatory M&E mechanisms at different levels ● Implement a study on increasing the effectiveness of the judiciary and judicial process with respect to forest law enforcement 	<p>11f</p> <p>11g</p> <p>**</p>
Weak governance and governance vacuum	<ul style="list-style-type: none"> ● Define ownership and use rights for all forest land ● Bring all forests under an identified and agreed forest management modality ● Prioritized transfer of forest areas to CBFM and develop appropriate forest management modalities for government forests ● Promote and establish decentralized and accountable multi-stakeholder forest governance and planning structures ● Reactivate multi-stakeholder forest governance structure at national level (FSCC) ● Sensitize political parties on forest sector governance issues through the parliamentary committee on Natural Resource ● Identify and address contradictory legislation and cross-sectoral policy issues through National Planning Commission facilitation ● Assess alternative governance arrangements for protected areas 	<p>1a</p> <p>4b</p> <p>2a, 4a</p> <p>14c</p> <p>14d</p> <p>12e</p> <p>12a, 14d</p> <p>4a</p>
Inefficient distribution mechanisms	<ul style="list-style-type: none"> ● Establish a mechanism for periodic analysis of demand and supply of forest products by geographic region ● Pilot and study alternative and more efficient distribution and marketing mechanisms for timber and firewood ● Develop distribution programmed to address demand-supply gaps ● Carry out a study to identify options for restructuring TCN, FPDB and other sectoral public corporations 	<p>10i</p> <p>10e</p> <p>10i</p> <p>**</p>
Market failure	<ul style="list-style-type: none"> ● Study the forest product value chains to identify weaknesses and ‘leakage’ and to assess opportunities for tackling them ● Develop a mechanism to engage the private sector in the forest sector for the entire value chain of forest products ● Study alternatives to tax/royalty systems for forest products and implement recommendations to foster a more competitive market ● Study ways for deregulating markets for forest products and implement resulting recommendations 	<p>**</p> <p>10j</p> <p>**</p> <p>**</p>
Poverty and lack of alternatives	<ul style="list-style-type: none"> ● Scale up investment in non-forestry sector employment programs targeting rural areas to reduce forest dependency ● Promote off-farm income generation activities for forest-dependent poor and marginalized households ● Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector (timber and NTFPs) ● Implement sustainable management of forests that enhances forest productivity under different forest management regimes ● Provide vocational education 	<p>10b</p> <p>10b</p> <p>10a</p> <p>2a, 4a, 8a</p> <p>10c</p> <p>10c</p> <p>*</p>

		<ul style="list-style-type: none"> ● Create skill-based training opportunities for the forest dependent poor and marginalized peoples ● Increase awareness and access to education, health and other livelihood services ● Establish and support public land management for identified poor households (Terai) ● Promote land allocation for poor households and income generation from products found in community forests ● Channel local government resources (matching funds and resource leverage) to FDPMPs for livelihood improvements 	<p>1b</p> <p>1b</p> <p>*</p>
	High cross border demand	<ul style="list-style-type: none"> ● Sensitize border authorities and collaborate with them for effective forest law enforcement – especially at border crossings ● Study potential for involvement of local bodies in forest law enforcement and regulating the movement of forest products ● Promote large-scale private plantations to meet both domestic and cross-border demands for timber (Terai) ● Explore cross-border law enforcement strategies and inter-country negotiations with Indian and Chinese (Tibetan) authorities ● Promote and provide incentives for export and cross-border movement of finished forest products 	<p>11h</p> <p>11,c,e,g</p> <p>3a</p> <p>11h</p> <p>10a</p>
Unsustainable harvesting	Weak law enforcement and impunity	<ul style="list-style-type: none"> ● Restructure DoF and (re-) orient and sensitize the DoF staff ● Revise ToR for DoF staff, (re-)orient and sensitize them ● Promote and establish decentralized and accountable forest governance structures (eg FSCC/DFCC) ● Explore participatory models for protected area management ● Prepare national forestry strategy through multi-stakeholder process, incorporating specific strategies for the physiographic regions ● Develop demand-based forest and land-use plans; translate them into DFSPs and implement them ● Improve and execute existing Forest Management Plans (Five-year district forest operational plans) ● Clarify land (and carbon) tenure and use rights ● Promote handover process for community-based forest management regimes 	<p>11c</p> <p>11c</p> <p>12b</p> <p>4a</p> <p>4b</p> <p>13a,b,c</p> <p>4c</p> <p>1a</p> <p>2a</p>
	Inadequate resources for R&D	<ul style="list-style-type: none"> ● Strengthen coordination mechanisms for promoting policy and planning linkages among the MoFSC, MoF and NPC ● Pilot SFM practices and disseminate results to political parties, civil society and other concern stakeholders ● Facilitate non-governmental organizations to generate funds for R&D 	<p>14d</p> <p>4b</p> <p>14e</p>
	Insufficient technical inputs	<ul style="list-style-type: none"> ● Enhance technical capacity of government officials, IPs and local communities, and service providers on SFM and harvesting ● Pilot and demonstrate sustainable harvesting practices in the field 	<p>2a, 4a, 8a</p> <p>4b</p>
Forest fire	Carelessness	<ul style="list-style-type: none"> ● Increase community participation and awareness in forest fire management ● Develop institutional and technical capacity of the extension division of the forest department and other stakeholders 	<p>2a</p> <p>2b</p> <p>8c, 8d</p>

		<ul style="list-style-type: none"> ● Provide alternative technology for charcoal production ● Include awareness raising about forest fire management in school curricula 	8c
	Intentional	<ul style="list-style-type: none"> ● Increase community awareness and participation in forest fire management ● Develop effective mechanism for forest fire monitoring and control ● Develop forest fire strategy plan and review existing laws, rules and regulations ● Promote multi-purpose fodder and grass species planting and management and encourage stall feeding ● Promote use and access to alternative fertilizer to replace shifting agricultural practices in forest areas and farmlands ● Provide alternative sources of income for poor people ● Review current provisions of the forest act to kill wild animals (tiger/leopard) affecting rural areas ● Build fire management technical capacity among all stakeholders who are involved in fire fighting 	2a 2a 4c 7e 7b 10a, 10b ** 2a, 4c
	Weak forest fire management practice	<ul style="list-style-type: none"> ● Prepare strategy to promote community participation in forest fire management ● Implement effective plans for SFM that enhances forest productivity under different forest management regimes ● Develop district forest fire management plans ● Periodically develop and implement community-based forest fire management plans based on risk assessment ● Develop technical capacity among all stakeholders ● Train fire fighters and provide firefighting equipment ● Provide insurance for fire fighters ● Establish forest fire monitoring systems and firefighting network at different levels 	2a 2a, 4a, 8a 4c 2a, 4c 2a, 4a,c, 8a 4c 4c 4c
Encroachment	Expansion of agriculture	<ul style="list-style-type: none"> ● Promote the application of Sloping Land Agriculture Technologies ● Invest to conserve land productivity ● Increase handover of forests to community-based forest management regimes ● Strengthen the incentive and punishment system for government officials, as well as for CBFM groups ● Develop national and local land-use policies, planning and implementation of plans ● Demarcate and regularly monitor forest boundaries ● Promote and establish decentralized and accountable multi-stakeholders forest governance structures ● Enhance value of standing forests through promotion of NTFP markets ● Promote local and regional-level PES regimes ● Increase awareness to raise community ownership ● Invest in better agriculture practices to increase productivity and address food security ● Implement effective plans for SFM that enhances forest productivity under different forest management regimes 	7c 7a, 7b 2a 11b 13b, 7a 2a, 4a, 8a 14c 10a 6a, 6b 2b 7b 2b
	Poverty and landlessness	<ul style="list-style-type: none"> ● Develop land reform and agricultural policies to address fragmentation and inequitable land distribution ● Increase investment in forest product alternatives and non-forest sector 	1b,13a,b,c 10b

		<p>employment in rural areas to reduce forest dependency</p> <ul style="list-style-type: none"> ● Invest in better agriculture practices to increase productivity and address food security, including on barren lands ● Increase and ensure the equitable sharing of forest-related benefits, including carbon 	7b 1c
	Politically induced	<ul style="list-style-type: none"> ● Sensitize political parties and develop mechanisms to get their commitment 	12e
	Unclear land tenure, policy and planning	<ul style="list-style-type: none"> ● Develop national and local land use policies, planning and implementation of plans ● Promote land tenure reform at both the national and local levels ● Define and transfer a larger bundle of rights ● Improve coordination among Forest, Land Reform and Agriculture Ministries for implementation of land policy and administration ● Develop institutional and legal mechanisms to provide increased access to forests to poor and landless families ● Provide formal endorsement of forests managed informally 	7d 1b 1a 14d 1b 1b, 2a
Overgrazing	Governance vacuum	<ul style="list-style-type: none"> ● Expand coverage in transferring to community-based forest management modalities ● Implement effective plans for SFM that enhances forest productivity under different forest management regimes ● Support multi-stakeholder district forest sector planning for all district-level (DFSP) and VDC-level forestry sector planning ● Promote land tenure reform at the national and local levels 	2b 2b, 4a, 8a 14c 1b
	High number of low productive livestock	<ul style="list-style-type: none"> ● Improve coordination between MoFSC & Ministry of Agriculture for improved breeding technologies, practices and resources ● Improve access to breeding improvement programs ● Explore and develop mechanisms to dispose of unproductive livestock ● Increase access to alternative sources of fertilizer 	14d 7f 7f 7b
	Limited alternatives for fodder	<ul style="list-style-type: none"> ● Develop and execute plans to promote fodder production on private and public lands ● Increase fodder production from forest land (including on land allocated for poor households inside community forests) ● Implement effective plans for SFM that enhances forest productivity under different forest management regimes ● Increase technology for and access to concentrated feed at local level ● Investments to promote stall feeding ● Scale up fodder reserve system, especially silage and hay, for use during slack periods 	7e 7e 2a, 4a, 8a 7e 7e 7e
	Limited alternative income sources	<ul style="list-style-type: none"> ● Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector ● Scale up investment in non-forestry sector employment programs targeting rural areas to reduce forest dependency ● Provide vocational education starting from secondary school level ● Increase skill-based training opportunities for the poor ● Invest in commercial livestock farming at local level to address the need for local markets and subsistence 	10a 10b 10c 10c 7f, 10b

Infrastructure development	Policy inconsistencies	<ul style="list-style-type: none"> ● Review and revise policies to make them more consistent with each other ● Improve coordination and planning among development projects, MoFSC, other ministries and NPC ● Promote integrated planning, monitoring and evaluation of infrastructure development projects ● Make provision for the compulsory substitution of equivalent forest land used for non-forestry land use 	14d 9a(i), 14d 9a(i), 14d 9a(ii)
	Weak accountability of planning mechanisms	<ul style="list-style-type: none"> ● Ensure integrated local level planning, monitoring and evaluating of development projects, including local road building ● Sensitize policy makers to forest-related planning issues ● Sensitize local government to forest-related planning issues ● Implement compensation mechanisms for private land lost due to road construction (to ensure forest land is not used) 	9a(i) 2b 2b 9a(ii)
	No EIA, IEA or follow up monitoring	<ul style="list-style-type: none"> ● Make IEE and EIA compulsory for all forest land use conversion projects including infrastructure development ● Develop regular joint monitoring and feedback mechanisms in the implementation of plans ● Promote integrated planning, monitoring and evaluation of development projects ● Improve coordination among development projects and activities of MoFSC and other ministries 	9a(iv) 9a(i) 9a(i) 14d
Resettlement	New economic growth prospects	<ul style="list-style-type: none"> ● Make provision for the compulsory substitution of equivalent forest land used for non-forestry land use 	9a(ii)
	Increased land demand for new settlements	<ul style="list-style-type: none"> ● Strengthen law enforcement for unregulated settlements and address impunity ● Provide alternative settlement areas on non-forested land 	11a,e, 12a 7a
	Poorly enforced planning regulations	<ul style="list-style-type: none"> ● Ensure integrated local-level planning, monitoring and evaluation of development projects including local road building ● Strengthen law enforcement related to planning and infrastructure development ● Sensitize policy makers on forest-related planning issues ● Sensitize local government on forest-related planning issues 	9a(i) 11e 2b 2b
Expansion of invasive species	Lack of proven eradication practices	<ul style="list-style-type: none"> ● Develop and execute research plan targeting invasive species ● Disseminate the results to wider stakeholders and integrate the result into policies and plans ● Sensitize concerned authorities on their roles and responsibilities to immediately act to overcome the problem 	** ** 2b, 4a
	Frequent forest fires	<ul style="list-style-type: none"> ● Promote community participation in forest fire management and fire control ● Develop institutional and technical capacity of the extension division of the forest department and other stakeholders 	2a 2b

	Overgrazing	<ul style="list-style-type: none"> ● Expand coverage and accelerate transfer to community-based forest management modalities in all regions ● Develop and execute plans to promote fodder production on private and public lands ● Increase fodder production from forest lands (including land allocation for poor households inside community forests) 	2a 7e 7e
	Opening of canopy	<ul style="list-style-type: none"> ● Enhance technical capacity of Government officials, indigenous peoples, local communities and service providers on SFM ● Pilot and demonstrate sustainable harvesting practices in the field ● Expand coverage and accelerate transfer to community-based forest management modalities in all regions 	2a, 4a 2a, 4a, 8a 2a

Note: The SESA did not include review of R-PP strategic options that were:

- * Generic livelihood improvement activities
- ** Research-related activities

Table 4.2. Overlap between drivers and underlying causes in the R-PP and strategic options assessed by SESA

Information derived from Nepal's REDD Readiness Preparation Proposal, 2010-2013 (Annex 2a)		Proposed strategic options in this paper													
Drivers	Underlying causes	1. Land tenure, carbon rights and benefit sharing	2. Community-based forest management	3. Promotion of private forestry	4. Government managed forests	5. Biodiversity and ecosystem services outside Protected Areas	6. Payment for ecosystem services	7. Agriculture productivity and food security	8. Energy access and efficiency	9. Environmentally-friendly infrastructure	10. Forest and non-forest enterprises	11. Law enforcement	12. Good governance and anti-corruption	13. Land use planning for each of the physiographic regions	14. REDD+ institutional architecture
High dependency on forests	Poverty and lack of livelihood alternatives														
	Limited access to fuel/timber alternatives														
	Inefficient forest product use														
Issues of illegal harvesting	Weak law enforcement and impunity														
	Weak governance and governance vacuum														
	Inefficient distribution mechanisms														
	Market failure														
	Poverty and lack of alternatives														
	High cross border demand														
Unsustainable harvesting	Weak law enforcement and impunity														
	Inadequate resources for R&D														
	Insufficient technical inputs														
Forest fire	Carelessness														
	Intentional														
	Weak forest fire management practice														
Encroachment	Expansion of agriculture														
	Poverty and landlessness														
	Politically induced														
	Unclear land tenure, policy and planning														
Overgrazing	Governance vacuum														
	High number of low productive livestock														

Information derived from Nepal's REDD Readiness Preparation Proposal, 2010-2013 (Annex 2a)		Proposed strategic options in this paper												
	Limited alternatives for fodder													
	Limited alternative income sources													
Infrastructure development	Policy inconsistencies													
	Weak accountability of planning mechanisms													
	No EIA, IEA or follow up monitoring													
Resettlement	New economic growth prospects													
	Increased land demand for new settlements													
	Poorly enforced planning regulations													
Expansion of invasive species	Lack of proven eradication practices													
	Frequent forest fires													
	Overgrazing													
	Opening of canopy													

5 ASSESSMENT OF ENVIRONMENTAL, SOCIAL AND INSTITUTIONAL IMPACTS OF REDD+ STRATEGIC OPTIONS

5.1 OVERVIEW OF IMPACTS OF IMPLEMENTING THE STRATEGIC OPTIONS

Analysis of the strategic options described in Chapter 4 shows that, if implemented, they will be likely to lead to a range of environmental and social impacts. Some will be positive in line with the aims of the objectives of the options; others are likely to be negative, and some of the latter will be perverse unintended negative impacts of well-intentioned objectives. These impacts are summarised in Tables 5.1.1 (environmental) and 5.1.2 (social).

All of these impacts will be cumulative, many arising from several options. But it is not possible to provide a quantitative indication of their significance or extent.

Table 5.1.1 Summary of environmental impacts of implementing the strategic options for REDD+

Positive impacts	Negative impacts
<ul style="list-style-type: none"> • Improved conservation of biodiversity & fragile ecosystems • Improved ecosystem services • More sustainable forest , natural resources, land & environmental management • Reduced deforestation / illegal logging • Increased tree planting • Improved forest quality • Reduced biomass extraction / increased biomass • Enhanced biodiversity • Improved traditional forest management practices • Reduced pollution (fertilizers, pesticides, household smoke/CO) • Reduced methane emissions • Alternative energy sources • Improved soil fertility / productivity / water retention • Reduced land degradation / restored degraded lands • Reduced soil erosion, landslides, flooding • Maintenance of watersheds / aquifers • Enhanced scenic value / sense of place • Decreased carbon emissions / increased carbon sequestration/maintain carbon stocks • Removal of alien/invasive species • Reduced grazing pressure • Creation of micro-habitats • Reduced environmental risks/ hazards / disasters (including fire) 	<ul style="list-style-type: none"> • Forest loss/degradation from improved access to forest • Forest loss and degradation from agricultural intensification, due to: <ul style="list-style-type: none"> • Encroachment (intensification may lead to agricultural expansion); • Providing agricultural inputs (e.g. leaf litter, organic mulch, fodder). • Loss of forest and deforestation by promotion of energy efficiency • Habitat loss and fragmentation/biodiversity loss due to forest management practices • Decline of biodiversity in compensatory plantation • Habitat fragmentation by infrastructure development • Slope destabilization, soil erosion, landslides due to agricultural intensification and infrastructure development • Loss of ecosystem services • Solid waste from tourism industries • Chemical pollution from agricultural intensification

Table 5.1.2: Summary of social impacts of implementing the strategic options for REDD+

Positive impacts	Negative impacts
<p>Improved Rights and Access</p> <ul style="list-style-type: none"> • Improved rights & access to land / forests • Increased supply of , access to, & value of forest products • Improved benefit-sharing • Improved market access / surplus products for markets • Better access to forest products / NTFP <p>Improved Livelihood and Poverty Reduction</p> <ul style="list-style-type: none"> • Improved health • Poverty reduction • Investment in alternative livelihoods • Improved livelihoods, income, economic opportunities, enterprise development • Increased employment • Potential for cooperatives • Improved food security <p>Social Inclusion and Gender Empowerment</p> <ul style="list-style-type: none"> • Empowerment • Increased voice for women / powerless • Social inclusion (gender balance) • Reduced workload/drudgery (women) • Gender friendly technology introduced • Reduced social gaps <p>Increased Participation, Knowledge and Ownership</p> <ul style="list-style-type: none"> • Maintain/strengthened cultural norms/services • Increased knowledge / capacity for forest management • Increased use of local, indigenous/ & traditional knowledge & practices • Increased participation / ownership • Environmental & social awareness • Strengthened local organisations <p>Enhanced Accountability</p> <ul style="list-style-type: none"> • Reduced corruption / bribery • Reduced conflict • Reduced illegal activities 	<p>Social Exclusion and Displacement</p> <ul style="list-style-type: none"> • Exclusion of landless, poor & marginalised eviction, loss of land/property • Social exclusion • Exclusion/devaluation of women • Exclusion/elimination of cultural / spiritual values & traditional practices • Ignoring/displacing traditional/ indigenous knowledge • Small farmers & local enterprises out-competed, displaced <p>Leading to Inequity</p> <ul style="list-style-type: none"> • Inequity in benefit-sharing (loss of) • Elite capture (of resources, benefits, access, etc) • Inequitable/loss of access to forest resources/products • Increased costs (transaction, labour, time) • Land grabbing <p>Loss of Livelihood</p> <ul style="list-style-type: none"> • Reduced food production • Loss of/ limited access to, employment • Loss of livelihoods, income, economic opportunities <p>Loss of Authority/Autonomy and Induced Risk and Dependency</p> <ul style="list-style-type: none"> • Loss of user/traditional rights, or access to forest products & resources • Health risks • Lack of awareness / information • Not accessible to poor, marginalised (can't afford) • Dependence on external inputs • Monopolies setting prices (eg timber) • Token participation • Politicisation of community decisions <p>Social Conflict and Violence</p> <ul style="list-style-type: none"> • Violence against women • Conflict • Human-wildlife conflict

Tables 5.1.3 and 5.1.4 summarise the environmental impacts of the range of strategic options, respectively indicating positive and negative impacts. Similarly Tables 5.1.5 and 5.1.6 do the same for the social impacts. These tables indicate how cumulative impacts arising from particular options or sub-options will be compounded.

Appendices 8.1 – 8.14 and 9.1 – 9.14 provide, respectively, a detailed analysis of the environmental and social impacts for each strategic option.

Table 5.1.3: Summary of key environmental impacts – positive

Options: 1 Rights; 2 Community-based forest management; 3 Private forestry; 4 Government managed forests; 5 Conservation of biodiversity; 6 Payment for ecosystem services; 7 Increased agricultural productivity; 8 Access to energy; 9 Environmentally-friendly infrastructure; 10 Promoting enterprises; 11 Law enforcement; 12 Good governance; 13 Land use planning; 14 Building institutional architecture

P = possible cumulative impacts

Option		Improved conservation of biodiversity & fragile ecosystems	Improved ecosystem services	More sustainable forest, NR, land & environmental management	Reduced deforestation / illegal logging	Increased tree planting	Improved forest quality	Reduced biomass extraction / increased biomass	Enhanced biodiversity	Improved traditional forest management practices	Reduced pollution (fertilizers, pesticides, household smoke/CO)	Reduced methane emissions	Alternative energy sources	Improved soil fertility / productivity / water retention	Reduced land degradation / restored degraded lands	Reduced soil erosion, landslides, flooding	Maintenance of watersheds / aquifers	Enhanced scenic value / sense of place	Decreased carbon emissions / increased carbon sequestration/maintain carbon stocks	Removal of alien/invasive species	Reduced grazing pressure	Creation of micro-habitats	Reduced environmental risks/ hazards / disasters (including fire)	
1	A																							
	B																							
	C																							
	D																							
	E																							
2	A																							
	B																							
3	A																							
4	A																							
	B																							
	C																							

		Improved conservation of biodiversity & fragile ecosystems	Improved ecosystem services	More sustainable forest, NR, land & environmental management	Reduced deforestation / illegal logging	Increased tree planting	Improved forest quality	Reduced biomass extraction / increased biomass	Enhanced biodiversity	Improved traditional forest management practices	Reduced pollution (fertilizers, pesticides, household smoke/CO)	Reduced methane emissions	Alternative energy sources	Improved soil fertility / productivity / water retention	Reduced land degradation / restored degraded lands	Reduced soil erosion, landslides, flooding	Maintenance of watersheds / aquifers	Enhanced scenic value / sense of place	Decreased carbon emissions / increased carbon sequestration/maintain carbon stocks	Removal of alien/invasive species	Reduced grazing pressure	Creation of micro-habitats	Reduced environmental risks/ hazards / disasters (including fire)	
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6	A																							
	B																							
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	D																							
	E																							
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	B																							
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	D																							
9	A	1																						
		2																						
		3																						
		4																						
	B	1																						

			Improved conservation of biodiversity & fragile ecosystems	Improved ecosystem services	More sustainable forest, NR, land & environmental management	Reduced deforestation / illegal logging	Increased tree planting	Improved forest quality	Reduced biomass extraction / increased biomass	Enhanced biodiversity	Improved traditional forest management practices	Reduced pollution (fertilizers, pesticides, household smoke/CO)	Reduced methane emissions	Alternative energy sources	Improved soil fertility / productivity / water retention	Reduced land degradation / restored degraded lands	Reduced soil erosion, landslides, flooding	Maintenance of watersheds / aquifers	Enhanced scenic value / sense of place	Decreased carbon emissions / increased carbon sequestration/maintain carbon stocks	Removal of alien/invasive species	Reduced grazing pressure	Creation of micro-habitats	Reduced environmental risks/ hazards / disasters (including fire)	
10		2																							
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		Improved conservation of biodiversity & fragile ecosystems	Improved ecosystem services	More sustainable forest, NR, land & environmental management	Reduced deforestation / illegal logging	Increased tree planting	Improved forest quality	Reduced biomass extraction / increased biomass	Enhanced biodiversity	Improved traditional forest management practices	Reduced pollution (fertilizers, pesticides, household smoke/CO)	Reduced methane emissions	Alternative energy sources	Improved soil fertility / productivity / water retention	Reduced land degradation / restored degraded lands	Reduced soil erosion, landslides, flooding	Maintenance of watersheds / aquifers	Enhanced scenic value / sense of place	Decreased carbon emissions / increased carbon sequestration/maintain carbon stocks	Removal of alien/invasive species	Reduced grazing pressure	Creation of micro-habitats	Reduced environmental risks/ hazards / disasters (including fire)	
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14	A																							
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Table 5.1.4: Summary of environmental impacts – negative

Options: **1** Rights; **2** Community-based forest management; **3** Private forestry; **4** Government managed forests; **5** Conservation of biodiversity; **6** Payment for ecosystem services; **7** Increased agricultural productivity; **8** Access to energy; **9** Environmentally-friendly infrastructure; **10** Promoting enterprises; **11** Law enforcement; **12** Good governance; **13** Land use planning; **14** Building institutional architecture

P = possible cumulative impacts

		Forest loss/ degradation overharvesting & illegal logging	Loss of ecosystems (diversity)	Loss of biodiversity	Habitat loss, fragmentation	Unsustainable forest use	Slope destabilisation, Soil erosion, landslides, flooding	Increased vulnerability to plant diseases & displacement of native	Water scarcity. Over-abstraction	Reduced potential for agricultural crops	Reduced crop diversity (elimination of indigenous varieties	Loss of productive agricultural land	Pollution (fertilizers, pesticides, toxic chemicals.)	Reduced soil quality	Human-wildlife conflict	Increased methane emissions	Over-fishing	Habitat change, loss of fish migration routes	General environmental impacts on non-forest sectors
Option																			
1	A																		
	B																		
	C																		
	D																		
	E																		
2	A																		
	B																		
3	A																		
4	A																		
	B																		
	C																		
5	A																		

		Forest loss/ degradation overharvesting & illegal logging	Loss of ecosystems (diversity)	Loss of biodiversity	Habitat loss, fragmentation	Unsustainable forest use	Slope destabilisation, Soil erosion, landslides, flooding	Increased vulnerability to plant diseases & displacement of native	Water scarcity. Over-abstraction	Reduced potential for agricultural crops	Reduced crop diversity (elimination of indigenous varieties)	Loss of productive agricultural land	Pollution (fertilizers, pesticides, toxic chemicals)	Reduced soil quality	Human-wildlife conflict	Increased methane emissions	Over-fishing	Habitat change, loss of fish migration routes	General environmental impacts on non-forest sectors		
6	A																				
	B																				
7	A																				
	B																				
	C																				
	D																				
	E																				
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10	A																				
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		Forest loss/ degradation overharvesting & illegal logging	Loss of ecosystems (diversity)	Loss of biodiversity	Habitat loss, fragmentation	Unsustainable forest use	Slope destabilisation, Soil erosion, landslides, flooding	Increased vulnerability to plant diseases & displacement of native	Water scarcity. Over-abstraction	Reduced potential for agricultural crops	Reduced crop diversity (elimination of indigenous varieties)	Loss of productive agricultural land	Pollution (fertilizers, pesticides, toxic chemicals)	Reduced soil quality	Human-wildlife conflict	Increased methane emissions	Over-fishing	Habitat change, loss of fish migration routes	General environmental impacts on non-forest sectors	
	D																			
	E																			
	F																			
	G																			
	H																			
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	B																			
	C																			
	D																			
	E																			
13	A	Possible																		
	B			Possible																

Table 5.1.5: Summary of social impacts – positive

Options: 1 Rights; 2 Community-based forest management; 3 Private forestry; 4 Government managed forests; 5 Conservation of biodiversity; 6 Payment for ecosystem services; 7 Increased agricultural productivity; 8 Access to energy; 9 Environmentally-friendly infrastructure; 10 Promoting enterprises; 11 Law enforcement; 12 Good governance; 13 Land use planning; 14 Building institutional architecture

P = possible cumulative impacts

		Improved rights & access to land / forests	Empowerment	Increased voice for women / powerless	Maintain/strengthened cultural norms/services	Increased supply of , access to, & value of forest products	Improved health	Poverty reduction	Investment in alternative livelihoods	Improved livelihoods, income, economic opportunities, enterprise development	Increased knowledge / capacity for forest management	Reduced corruption / bribery	Increased us of local, indigenous/ & traditional knowledge & practices	Increased participation / ownership	Increased employment	Potential for cooperatives	Social inclusion (gender balance)	Improved benefit-sharing	Improved market access / surplus products for markets	Improved food security	Reduced workload/drudgery (women)	Better access to forest products / NTFP	Environmental & social awareness	Reduced conflict	Gender friendly technology introduced	Strengthened local organisations	Reduced illegal activities	Reduced social gaps
Option																												
1	A																											
	B																											
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	D																											
	E																											
2	A																											
	B																											
3	A																											
4	B																											
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		Improved rights & access to land / forests	Empowerment	Increased voice for women / powerless	Maintain/strengthened cultural norms/services	Increased supply of , access to, & value of forest products	Improved health	Poverty reduction	Investment in alternative livelihoods	Improved livelihoods, income, economic opportunities, enterprise development	Increased knowledge / capacity for forest management	Reduced corruption / bribery	Increased us of local, indigenous/ & traditional knowledge & practices	Increased participation / ownership	Increased employment	Potential for cooperatives	Social inclusion (gender balance)	Improved benefit-sharing	Improved market access / surplus products for markets	Improved food security	Reduced workload/drudgery (women)	Better access to forest products / NTFP	Environmental & social awareness	Reduced conflict	Gender friendly technology introduced	Strengthened local organisations	Reduced illegal activities	Reduced social gaps	
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		Improved rights & access to land / forests	Empowerment	Increased voice for women / powerless	Maintain/strengthened cultural norms/services	Increased supply of , access to, & value of forest products	Improved health	Poverty reduction	Investment in alternative livelihoods	Improved livelihoods, income, economic opportunities, enterprise development	Increased knowledge / capacity for forest management	Reduced corruption / bribery	Increased us of local, indigenous/ & traditional knowledge & practices	Increased participation / ownership	Increased employment	Potential for cooperatives	Social inclusion (gender balance)	Improved benefit-sharing	Improved market access / surplus products for markets	Improved food security	Reduced workload/drudgery (women)	Better access to forest products / NTFP	Environmental & social awareness	Reduced conflict	Gender friendly technology introduced	Strengthened local organisations	Reduced illegal activities	Reduced social gaps	
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Table 5.1.6: Summary of environmental impacts – negative

Options: 1 Rights; 2 Community-based forest management; 3 Private forestry; 4 Government managed forests; 5 Conservation of biodiversity; 6 Payment for ecosystem services; 7 Increased agricultural productivity; 8 Access to energy; 9 Environmentally-friendly infrastructure; 10 Promoting enterprises; 11 Law enforcement; 12 Good governance; 13 Land use planning; 14 Building institutional architecture

P = possible cumulative impacts

		Loss of user/traditional rights, or access to forest products & resources	Inequity in benefit-sharing (loss of)	Exclusion of landless, poor & marginalised eviction, loss of land/property	Social exclusion	Exclusion/devaluation of women	Violence against women	Conflict	Human-wildlife conflict	Elite capture (of resources, benefits, access, etc)	Inequitable/loss of access to forest resources/products	Increased costs (transaction, labour, time)	Land grabbing	Reduced food production	Loss of/ limited access to, employment	Exclusion/elimination of cultural / spiritual values & traditional practices	Ignoring/displacing traditional/ indigenous knowledge	Health risks	Loss of livelihoods, income, economic opportunities,	Small farmers & local enterprises out-competed, displaced	Lack of awareness / information	Not accessible to poor, marginalised (can't afford)	Dependence on external inputs	Monopolies setting prices (eg timber)	Token participation	Politicisation of community decisions
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		Loss of user/traditional rights, or access to forest products & resources	Inequity in benefit-sharing (loss of)	Exclusion of landless, poor & marginalised eviction, loss of land/property	Social exclusion	Exclusion/devaluation of women	Violence against women	Conflict	Human-wildlife conflict	Elite capture (of resources, benefits, access, etc)	Inequitable/loss of access to forest resources/products	Increased costs (transaction, labour, time)	Land grabbing	Reduced food production	Loss of/ limited access to, employment	Exclusion/elimination of cultural / spiritual values & traditional practices	Ignoring/displacing traditional/ indigenous knowledge	Health risks	Loss of livelihoods, income, economic opportunities,	Small farmers & local enterprises out-competed, displaced	Lack of awareness / information	Not accessible to poor, marginalised (can't afford)	Dependence on external inputs	Monopolies setting prices (eg timber)	Token participation	Politicisation of community decisions	
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		Loss of user/traditional rights, or access to forest products & resources	Inequity in benefit-sharing (loss of)	Exclusion of landless, poor & marginalised eviction, loss of land/property	Social exclusion	Exclusion/devaluation of women	Violence against women	Conflict	Human-wildlife conflict	Elite capture (of resources, benefits, access, etc)	Inequitable/loss of access to forest resources/products	Increased costs (transaction, labour, time)	Land grabbing	Reduced food production	Loss of/ limited access to, employment	Exclusion/elimination of cultural / spiritual values & traditional practices	Ignoring/displacing traditional/ indigenous knowledge	Health risks	Loss of livelihoods, income, economic opportunities,	Small farmers & local enterprises out-competed, displaced	Lack of awareness / information	Not accessible to poor, marginalised (can't afford)	Dependence on external inputs	Monopolies setting prices (eg timber)	Token participation	Politicisation of community decisions		
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		Loss of user/traditional rights, or access to forest products & resources	Inequity in benefit-sharing (loss of)	Exclusion of landless, poor & marginalised eviction, loss of land/property	Social exclusion	Exclusion/devaluation of women	Violence against women	Conflict	Human-wildlife conflict	Elite capture (of resources, benefits, access, etc)	Inequitable/loss of access to forest resources/products	Increased costs (transaction, labour, time)	Land grabbing	Reduced food production	Loss of/ limited access to, employment	Exclusion/elimination of cultural / spiritual values & traditional practices	Ignoring/displacing traditional/ indigenous knowledge	Health risks	Loss of livelihoods, income, economic opportunities,	Small farmers & local enterprises out-competed, displaced	Lack of awareness / information	Not accessible to poor, marginalised (can't afford)	Dependence on external inputs	Monopolies setting prices (eg timber)	Token participation	Politicisation of community decisions	
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5.2 DISCUSSION OF IMPACTS

5.2.1 Environmental impacts

5.2.1.1 Positive impacts

Table 5.2.1 indicates the positive impacts arising from the strategic options

Table 5.2.1: Positive impacts of strategic options

Improved conservation of biodiversity and fragile ecosystems and improvement of ecosystem services	<ul style="list-style-type: none"> • SO1a proposes to define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation; • SO1b aims to increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address (fragmentation) and inequity; • SO1c focuses on establishing clear and legally defined benefit-sharing mechanisms that can deliver to grassroots levels; • SO4a aims to strengthen protected areas and promote integrated conservation and development activities in government managed forests; • SO5a aims at conserving biodiversity outside protected areas; • SO6 aims at promoting payment for ecosystem services (PES); • SO8a sustainable management of natural wood fuel resources; • SO9 promotes development of environmental friendly infrastructure • SO10d is targeted to improve access by the poor to alternative technologies (e.g. small sawmills, carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc.) • SO12d supporting capacity building (for forest governance) of local communities, excluded groups, IP organizations, dalits and women.
Sustainable management of forests	<ul style="list-style-type: none"> • SO2b: improvement of awareness and understanding of local communities and stakeholders about forests • SO1b participation of stakeholders in decision-making processes • SO4b preparation of a national forestry strategy through a multi-stakeholder process, incorporating specific strategies for the Mountains, Terai and Middle Hills regions. • SO6 payment for ecosystem services (PES) • SO7 agro-ecological zoning at national and local levels
Improved forest biomass	<ul style="list-style-type: none"> • SO4a establish and strengthen protected areas. • SO8a manage natural fuel wood resources in an sustainable manner
Reduced soil erosion, landslides	<ul style="list-style-type: none"> • SO2a sustainable management of forests (practices, technical skills and technologies)

Reduced pollution

- SO4a strengthening protected areas and implementing integrated conservation and development activities in government managed forests
- SO8a sustainable management of natural fuel wood resources in forests.
- SO7b agricultural intensification
- SO7c sloping land agriculture technologies
- SO8 environmental friendly technologies for development of infrastructure.
- 3a Promote large-scale private plantations to meet domestic and cross-border demands for timber, particularly promoting restoration and rehabilitation of degraded areas
- SO8c - increment in investment on fuel wood efficient alternative energy technology and making it accessible to forest dependent poor and marginalised people and reduce demand for the fuel wood

a) Improved conservation of biodiversity & fragile ecosystems and improvement of ecosystem services

REDD+ is promoted as an approach to climate change mitigation, aiming to improve long-term carbon storage in forests through reducing deforestation and forest degradation. At the global level, there is a positive correlation between estimated terrestrial carbon and biodiversity. A study by Strasburg *et al*, (2010) found a strong association ($r_s=0.82$) between carbon stocks and species richness. Therefore, overall, REDD+ can be expected to conserve biodiversity and thus improve ecosystem services as “co-benefits”. However, these additional benefits will depend on how REDD+ is planned and executed.

The greater part of Nepal’s forests are managed under various formal forestry management regimes, which focus mainly on improving productivity. Priority is given to generating social and economic benefits from forests, such as timber, fuelwood, fodder, etc. rather than ecological benefits. Biodiversity conservation is not a priority, except in protected areas (PA). However, the latter are isolated and ecosystems in the mid-hills are not adequately represented in Nepal’s PA system. Therefore, several strategic options developed by the SESA Team include elements designed to ensure biodiversity conservation in line with the National Biodiversity Conservation and Action Plan (eg SO1, SO10 and SO12). These following sub-options will promote participation of local communities in forest management, which is a necessary step for conservation:

- SO1a proposes to define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation;
- SO1b aims to increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address (fragmentation) and inequity;
- SO1c focuses on establishing clear and legally defined benefit-sharing mechanisms that can deliver to grassroots levels;
- SO2 aims to strengthen institutional arrangements, technologies and practices for community-based forest management;
- SO4a aims to strengthen protected areas and promote integrated conservation and development activities in government managed forests;
- SO5a aims at conserving biodiversity outside protected areas;
- SO6 aims at promoting payment for ecosystem services (PES);

- SO8a sustainable management of natural wood fuel resources;
- SO9 promotes development of environmental friendly infrastructure;
- SO10d is targeted to improve access by the poor to alternative technologies (e.g. small sawmills, carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc.); and
- SO12d supporting capacity building (for forest governance) of local communities, excluded groups, IP organizations, dalits and women.

Experience to date with conservation areas and community managed forestry shows that conservation initiatives are successful once local inhabitants take ownership of the forest. Their local knowledge, skills, and close association with forests are important assets for such initiatives.

Local communities are particularly dependent on forests as a source of fuelwood for energy. Therefore, promoting alternative energy (eg biogas, micro-hydropower, solar power, etc.) will reduce that dependency. Biogas plants and micro-hydropower schemes can be expected to have some negative impacts on forests through an increased need to collect fodder for cattle, and some forests might be affected from the construction of micro-hydropower plants (see section 5.3.1.2(c)). But these activities are not likely to be extensive and their impacts should be limited and localized.

b) Sustainable forest management

REDD+ can support sustainable forest management (SFM). This concept was articulated as a part of the broader notion of sustainable development at the Earth Summit in 1992. SFM is represented in the non-legally binding instrument (NLBI) on all types of forests of the United Nations Forum on Forests. Agenda 21 states that SFM "a dynamic and evolving concept that aims to maintain and enhance the economic, social and environmental value of all types of forests, for the benefit of present and future generations". By sustaining carbon stocks in forests over a long time, SFM will improve their condition. In addition, SFM can achieve other targets such as poverty reduction (through improvement of forest productivity), biodiversity conservation, watershed protection, better ecosystem services, etc.

The strategic options developed by the SESA Team can be expected to directly contribute to achieving SFM. They are: SO2a proposes to implement practices and technologies for sustainable management of community-managed forests (including forest fire management), and the building of necessary technical skills, to enhance forest productivity, while SO2b proposes to improve the awareness and understanding of local communities and stakeholders about forests their real value, and this should lead to improving their effective participation in forest management. SO1b also aims to increase the participation of stakeholders in decision-making processes, which should improve their sense of commitment to and ownership of forestry activities, and thus enhance their positive contribution to conserving forest resources.

Nepal has great ecological diversity, and forestry practices must take this into account. SO4b proposes to preparation of a national forestry strategy through a multi-stakeholder process, incorporating specific strategies for the Mountains, Terai and Middle Hills regions. This will support the development of forestry management approaches suitable for those particular areas. Certain areas with sensitive biodiversity will need an emphasis on conservation; others might have higher potential for economic and social use.

SO6 aims to promote the payment for ecosystem services (PES) within the framework of the REDD+ strategy. One of the challenges to achieving SFM is that the trees have a higher monetary value when felled than when standing. REDD+ along with PES could effectively address this issue by providing economic incentives to maintain forest areas in situ.

Encroachment is a serious challenge for SFM in Nepal. It has only limited arable land which is largely under subsistence agriculture which cannot satisfy the country's food needs. There is pressure to produce more food from the land. This is creating pressure to convert forested areas to cultivated land. SO7a proposes to develop agro-ecological zoning (maximising production potentials for each

land category) at national and local levels. The more effective use of existing land can be expected to improve agricultural productivity and thus reduce the need to encroach into forest lands.

c) Improved forest biomass

Carbon emissions from deforestation account for an estimated 20% of global carbon emissions (IPCC 2007), second to those from fossil fuel combustion. REDD+ has been conceived as a measure to mitigate this problem. It is targeted to improve and maintain carbon stocks in forests over the long term through reducing deforestation and forest degradation. In other words, implementing some of the strategic options for REDD+ should result in an increase in forest biomass.

The protection of forests and minimizing encroachment should significantly improve forest carbon stocks (ie forest biomass) over the long term. SO4 is concerned with the effective management and protection of forests within different management regimes. In particular, SO4a proposes to establish and strengthen protected areas. Effective strategies for protecting natural habitats will be needed in order to successfully reduce greenhouse gas emissions from changes in land cover. The primary objective of protected areas is to conserve biodiversity. With more effort the latter can increase forest biomass (carbon stock).

Further, SO3a aims to promote large-scale private plantations – creating mosaic landscapes – particularly promoting restoration and rehabilitation of degraded areas, which would likely increase forest biomass.

As discussed earlier, Nepalese have a high dependency on forests to support their livelihoods, particularly the need for fuelwood. Therefore, the REDD+ strategy must minimize this dependency by promoting alternative energy sources. SO8 aims to address this issue. SO8a proposes to manage natural fuelwood resources in a sustainable manner. Initiatives to improve production, management, and control of fuelwood could significantly maintain forest biomass (ie carbon stock) over the long term - one of the primary objectives of REDD+.

d) Reduced soil erosion, landslides

Soil erosion and landslides are a crucial problem in Nepal where more than 80% of the land area is mountainous and still tectonically active. These problems are exacerbated by exceptional monsoon rains and earthquakes. Furthermore, human interventions such as deforestation, overgrazing, and agricultural intensification (particularly in marginal lands) further aggravates the situation. A study by Shrestha (1997) showed that soil loss in densely vegetated areas is 5 to 6 times lower than in degraded forests and cultivated land.

Deforestation is one of the main causes for landslides and soil erosion. The removal of vegetation exposes slopes to natural drivers such as rain and wind. Loose soil on slopes is either subject to erosion or being carried away through landslides. Several strategic options aim to improve forest conditions to reduce the soil erosion and landslides. SO2a proposes to implement sustainable management of forests (practices, technical skills and technologies), which can be expected to improve vegetation coverage in forest areas, thus protecting vulnerable slopes. Soil conservation will also be supported by SO4a which aims at strengthening protected areas and implementing integrated conservation and development activities in the government managed forests. Furthermore, SO8a is concerned with the sustainable management of natural fuel wood resources in forests. This could also contribute to the improvement of vegetation conditions, and thus reduce the possibility of erosion and slides.

Agricultural intensification is perhaps the most serious anthropogenic driver of slope destabilization. The condition of terraces determines significantly the loss of soil. Soil loss is higher where terraces are more sloping, have poorly maintained edges, or have no or poor drainage. SO7b proposes agricultural intensification that could encourage improvements to terraces in mountainous regions. Furthermore, SO7c proposes the application of sloping land agriculture technologies with the

protection of contours of the terraces. These interventions could improve the overall conservation of soil.

The construction of infrastructure in mountainous terrain often leads to slope destabilization. The problem is aggravated by environmentally unfriendly construction approaches such as the indiscriminate removal of vegetation for site preparation, indiscriminate cutting of slopes without proper studies on slope stabilization, improper disposal of spoil, particularly tipping of spoil downhill, and improper or no drainage. SO8 proposes to adapt environmental friendly technologies for development of infrastructure such as adaptation of green-road construction approach, minimizing the removal of vegetation and compensatory plantation, strengthening the EIA and IEE system, and timely maintenance of infrastructure. Such actions will all help to reduce slope destabilization and soil erosion.

e) Reduced pollution

Agriculture is the main occupation of the majority of Nepalese in rural parts of the country. Therefore, agricultural intensification is an obvious choice for Nepal to address prevailing poverty as well as to meet the increasing food demand of the growing population. However, agricultural intensification also includes an increase in the application of agro-chemicals to increase yields and the number of crops per year. Therefore, promoting private forestry in the marginal sloping cultivated land (as proposed by SO3(a) - promotion of (mosaic, including native species) private plantations by restoration and rehabilitation of degraded areas) can have positive effects. On the one hand it can support slope stabilization, and on the other it cut down the application of agro-chemicals in the mountains. This could reduce the amount of agrochemicals reaching water bodies and forests and thus limit their impact on wildlife and vegetation.

Fuelwood is the major source of household energy for cooking and heating in Nepal. It causes indoor air pollution which has been recognised as a reason for higher mortality and morbidity rates among children and women due to acute respiratory infection (ARI) and chronic obstructive pulmonary disease (COPD) (Lohani, 2011). The R-PP identifies fuelwood collection as one of the primary drivers of deforestation, contributing to carbon release to the atmosphere. In order to address this issue, In order to reduce the demand for fuelwood, SO8c envisages investment in fuelwood efficient alternative energy technology and making it accessible to forest dependent poor and marginalised people.

5.2.1.2 Negative impacts

a) Forest loss/degradation from improved access to forest

Table 5.2.2 indicates the negative impacts arising from the strategic options.

Table 5.2.2: Negative impacts of strategic options

Forest loss/degradation from improved access to forest	<ul style="list-style-type: none"> • SO1 focusing on land tenure, clarifying carbon right and benefit-sharing • SO1b improving access to forests
Forest loss and degradation from agricultural intensification, due to: <ul style="list-style-type: none"> • Encroachment (intensification may lead to agricultural expansion) • Providing agricultural inputs (e.g. leaf litter, organic mulch, fodder) 	<ul style="list-style-type: none"> • SO7 increase agricultural productivity and food security
Loss of forest and deforestation by promotion of energy efficiency	<ul style="list-style-type: none"> • SO8c improve efficiency of fuel wood use • SO8d promote cost effective renewable energy sources

Habitat loss and fragmentation/biodiversity loss due to forest management practices	<ul style="list-style-type: none"> • SO1b (increasing and ensuring access to forests); • SO2a (sustainable management of forests); • SO3a (promoting large-scale private plantations); • SO4c (improving and executing existing district forest management plans and fire management plans); • SO8a (sustainable management of natural wood fuel resources); • SO8b (active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber); • SO10d (improved access by poor to alternative technologies); • SO11f (expanded participatory forest management systems in areas where law enforcement is difficult); • SO13b (multi-stakeholder, integrated planning processes).
Decline of biodiversity in compensatory plantation	<ul style="list-style-type: none"> • SO9b2 compulsory tree planting to substitute forest cleared for infrastructure development
Habitat fragmentation by infrastructure development	<ul style="list-style-type: none"> • SO 9 environmentally friendly infrastructure planning, construction and maintenance
Slope destabilization, soil erosion, landslides due to agricultural intensification and infrastructure development	<ul style="list-style-type: none"> • SO7b agricultural intensification through climate smart agriculture • SO7c the application of Sloping Land Agriculture Technologies. • SO9a1 environmentally friendly road construction
Loss of ecosystem services	<ul style="list-style-type: none"> • SO1b (improve accessibility to the forest products); • SO 2a (sustainable forest management); • SO 3a (promotion of private forests); • SO 8d (promotion of efficient fuel wood technology and alternate energy sources like hydropower, biogas etc.); • SO 10d (improve access to alternate energy); • SO 10e (develop NTFP markets)
Solid waste from tourism industries	<ul style="list-style-type: none"> • SO4a tourism promotion
Chemical pollution from agricultural intensification	<ul style="list-style-type: none"> • SO7 Agricultural intensification will also promote increased use of chemicals

With the REDD+ strategy in place, it is assumed that there will be equitable access to forest resources (including disadvantaged groups) – but a side effect is that such increased access may lead to further forest degradation, exacerbated further by increased population pressure.

Nepal has prioritized community-based management of forests which has allowed forest-dependent people to have access to forest products while they manage the forests by themselves. This approach has been acknowledged to improve forest conditions as well as livelihoods in many cases. However, there are indications that the poor and marginal communities have not always had equitable access and have sometime been excluded from CFUGs. A study carried out by Uprety *et al.* (2012) in 58 community forest users groups (CFUGs) for three years (2008 – 2011) revealed that the poor, *dalits*, and socially excluded groups are often deprived of their basic rights to access common pool resources, and are often excluded from decision-making processes. Furthermore, community forestry is dominated by elites, and excluded groups are unable to generate a significant contribution to their livelihoods; and there is persistent social disparity and a low flow of information to poor and marginalized groups. Therefore, SO1 (focusing on land tenure, clarifying carbon right and benefit-sharing) and its components have been proposed to ensure social inclusiveness and access to forestry.

But improving access to forests (SO1b) might inadvertently result in deforestation and forest degradation due to increased extraction of forest products. People living close to forests will be likely to extract timber, fuel wood and fodder etc. at higher rates. Furthermore, with the increasing population (growth rate: 1.6%), the extraction of forest products can be expected to grow further. The current management regimes are ineffective in providing a balance between extraction and replenishment of forest products. Mandal *et al.* (2012) report that Nepal's forests are already under pressure with forest loss at 2% per year. Furthermore, FRA (2005) has ranked Nepal as having the 8th highest deforestation rate in the world (7000 ha of primary forests lost each year during 2000 – 2005). This problem is more unmanaged in the Terai than in mountains. Therefore, improved access to forest areas might result in further deforestation and forest degradation.

Figure 5.2.1 Fuelwood collection and Fodder collection



b) Agricultural intensification will result in forest loss and degradation

Subsistence agriculture is a primary occupation in Nepal. Whether it is cultivation or animal husbandry, agriculture has close linkages with forestry. A farmer who cultivates the land will also keep livestock and depend on the forest for litter, fodder, etc. This situation is more evident in the mountainous regions (Mahat, 1987).

Since the majority of people are engaged in agriculture, its intensification (as promoted by SO7 which aims to increase agricultural productivity and food security for small and marginal farmers) is an obvious approach for Nepal to address poverty and reduce dependency on forests. But the country only has limited agriculture land (LRMP (1986) note that only 18% of the total area of the country is cultivated). So intensification of agriculture might result in (a) encroachment of forest areas for the expansion of cultivated land to increase crop production, and (b) pressure on forests due to the collection of agricultural inputs such as organic litter - which can affect the growing condition of forest vegetation, and collection of fodder to support intensified livestock keeping. The potential negative impacts of agricultural intensification will be felt mostly in the Terai forest where the man-land ratio is highest. Impacts will be lower in the Mid Hills (although still important – see Box5.2.1) and much less in the mountains (Table 5.2.3).

Table 5.2.3: Man-land ratio by eco-development region, 2001

Eco regions	Eastern	Central	Western	Mid-western	Far-western	Aggregate
Mountain	1.9	4.2	4.4	4.5	3.7	3.3
Hill	3.5	8.0	7.2	7.4	4.8	6.2
Terai	6.0	7.1	5.7	4.7	4.9	6.0
Nepal						5.7

Source: Japan Forest Technology Association (JAFTA). Central Bureau of Statistics, 2002

Box 5.2.1: Impacts of agricultural intensification in the Mid-Hills

Agricultural intensification is a complex process involving several interacting drivers. In Nepal's Mid-Hills, it has provided improved economy, food security, employment opportunities, decision-making, labour division, local institutions and leadership. However, with the aim of increasing production, the intensification process has almost overlooked essential environmental factors – soil acidification, fertility decline and greenhouse gas emissions have been accelerated. A path towards sustainable intensification would be possible through improvements in agricultural extension programmes such as integrated pest management (IPM) and farmers' field schools. Indeed, good institutional systems make sustainable agricultural intensification economically feasible.

Source: Raut et al. 2011

Agricultural intensification in the Nepalese Mid-Hills has caused concern that soil inputs are insufficient to meet the higher nutrient demands of increased crop rotations, that increased chemical fertilizer dependency will cause soil acidification, and that soil fertility will decline. To examine changes in soil fertility dynamics over time and between land-use groups soil samples, farm surveys, and nutrient budgets were determined for less intensive irrigated and rainfed sites in 1994 and for intensive irrigated and rainfed sites in 2000 in the Jhikhu Khola watershed. Changes in fertilizer policy and in cropping rotation (introduction of potatoes and tomatoes and a decline in the use of a pre-monsoon fallow) have contributed to unbalanced and inadequate soil nutrition. Farmers in 2000 used significantly more compost and fertilizer (particularly diammonium phosphate) than in 1994. In irrigated sites, a significant increase in available soil P, a significant decline in exchangeable soil K, and a decline in base cation content was observed in sites sampled in 2000 versus 1994. Farmers intensively cultivating irrigated land need to address exchangeable soil K deficits, while reducing excess P inputs and taking measures to reduce the potential for soil acidification. In contrast, intensive rainfed sites have large surpluses in N, P, and K budgets for sites sampled in 2000, with significant increases in soil K, base saturation, and available soil P between 1994 and 2000. Given current crop yields, soil inputs to rainfed sites could be reduced to minimize unnecessary economic expenditures and eutrophication problems without depleting the soil nutrient pool.

Source: Von Westarp et al, 2004.

c) Loss of forest and deforestation by promotion of energy efficiency

Nepalese people are dependent on forests mainly for energy. Fuelwood supplies about 77% of the country's energy demand. It is mainly used in residential areas rather than for commerce and industries. Therefore, SO8 envisages promoting affordable, reliable and sustainable sources of energy. SO8c aims to improve efficiency of fuel wood use by promoting improved kilns and cooking stoves to reduce demand for fuelwood. SO8d promotes cost effective renewable energy sources like biogas, small and micro-hydro, solar power etc. Both of these activities are targeted to reduce fuelwood demand and thus decrease pressure on forests. However, establishing biogas or hydropower plants can not completely avoid deforestation or forest degradation.

- In recent years there has been a considerable increase in the development of small scale biogas plants for individual households. About 500,000 household size biogas plants are expected to be installed by the end of 2020. It has been estimated that a single biogas plant can substitute about 3 tons of fuelwood in a year (MOFSC, 2009); thus a considerable release in pressure on forest is expected. Furthermore, biogas also has other environmental benefits such as reducing the release of greenhouse gases (particularly methane) to the atmosphere, reducing agricultural waste, and the possibility of using biogas slurry as manure. However, inputs to biogas generation

come mainly from cattle as dung and urine. As a consequence, the promotion of biogas will mean an increase in the population of cattle which will result in increased grazing in forest areas or the collection of larger amounts of fodder from forests - resulting in forest degradation. More cattle could also stimulate the cultivation of pastures which could potentially reduce forest land. A related social issue is that, in order to sustain biogas, a family needs to keep cattle as a part of its agricultural practices. In Nepal, only rich households can afford to have cattle. So the poorest and marginal households might not be able to take advantage of biogas promotion.

- Nepal is rich in water resources and has a high potential to generate hydroelectric energy from its rivers. Hydropower produces very little greenhouse gases, particularly small run-off-river hydro plants. However, they are often constructed in forested areas. There is inevitable conversion of forest area and clear felling of trees and vegetation during construction, which contributes to deforestation and forest degradation. The EIA system has ensured compensatory planting to substitute for clear-felled trees to minimize impact of hydropower plants on forests.

d) Habitat loss and fragmentation/ biodiversity loss due to forest management practices

One of the key aims of the REDD+ strategic options is to optimizing benefits to all forest dependent communities including IPs, *dalits*, women and other marginalized groups through strengthening of the sustainable forest management. However, over-exploitation of forests can cause loss or fragmentation of habitat and thus loss of biodiversity (See Box 5.2.2), whilst the management of forests may also result in loss of biodiversity.

Box 5.2.2: The effects of habitat fragmentation

Habitat alteration is a direct habitat removal as when a forest is clear-cut, a wetland is drained or a stream is dammed to create a reservoir. Habitat fragmentation has two components: (a) reduction of the total amount of the habitat type or perhaps of all natural habitats, in a landscape and (b) apportion of the remaining, habitat into smaller, more isolated patches. It can be random with wide spread deforestation, and vegetation may be removed temporarily or permanently.

Fragmentation typically begins with gap formation; and gaps get bigger or numerous with increased disruption of the connectivity of the original vegetation. No two landscapes are likely to show identical trajectories of change. Opportunistic predators and competitors from a disturbed landscape will concentrate into the fragments, and the core area of suitable habitat may become inadequate for their survival. Species which are typically vulnerable when habitats fragment include those that are rare or have a large home range, power of dispersal or reproductive potential, or are dependent on resources that are unpredictable in time or space. Others include ground-nesting species, those of habitat 'interiors' and those that are exploited or persecuted by people.

Mitigation measures can include minimizing road commotion, creating barriers to dispersal, the erection of artificial dispersal corridors that encourage the proliferation of exotic species, and maintaining or restoring wide habitat corridors.

Specifically the following strategic options have potential to stimulate over-exploitation of forest resources, resulting in habitat loss and fragmentation, and causing a major threat to wildlife.

- SO1b (increasing and ensuring access to forests);
- SO2a (sustainable management of forests);
- SO3a (promoting large-scale private plantations);
- SO4c (improving and executing existing district forest management plans and fire management plans);
- SO8a (sustainable management of natural wood fuel resources);
- SO8b (active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber);

- SO10d (improved access by poor to alternative technologies);
- SO11f (expanded participatory forest management systems in areas where law enforcement is difficult);
- SO13b (multi-stakeholder, integrated planning processes).

Increased accessibility might result in increased extraction of forest products, which will further grow with an expanding population. Forest is often viewed as a renewable resource, but only whilst there is a balance between extraction and replenishment. The annual 2% loss of Nepal's forests indicates that this balance has already been breached and forest resources are no longer a renewable resource.

Furthermore, it is well known that Nepalese people have a preference for particular tree species based on their usefulness, religious importance, etc. (Jackson and Ingles, 1994). Thus, certain species will come under more pressure than others. A study by Acharya (2004) in two community forestry in the Mid-hills revealed that biodiversity conservation is considered a secondary issue and biodiversity in these forests has either declined or has been altered.

Furthermore, preference over species might also encourage people to conserve certain species over others. It has been observed in community forests that CFUGs have developed criteria to determine the species to be retained or removed during silviculture operations. Socio-economic factors dominate over ecological ones in determining species to extract. Selection criteria include: (a) vegetation with the ability to produce timber, fuelwood, fodder, non-timber forest products; (b) plants of medicinal value; and (c) fast growing multipurpose species. As a result, shrub species, thorny species, dead and dying and diseased parts of all species, and competing species are all removed.

e) Decline of biodiversity in compensatory plantation

New infrastructure such as roads, hydropower, irrigation, etc. are often constructed in forest lands. Vegetation is usually removed for the installation of such developments. SO9b2 envisions compulsory tree planting to substitute forest cleared for infrastructure development, which is also supported by the forestry legislation and the EIA system. These require the compensatory plantation of two samplings for each lost tree. However, the legislation is silent about maintaining diversity for these compensatory plantations. As a result, monoculture and/or fast growing species might be preferred and this might result in the replacement of local and indigenous species.

f) Habitat fragmentation by infrastructure development

The development of infrastructure such as roads, transmission lines, and hydropower projects is envisioned by SO 9 (environmentally friendly infrastructure planning, construction and maintenance). Such infrastructure developments could be located and/or pass through sensitive wildlife habitats and possibly create physical barriers. The fragmentation of habitats might result in the exclusion of species due to the smaller population in the reduced extent of habitat, isolation of populations, the potential increase in-predation, competition, inbreeding, etc. Species with a small population, limited means of dispersal, low reproductive potential, and short life cycle are more likely to disappear.

Figure 5.2.2 Habitat fragmentation

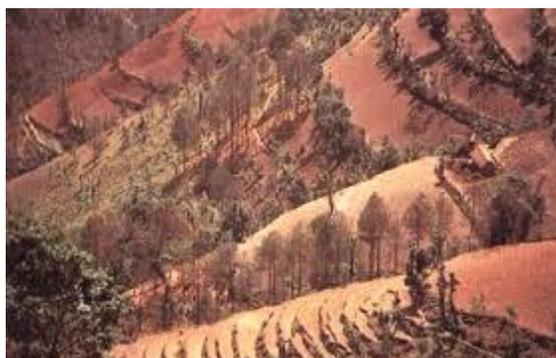


g) Slope de-stabilization, soil erosion, landslides due to agricultural intensification and infrastructure development

The greater part of Nepal is rugged hilly and mountainous terrain where soil erosion and landslides are at significant environmental issue, further aggravated by the strong annual monsoonal rain. The forest cover provides protection against erosion and landslides. With intensification of agriculture and development of infrastructure in the mountains, the rate of soil erosion as well as landslides could significantly rise.

SO7b and SO7c propose agricultural intensification through climate smart agriculture and the application of Sloping Land Agriculture Technologies. These actions could benefit majority of Nepal's agriculturally-dependent people to improve their livelihoods. But, they also lead to soil loss through slope destabilization, erosion and landslides. Soil loss is a serious issue in the hilly regions in particular (Sitaula *et al.*, 2000). Soil loss through surface erosion from cultivated land in hills varies from less than 2 T/ha annually to as high as 105 T/ha (Acharya *et al.*, 2007). Furthermore, soil loss is higher in *bari* land on sloping terraces (32 T/ha/year) than in Khet (rice) land (less than 1 T/ha/Year) which is directly related to slope gradient (Shrestha *et al.*, 2004). Agricultural intensification in mountainous land, and particularly in the marginal sloping land, can result in a high rate of soil loss, erosion and slope destabilization.

Figure 5.2.3 Soil erosion
marginal land



due to cultivation of

SO9a1 promotes road construction which is considered to be a foundation of the nation's social and economic prosperity. The road network in the Terai region is much better than that of hilly regions. So, in the future, more road construction can be expected to be focused in the hilly regions. However, hilly regions with higher slope gradients and fragile geology have unstable slopes and are vulnerable to soil erosion and landslides. The excavation of hill slopes for road expansion can cause

degradation of the hill environment. Furthermore, the current method of road construction in Nepal mainly involves a “cut-and throw” approach which further aggravates slope destabilisation and erosion.

Figure 5.2.4 Landslides due to road construction



h) Loss of ecosystem services

Forest ecosystems provide important services that are important to the human population (Table 5.2.4). Forested catchments are a vital source of freshwater globally - they provide around 75% of usable water (CIFOR, 2012).

Table 5.2.4: Important Ecosystem Services, their producers and receivers

Major ecosystem services	Providers	Receivers
Carbon sequestration	Forest management communities, national parks, department of forest, private forests owners	Global community
Recreation & scenic beauty	Government and forest management communities	Domestic and foreign tourists
Watershed protection	Upstream forest management communities, watershed managers	Downstream communities – local and regional (including urban population)
Biodiversity conservation	Local communities, department of forests, national parks, farmers	Local, regional, and global communities
Soil formation & replenishment of fertility	Upland farmers, local mountain communities, department of forests	Downstream farmers – local and regional
Pollination	Forest managers; tree growers	Farmers
Colonisation	Managers; tree growers	Government, forest growing communities, forest owners

(Source: Khanal (undated))

In addition, forests play a vital role in regulated regional climate and water cycles. They also bind the soil and reduce floods, regulate the water table, and provide natural water infiltration (MoFSC, 2011). With improved forestry coverage, degraded lands can be restored or rehabilitated; hence, priority should be given to better forest management since this will further lead to increased water infiltration and storage, improving the water table and making water available for various purposes.

Forests and trees also help to reduce water-related risks like landslides, floods thereby preventing desertification and salinization (UNCCD, 2012).

The following strategic options might have a negative impact on forest ecosystem services:

- SO1b (improve accessibility to the forest products);
- SO 2a (sustainable forest management);
- SO 3a (promotion of private forests);
- SO 8d (promotion of efficient fuel wood technology and alternate energy sources like hydropower, biogas etc.);
- SO 10d (improve access to alternate energy);
- SO 10e (develop NTFP markets).

As discussed earlier, these activities are expected to reduce (a) loss of forest diversity, (b) loss of forests and deforestation, and (c) slope destabilization, erosion and soil loss etc. – all of which erode the health of forest ecosystems and thus the services they provide. Mixed species forests should be planted as they can better withstand harsh conditions like drought, storms and heavy rainfall. This should be followed by vegetation that improves the infiltration rate and which reduces evapotranspiration. Activities that promote biomass production, biodiversity conservation and protection of forest watersheds from degradation will further lead to the conservation and storage of water. With better managed forest areas, soil properties will be conserved, e.g. permeability, infiltration capacity, water holding capacity, and this will improve water storage in soil and make water available during the dry season as well. With improved forest coverage, the livelihoods of forest dependent people will be easier and they will be able to generate an income from NTFP and other herbs (MoFSC, 2011).

i) Solid waste from tourism industries

Tourism is seen as a sustainable mechanism to provide finance for the management of protected areas (eg under SO4a). There are cases in Nepal (eg Annapurna Conservation Area) where tourism has generated considerable such revenues. However, tourism can also result in a range of impacts (Box 5.2.3) including pollution, particularly from waste disposal - now a major issue following the expansion of hotels and tourism infrastructure, trekking routes etc. Littering is an increasing problem at remote tourism sites and along trekking routes. Improper disposal of garbage and disposal of waste into water bodies are also major issues. The impact of pollution could be more significant in sensitive habitats. Some protected areas have been criticized for prioritizing tourism over biodiversity conservation (eg Annapurna Conservation Area, Chitwan National Park, and Sagarmartha National Park). Therefore, it will be important to strike a balance between biodiversity conservation and tourism where the latter is promoted in protected areas.

Figure 5.2.5 Waste management in Chhomrung in the Annapurna Sanctuary where the local lodges want to ban plastic bags



Box 5.2.3: The main impacts of tourism

Negative impacts from tourism occur when the level of visitor use is greater than the environment's ability to cope with this use within the acceptable limits of change. Uncontrolled conventional tourism poses potential threats to many natural areas. It can put enormous pressure on an area and lead to impacts such as soil erosion, increased pollution, , natural habitat loss, increased pressure on endangered species and heightened vulnerability to forest fires. It often puts a strain on water resources, and it can force local populations to compete for the use of critical resources. Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce.

Water, and especially fresh water, is one of the most critical natural resources. The tourism industry generally overuses water resources for hotels, swimming pools, golf courses and personal use of water by tourists. This can result in water shortages and degradation of water supplies as well as greater volume of waste water.

Tourism can create great pressure on local resources like energy, food, and other raw materials that may already be in short supply. Greater extraction and transport of these resources exacerbates the physical impacts associated with their exploitation. Because of the seasonal character of the industry, many destinations have ten times more inhabitants in the high season as in the low season. A high demand is placed upon these resources to meet the high expectations tourists often have (proper heating, hot water, etc.).

Important land resources fertile soil, forests, wetland and wildlife. Increased construction of tourism and recreational facilities has increased the pressure on these resources and on scenic landscapes. Direct impact on natural resources, both renewable and non-renewable, in the provision of tourist facilities can be caused by the use of land for accommodation and other infrastructure provision, and the use of building materials.

Forests often suffer negative impacts of tourism in the form of deforestation caused by fuel wood collection and land clearing. For example, one trekking tourist in Nepal - and area already suffering the effects of deforestation - can use four to five kilograms of wood a day.

Tourism can cause the same forms of pollution as any other industry: air emissions, noise, solid waste and littering, releases of sewage, oil and chemicals, even architectural/visual pollution.

Transport by air, road, and rail is continuously increasing in response to the rising number of tourists and their greater mobility. Tourism now accounts for more than 60% of air travel and is therefore responsible for an important share of air emissions. Transport emissions and emissions from energy production and use are linked to acid rain, global warming and photochemical pollution. Air pollution from tourist transportation has impacts on the global level, especially from carbon dioxide (CO₂) emissions related to transportation energy use. And it can contribute to severe local air pollution. Some of these impacts are quite specific to tourist activities. Tour buses often leave their motors running for hours while the tourists go out for an excursion because they want to return to a comfortably air-conditioned bus.

Noise pollution from airplanes, cars, and buses is an ever-growing problem of modern life. In addition to causing annoyance, stress, and even hearing loss for humans, it causes distress to wildlife, especially in sensitive areas.

In areas with high concentrations of tourist activities and appealing natural attractions, waste disposal is a serious problem and improper disposal can be a major despoiler of the natural environment - rivers, scenic areas, and roadsides. In mountain areas, trekking tourists generate a great deal of waste. Tourists to high mountain areas leave behind their garbage, oxygen cylinders and even camping equipment. Such practices degrade the environment with all the detritus typical of the developed world, in remote areas that have few garbage collection or disposal facilities. Some trails in Nepal frequently visited by tourists have been nicknamed "Toilet paper trail".

Construction of hotels, recreation and other facilities often leads to increased sewage pollution. Wastewater has polluted lakes surrounding tourist attractions, damaging the flora and fauna, and sewage pollution can threaten the health of humans and animals.

A lack of land-use planning and building regulations in many destinations has facilitated sprawling developments along valleys and scenic routes, including tourism facilities themselves and supporting

infrastructure such as roads, employee housing, parking, service areas, and waste disposal.

The ecosystems most threatened with degradation are ecologically fragile areas such as high mountain regions, forests and wetlands. The threats to and pressures on these ecosystems are often severe because such places are very attractive to both tourists and developers.

Physical impacts are caused not only by tourism-related land clearing and construction, but by continuing tourist activities and long-term changes in local economies and ecologies. Construction activities and infrastructure development such as accommodation, water supplies, restaurants and recreation facilities can involve sand mining and soil erosion. In addition, road and airport construction can lead to land degradation and loss of wildlife habitats and deterioration of scenery.

Tourists using the same trail over and over again trample the vegetation and soil, eventually causing damage that can lead to loss of biodiversity and other impacts. Such damage can be even more extensive when visitors frequently stray off established trails.

Source:

<http://www.unep.org/resourceefficiency/business/sectoralactivities/tourism/factsandfiguresabouttourism/impactsoftourism/environmentalimpacts/tourismsthreemainimpactareas/tabid/78776/default.aspx>

j) Chemical pollution from agricultural intensification

Agricultural intensification will also promote increased use of chemicals: fertilizers, pesticides, and insecticides. The number of farmers using chemical pesticides has been increasing, particularly vegetable growers. Pesticide use has increased from 7.1% in 1991/02 to 16.1% in 2001/2002 (CBS, 2006). More than 250 types of pesticides have been registered in Nepal, which include 168 insecticides, 58 fungicides, 22 herbicides, 3 nematocides, and 8 others. Huge varieties of inorganic fertilizers are used in Nepal; few of which are locally produced and others are imported. The commonly used fertilizers are Urea, AS, CAN, DAP, MOP, NP, SOP, SSP, TSP, and N.

These chemicals may affect human health, especially when handled without due care and or without following manufacturers use/application recommendations (this could be a particular problem for uneducated and illiterate users). Sharma *et al.* (2012) report that the majority of farmers in Nepal are unaware of pesticide types, level of poisoning, safety precautions and potential hazards on health and environment. Pesticide misuse is a serious concern mainly in the commercial pocket areas of agricultural production, where farmers suffer from environmental pollution (see Box 5.2.4). The incidence of poisoning is also increasing because of intentional, incidental and occupational exposure. Toxic and environmentally persistent chemicals are being used as pesticides.

Box 5.2.4: Pesticide use in Nepal

Chemical pesticides are excessively used by the farmers in order to meet the increasing demand for food for the fast growing population. They are intensively used in agricultural production in Nepal. Fungicides are used most (68%) followed by insecticides (17%), rodenticides (11%) and others (4%). Their use is causing various impacts on human health, plants, animals and the environment. There are frequent newspaper and media reports of such harmful impact due to pesticide overuse/misuse. For example, the death of cattle due to the consumption of pesticide contaminated water and spraying pesticides in mustard fields led to a loss of 2 million rupees due to death of bees and destruction of beehives.

The farmers and retailers of pesticides do not have adequate knowledge regarding pesticide use and health safety. Some farmers even dip fruits and vegetables in pesticide solution just before bringing them to the market for selling, and others treat food grain with pesticides against storage pests.

There is no controlling mechanism for the purchase and sale of pesticides within and outside the country. Due to open borders, the farmers can easily purchase pesticides from neighbouring countries

and use them haphazardly in their fields. There is no routine monitoring programme of food quality for pesticide concentration. This has resulted many Nepalese products being denied access to the international market (eg honey and tea). Because of haphazard use of pesticides in food, people are consuming pesticides unknowingly.

Source: Ghiri (2010)

Excessive use of such chemicals may cause harm to livestock and wildlife (particularly birds), and may be carried by wind (notably sprayed chemicals) to adjacent forests and poison wildlife or run-off into water courses and cause pollution (particularly fertilizers). According to Miller (2004), over 98% of sprayed insecticides and 95% of herbicides reach a destination other than their target.

Furthermore, during the monsoon time, heavy rainfall takes away tons of soil with nutrients from hills to the water bodies. It has been found that water bodies near to area of agricultural intensification have higher concentrations of nitrogen, phosphorous and potassium.

Figure 5.2.6 Applying insecticide on a vegetable farm



5.2.2 Social impact

5.2.2.1 Positive Impacts

(1) Rights and access

Table 5.2.5 indicates the positive impacts related to rights and access arising from the strategic options.

Table 5.2.5: Positive impacts of strategic options on rights and access:

Improved rights & access to land / forests	SO1: Land tenure, carbon rights and benefit sharing SO3: Private forestry SO4: Government managed forest SO12: Good governance & anti-corruption
Increased supply of, access to, & value of forest products	SO1: Land tenure, carbon rights and benefit sharing SO3: Private forestry SO7: Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency SO10: Forest and non-forest enterprises SO13: Land use planning for each of the physiographic regions
Improved benefit-sharing	SO1: Land tenure, carbon rights and benefit sharing SO5: Biodiversity and ecosystem services: <i>Conservation of biodiversity outside protected areas promoted</i>

	SO7:Agriculture productivity and food security for small and marginal farmers
Improved market access / surplus products for markets	SO7:Agriculture productivity and food security for small and marginal farmers SO9:Environmentally-friendly infrastructure construction and maintenance SO10:Forest and non-forest enterprises SO11:Law enforcement
Better access to forest products / NTFP	SO10:Forest and non-forest enterprises

a) Improved rights and access to land and forests

Land distribution in Nepal is unequal. This is reflected in the country having a Gini Coefficient of 0.51 (Nepal Living Standard Survey-2010/11). Some strategic options (SO1, SO3, SO4 and SO12) are aimed to address this problem through ‘improving rights and access to land and forests’⁴². These options will generate such positive social impacts only if they are implemented in an equitable, efficient and effective manner. Otherwise, they are likely to give rise to various negative impacts⁴³.

SO1a proposes to ‘define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation’. This is likely to lead to security of access, control and rights (including carbon rights), but it will require the careful implementation of safeguard measures. In this regard, the establishment of a clear and legally defined benefit-sharing mechanism, as proposed in SO1c, may ensure the delivery of benefits to the grassroots level. Additionally, SO12b proposes to support decentralized, participatory and community-based forest governance models, particularly to oversee distribution and management of REDD+ benefits. Such models will lead to enhanced community participation in decision-making (including women, IPs and disadvantaged groups) regarding benefit-sharing and securing their rights in this regard. Furthermore, such models will enhance the empowerment and autonomy of forest dependent communities in decision-making and strengthen their traditional usufruct rights and roles in forest stewardship.

SO4c aims to improve and execute existing forest and fire management plans. Where such plans are made and implemented in consultation and collaboration with forest user groups, this can promote the inclusion of IPs and acknowledge their roles and rights.

b) Increased supply of, access to, and value of forest products

Nepalese agriculture is characterized by natural resources-based smallholdings and subsistence agriculture; with about 60% of farm households reporting that farm products are not sufficient to feed families throughout the year. The average size of agricultural land holdings is 0.68 ha (Census of Agriculture, 2011). Nepalese agriculture is also characterized by the “feminization of agriculture”, but very few women actually own land. Only about 19.7% of total households in Nepal report female ownership of land and houses (Population and Housing Census 2011). In this context, some strategic options (eg SO1, SO3, SO7, SO8, SO19 and SO13) propose activities that aim to lead to an increase in the supply of forest products, ensure access to them, and increase their value. These outcomes

⁴² See Table 5.1.2 summary of Social Impacts (Positive and Negative)

⁴³ eg (a) exclusion of the landless, poor and marginalized; eviction; and loss of land/property; (b) elite capture (of resources, benefits, access, etc); (c) women, poor, IPs and other marginalized groups facing inequitable access to, or loss of access to, forest resources/products; and loss of livelihoods, income and economic opportunities; (d) land grabbing.

would contribute to fulfilling the needs of the landless and smallholding farm households for forest products. SO1b proposes to increase and ensure access to forests by women, IPs, vulnerable groups, forest dependent people and other marginalised people, including reforms of land and forestry related policies and laws (at national and local levels) to address fragmentation of land and inequity. The reform proposed by SO1b will have the effect of minimizing social gaps by making available more forest products to forest dependent people, enhancing their livelihoods. The latter, in turn, will lead to improved food security and nutrition resulting in better family health, particularly for landless and small-land holder households.

SO3 aims to promote private forestry and could improve the supply and value of forest products, making them more accessible, in general, and more affordable, in particular, to the groups targeted by SO1b. Additionally, SO8b proposes 'active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuelwood and timber'. This intervention would increase the supply of firewood, fodder and timber which, in turn, would help to reduce the workload and drudgery faced by women in collecting fuelwood, fodder and leaf-litter. However, in the context of most community-based forest management work being performed by women, especially clearing, pruning and thinning of trees (note: a negative impact of SO7e will be an increase in the need for labour and time spent on these activities), caution is needed to guard against this workload and drudgery being increased in on-farm plantations and forest management activities. Mitigation against such outcomes would include sensitizing and motivating men to share the workload of women. Cases where such workload sharing by men are reported; especially due to the orientation of community forestry regulations and procedures to gender concerns (WOCAN and HIMAWANTI, 2012)⁴⁴. Multipurpose tree plantation is proposed by SO8b which will stimulate the establishment of home gardens. The sale of home-grown timber will generate income and/or, when used for household purposes (eg as fuelwood), will save expenditure on timber. Nonetheless, to ensure sustainability, there must be a balance between supply and demand for timber and fuelwood. Easy access and abundance of fuelwood can have positive impact on families' health by enabling food to be thoroughly cooked - families tend to serve uncooked food when fuelwood is scarce.

SO7e proposes to 'promote multi-purpose fodder management, stall feeding and scaling up of fodder reserve systems'. Initiatives to implement this option will generate local-level awareness/understanding of alternative fodder production, fodder preservation and livestock feeding, if adapted to this context. Making fodder available through the year can increase livestock production and generate increased income, improve nutrition and family health in general, and improve health of women in particular - by enabling them to save time and reduced the drudgery of fodder collection.

SO10i proposes to 'establish a mechanism for periodic analysis of demand and supply of forest products by geographic region, and develop distribution programmes to address demand-supply gaps'. This strategic action will enhance easy access to forest products for household use and the sale of surplus products - leading to increased incomes for households and communities. Furthermore, SO13b proposes to 'conduct multi-stakeholder, integrated planning processes at regional/landscape and national levels, in order to seek consensus building, validation and clarify sector and extra-sector commitments to land use recommendations'. This will have a dual impact. On the one hand, it will improve the supply of forest products, leading to enhanced livelihoods and improved health, etc. On the other hand it will also enhance stakeholders' voices (local, regional, national) in the planning process.

⁴⁴WOCAN and HIMAWANTI. (2012). Case study: an assessment of gender and women's exclusion in REDD+ in Nepal. WOCAN/Bangkok www.wocan.org and HIMAWANTI/Kathmandu www.nhimawanti.org.np.

Figure 5.2.7 Collecting fodder is women's responsibility



c) Improved benefit-sharing

As Nepal prepares to engage in carbon trading through REDD+, a key issue is how to ensure equity in benefit-sharing. Some strategic options (SO1c, SO5a, and SO7b) would lead to strategic actions aiming to improve benefit-sharing by having either a direct impact on carbon benefit-sharing, or by providing benefits in the form of empowerment and poverty reduction through agriculture intensification. SO1c proposes to ‘establish clear and legally defined benefit-sharing mechanisms that can deliver to grassroots levels’. This action will improve understanding of the grassroots people about their rights over the local forest resources and the benefits accruing from these forest resources; and enhance rights and benefits at the grassroots level, and generate incentives for investment in alternative livelihoods at household and community levels. Additionally, SO5a proposes ‘biodiversity conservation in managed ecosystems for sustaining livelihoods, including through local land use planning and complementary implementation of community-based development and UNFCCC (REDD+ co-benefits)’. Implementation of this strategic option will help to increase the value of natural resources, especially if it is targeted to managing ecosystems for sustaining livelihoods. Actions focused on improving livelihoods have the potential to improve equity in accessing forest resources and REDD+ co-benefits. The engagement of local-level communities in biodiversity conservation, linked with actions that sustain livelihoods, can generate performance-based payments to land users.

SO7b is concerned with ‘agricultural intensification and increasing productivity through climate smart agriculture, including agro-forestry’. This option could encourage multiple cropping, increasing food security and improving family nutrition. But it could also result in increasing income from selling surplus agricultural products - if fair trade schemes are promoted to ensure benefits to land users. Furthermore, this strategic action promotes generating new knowledge and resources at the community level which would have an overall positive impact on empowerment and reduce rural household poverty.

d) Improved market access / surplus products for markets

Some strategic options would lead to actions that aim to improve market access especially for surplus products’ (SO7, SO9, SO10 and SO11). SO7a proposes ‘agro-ecological zoning for maximising production potentials for each land category at the national and local levels’. This is expected to create opportunities for women and socially disadvantaged groups to become aware of land use policies, provided that information reaches the grassroots level effectively. Awareness and understanding of agro-ecological potential by land users will lead to better decisions about which high-yielding crops to grow. For example, the use of traditional crop varieties suitable to particular

agro-ecological zones can enhance productivity, thus leading to sustainable livelihoods and surplus production. SO9a1 proposes strategic action to ‘ensure integrated local-level road route planning; implementing, monitoring and evaluation of road projects through democratic and inclusive decisions, decentralised and participatory planning’. Such action will improve access to markets so that local communities will not only be able to access basic needs commodities at lower prices; but will also be able to market their surplus production at higher prices – increasing income levels for local communities.

SO10a proposes ‘promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people’. This action will promote the conversion of existing local biological resources into marketable products. It complements SO9a1 which aims to ensure integrated local-level road route planning that would help communities’ value added products to gain access to external markets and generate income. Additionally, such value-added forest products will increase forest revenues arising through royalties and value added tax. Furthermore, SO10e proposes to ‘promote underdeveloped markets (e.g. NTFP, ecotourism, etc.) and pilot alternative and more efficient distribution and marketing mechanisms for forest and non-forest based enterprises (e.g., community-based, private, local-government-based)’. This action will further promote value addition to existing biological resources available to local communities by supporting them to access niche markets, and it will assist entrepreneurial communities to engage in fair trade. Traditionally, women generate income from NTFPs. This will be enhanced through SO10e which aims to identify and support women’s groups to engage in NTFP enterprises. This could lead them gaining access to and control over income. When the latter is ensured, it will improve family wellbeing by enabling access to sufficient and better food, and education for children, particularly for girls. Similar to the impact of SO10a (see above), SO10e will also lead to an increase in state revenues.

SO10h proposes actions to ‘develop policies that encourage private investment in efficient and alternative timber technologies (bamboo housing, timber drying, timber treatment, timber processing, etc.)’. Like the strategic options and actions discussed above, this action will also support value addition to existing forest products and increase market opportunities – in turn creating employment opportunities for local communities. Local-level alternative timber technology development will allow import substitution and improved the national balance of payments. Additionally, local communities and national consumers will be able to afford timber and bamboo products with lower prices enabling improved housing.

SO10i proposes to ‘establish a mechanism for the periodic analysis of the demand and supply of forest products by geographic region, and to develop distribution programmed to address demand-supply gaps’. This will have a complementary impact by enabling the supply of forest products to support forest-based enterprise development as well as the marketing of surplus products. In order to prevent cross-border leakages and to ensure legal harvesting and marketing, SO11h proposes to ‘sensitize border authorities and explore cross-border law enforcement collaboration with Indian and Chinese (Tibetan) authorities’. With increased legal harvesting and marketing, this strategic option will foster increased employment and income generation opportunities within the country for local communities. It will also ensure an increase in government revenues by stopping such leakages.

e) Better access to forest products / NTFP

As noted above, SO10e proposes to ‘promote underdeveloped markets (e.g. NTFP, ecotourism, etc.) and pilot alternative and more efficient distribution and marketing mechanisms for forest- and non-forest based enterprises (e.g., community-based, private, local-government-based)’. Apart from promoting the market for surplus and value-added forest products, and value addition to existing biological resources, this option will also ensure access by local communities to forest products and especially to NTFPs – but only if the present law/regulations are changed to legitimize harvesting certain previously prohibited forest products including NTFPs. As already mentioned, women

traditionally generate income from NTFPs such as bamboo and fern shoots, wild yams, and wild mushrooms; but they have had to collect these (illegal) products under the considerable fear of being caught by forest guards. In this context, implementing SO10e’s would legitimize women’s access to NTFP and support their collective NTEF enterprises- leading to them having access to and control over income, and enhancing family wellbeing.

(2) Improved livelihoods and poverty reduction

Table 5.2.6 indicates the positive impacts related to livelihoods and poverty reduction arising from the strategic options.

Table 5.2.6: Positive impacts of strategic options on livelihoods and poverty reduction:

Improved health	SO1: Land tenure, carbon rights and benefit sharing SO2: Community-based forest management SO6: Payment for ecosystem services SO7:Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency SO10: Forest and non-forest enterprises SO13: Land use planning for each of the physiographic regions
Investment in alternative livelihoods	SO1: Land tenure, carbon rights and benefit sharing
Improved livelihoods, income, economic opportunities, enterprise development	SO2: Community-based forest management (formal & customary) SO3: Private forestry SO4: Government managed forest SO5:Biodiversity and ecosystem services: <i>Conservation of biodiversity outside protected areas promoted</i> SO6: Payment for ecosystem services SO7:Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency SO9:Environmentally-friendly infrastructure construction and maintenance SO10:Forest and non-forest enterprises SO11:Law enforcement SO12: Good governance & anti-corruption SO14: <i>Building REDD+ institutional architecture and processes that enable equity (as well as efficiency and effectiveness)</i>

f) Improved health

Many strategic options could lead to an improvement in family health in general, and to improving the health of women in particular (who suffer ill-health disproportionately due to heavy workloads and the effects of fuelwood smoke due to cooking indoors. Section 3.4 discusses the particular

health problems of women such as prolapsed uterus and acute respiratory infections (ARI) that are closely related to forestry sector. The general health indicators of Nepalese people are comparatively low in terms of life expectancy, morbidity and the mortality. In this context, SO1, SO7, SO8, SO10 and SO13 should lead to improvements in the health of forest-dependent people. SO1b proposes to 'increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address fragmentation of land and inequity'. Increased availability and assurance to access to forest products should result in reduced workloads, improved livelihoods and food security, leading to improved health, particularly for women.

SO7 aims to improve agriculture productivity and food security for small and marginal farmers, thus reducing forest encroachment through more equitable access to productive land, and by increasing agricultural productivity through intensification and the creation of off-farm employment opportunities. To realize these aims, SO7a proposes 'agro-ecological zoning to maximise production potentials for each land category at national and local levels'. This should stimulate increased food production and improve food security and health. This outcome will also result through SO7b which aims to promote 'agricultural intensification to increase productivity through climate smart agriculture, including agro-forestry'.

SO7c is concerned with promoting the application of sloping land agriculture technologies (contours with fodder trees/grasses, and dry land-friendly crops like millet (has very high nutritional value) in *bari* lands⁴⁵), especially for marginal farmers. In addition, SO7e proposes the 'promotion of multi-purpose fodder management and stall feeding, and scaling up of fodder reserve systems' and whilst SO7f proposes to 'promote access to crop and livestock breeding improvement programs'. Collectively, these strategic actions will drive increased livestock production and increased crop production, providing more livestock and crop products for household consumption, and thus improving nutrition and family health.

Strategic Option 8 proposes 'energy access and efficiency' with the intention to ensure access to 'affordable, reliable and sustainable sources of energy for all. In support of this aim, SO8a advocates the 'sustainable management of natural wood fuel resources', whilst SO8b seeks to achieve 'active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber'. In addition, SO8c aims to 'increase investment and access to fuel wood efficient and alternative energy technologies (including improved cooking stoves), for forest-dependent poor and marginalised people, and to reduce urban demand for fuelwood' and SO8d intends to 'promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro) linking energy end-use to enterprise development and income generation'. As women are responsible for cooking and collecting cooking fuel, all these strategic actions will lead to improvement in their health, especially as preventative measures to uterine prolapse and acute respiratory infections. Adequate supplies of nearby fuelwood and the introduction of fuel-efficient technology will mean a reduction in women's workload (time for collecting) and drudgery (women would have to walk less to collect fuelwood, and carry heavy loads over shorter distances in lesser difficult terrain), and this will help prevent cases of uterine prolapse. Additionally, increased investment and promotion of renewable, clean, alternative energy prevents ARIs caused by indoor pollution while cooking food. Furthermore, ensuring sufficient fuelwood and stimulating conversion to improved and alternative renewable energy technology will improve family nutrition (by enabling food to be cooked thoroughly).

⁴⁵ Rainfed, outward-sloping terraces

Figure 5.2.8 Collecting fuelwood and leaf-litter is women's responsibility



SO10d seeks to achieve 'improved access by the poor to alternative technologies (eg small sawmills, carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc). This strategic option will help to ensure access to clean energy and improvements in overall health of poor households and particularly women's health – through safer cooking and reduced workload/drudgery.

SO10g will emphasize the 'development of financing schemes accessible to poorer land users and women who lack collateral'. Access to credit by women and the poor will enable enterprise development and income generation leading to poverty reduction and improved health of families and women in particular. Finally, the aim of SO13b is that multi-stakeholder, integrated land use planning processes should be undertaken at regional/landscape and national levels, as a means to seek consensus, validate and clarify sector and extra-sector commitments to land use recommendations. This intervention would increase the supply of forest products to forest dependent households with consequent improvement in the health of families and women (for reasons already discussed).

g) Poverty reduction

Both SO1 and SO10 propose interventions that will lead to poverty reduction. SO1b seeks to 'increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address fragmentation of land and inequity'. If implemented effectively and equitably, this will help to minimise social gaps.

SO10 (a, c, and e) proposes various intervention concerned with 'forestry and non-forestry enterprise development' which targets forest dependent poor and marginalised people, and should generate employment, provide vocational education and skill-based training, promote underdeveloped markets (e.g. NTFP, ecotourism) and more efficient distribution and marketing mechanisms, and assure collateral free financial schemes for the poor and women. All of these interventions would build the capacity of communities' to implement sustainable enterprises through enhancing their role in enterprise development, enabling the involvement of women, the poor and marginalized people, stimulating women's cooperative entrepreneurship development and support the development of niche markets that ensure fair trade. All these strategic actions would create opportunities for employment and income generation for women, the poor and marginalized forest dependent communities. Increased household income will reduce poverty. Furthermore, it is well established in Nepal that when women have access to and control over income, this leads to household poverty reduction through women spending their income on providing basic needs (eg food and children's education).

h) Investment in alternative livelihoods

SO1 is concerned with 'land tenure, carbon rights and benefit sharing, aiming to enable fairness and effectiveness in carbon rights and benefit sharing'. Implementation of SO1c would 'establish clear and legally defined benefit sharing mechanisms that can deliver to grassroots levels'. It would improve understanding and enhance the rights and benefits derived by forest dependent communities, especially IPs, dalits, poor, disadvantaged and marginalized groups, and would incentivise investment at the household and community levels in alternative livelihoods.

i) Improved livelihoods, income, economic opportunities, enterprise development

As already noted, an objective of REDD+ is to enhance the livelihoods of the forest dependent people. 12 out of the 14 SOs (all except 1 and 13) could lead to improved livelihoods and increased income through development of enterprises and creating other economic opportunities.

SO2 proposes 'community-based forest management (formal and customary) by strengthening institutional arrangements, technologies and sustainable management practices in forests under different tenure and management regimes'. SO2a proposes to 'implement sustainable management of forests (practices, technical skills and technologies) that enhances forest productivity and sustainability under community-based forest management regimes (including forest fire management)'. This will increase the capacity of local communities to manage forests, enhance forest productivity and control leakages of forest products through bribery of officials by private sector entrepreneurs. It will generate opportunities for community-based enterprise development. In many communities, it will help to maintain their cultural and economic norms related to forest products, eg in mountain areas, an indicator of a family's wealth and economic wellbeing is its ability to have a stockpile of fuelwood.

The promotion of private forestry by SO3 will instigate new economic opportunities and support livelihoods if plantation models are adopted that include outgrowers. Additionally, the expansion of tree planting by local communities will lead to increased supplies of forest products, creating the potential to develop community-based cooperative enterprises. The inclusion of out growers can create opportunities for small, marginal landowners and landless to participate in private forestry development. Private sector forestry investment also increases employment opportunities provided that measures are adopted to ensure employment of forest-dependent poor people. The expansion of private forestry and an increased flow of forest products could lead to entrepreneurial development and could generate revenue for the State from corporate and individual taxation as well as add value and generate export taxes. In the context of Government Managed Forests, SO4b proposes to 'prepare a national forestry strategy through a multi-stakeholder process, incorporating specific strategies for the Mountains, Terai and Middle Hills regions'. This strategic action would be effective in addressing the socio-economic and cultural complexities in different physiographic zones, and could lead to an increased sense of ownership of the strategy among all stakeholders. This would make the strategy easier to implement in practice. Additionally, SO4c proposes to 'improve and execute existing district forest management plans and fire management plans'; which should result in increased availability of forest products and NTFPs— leading to improved livelihoods, income and health of local people.

SO5 aims to enhance biodiversity and ecosystem services by promoting the conservation of biodiversity outside protected areas. As part of this, SO5a proposes 'biodiversity conservation in managed ecosystems for sustaining livelihoods through local land use planning and complementary implementation of community-based development and UNFCCC (REDD+ co-benefits)'. This action will improve the livelihoods of local land users through its potential to increase access to natural assets with increased value and through sharing in the benefits of performance based payments. Additionally SO6a proposes to 'develop and promote payment for ecosystem services (PES) for sustainable agriculture interventions' whilst SO6b proposes to 'develop and promote PES for reduced

emissions, watershed management and biodiversity conservation'. Both will lead to an increase in the existing source(s) of income.

SO7 proposes to increase 'agriculture productivity and food security for small and marginal farmer; by reducing forest encroachment through more equitable access to productive land, increased productivity with agriculture intensification and creation of off-farm employment opportunities'. The various sub-options will have a range of likely outcomes: enable land users to choose high yielding crops suitable for their land, providing opportunities for multiple cropping, promoting local knowledge, assisting marginal farmers on sloping land to use appropriate agricultural technologies, promoting tariff and subsidy policies that support small-scale farmers, enhancing stock-raising, improving crop- and stock-breeding, promoting odder management stall feeding and scaling up of fodder reserve systems. All of these initiatives will led to increased crop and livestock productivity, improved livelihoods and food security, and will raise incomes from the selling of surplus products by local land users in general, and small and marginal farmers in particular, thus leading to poverty reduction.

SO8 proposes 'energy access and efficiency by ensuring access to affordable, reliable and sustainable sources of energy to all'. SO8b proposes 'active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber'. This will ensure income generation from selling timber and/or expenditure saving from the use of timber for household's own needs. Additionally SO8d proposes to 'promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro) linking the energy end-use to enterprise development/income generation'. This will lead to renewable energy powered income generation such as powered community mills and carpentry, powered looms for women, and other renewable energy powered enterprises leading to improvement in livelihoods of the local communities.

SO9 proposes 'environmentally-friendly infrastructure construction and maintenance'. This will provide rural employment opportunities for women, the poor, IPs and Dalits in road construction and maintenance, in tree planting and maintenance, in subsequent primary and secondary processing industries – all leading to increased income in rural communities. Additionally compulsory tree planting (to compensate for those cut for road development) will lead to an increase in timber for sustainable enterprises. Furthermore, better road access will reduce the market prices of basic needs commodities and allow rural communities to market their surplus products. Overall, SO9 will lead to improved livelihoods and poverty reduction amongst rural households.

SO10 proposes 'forest and non-forest enterprises'. Its various sub-options should stimulate human resources development amongst local youth, women, the poor and marginalized people such as dalits and IPs. They will also help to build the capacity of local communities in establishing and managing sustainable forest-based and non forest-based enterprises (provided access to finance for these people is available including the proposed under SO14a to ensure the development of a national REDD+ financing mechanism). Other actions promoted by sub-options under SO10 include: developing new markets by changing laws and regulations such as deregulating previously prohibited NTFPs and opening new territories for eco-tourism; and support to access to niche markets at the community level ensuring fair trade supplemented by engagement of the private sector. Ultimately all these strategic activities will have positive impacts that:

- improve forest-based and non forest-based livelihoods,
- Promote community-based enterprise development with value addition to locally available biological resources,
- Generate alternative income opportunities for the forest-dependent poor and marginalized people, specifically helping in reducing youth unemployment at the community level and reduced forest dependency.

- potentially promote gender friendly technology (eg improved looms) and create potential for the identification and support of NTFP for more value addition from which women had been traditionally generating income,
- create opportunity for women's cooperative enterprises.
- Create an opportunity for women to shift their time-use from unpaid work to paid work, thus ensuring access to income. Women's access to and control over income ensures household poverty reduction
- Increase forest revenue for the State from taxation (royalties and value added taxes).

SO11h proposes to 'sensitize border authorities and explore cross-border law enforcement collaboration with Indian and Chinese (Tibetan) authorities'. The aim is to prevent leakage and ensure increased legal harvesting and marketing which will lead to increased SO12dis concerned with 'supporting decentralized, participatory and community based governance models (particularly as regards overseeing distribution employment and incomes of local forest-dependent communities - especially the poor, women, youth and other marginalized groups such as dalits and IPs. Furthermore, this strategic action will also help to reduce leakage of government revenue and management of REDD+ benefits'. It should result in increased community participation (including women & disadvantaged groups) in decision-making about benefit-sharing, secured rights, and improve livelihoods of the poor and marginalized including women, dalits, IPs and other local forest dependent communities. In addition, the proposal under SO14a to 'ensure the development of national REDD+ financing mechanism (including benefit sharing process), and MRV systems' should lead to rewards for better land use practices, thus generating employment and income.

j) Increased employment

As noted above, several strategic options will lead to human resources development and increased employment of forest dependent women, poor and socially marginalised communities such as dalits and (SPs 3, 4b, 9a1, 9a3, 9b2, 10e, 10h, and 14b)

k) Potential for cooperatives

SO3 proposes 'private forestry' and SO10 proposes 'forest and non-forest enterprises'. However, small/marginal landowners and landless people may not automatically be able to form cooperatives. SO10a proposes 'promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people', and SO10f aims to 'strengthen the organisation of enterprises through the development of associations, cooperatives, federations, etc. as appropriate'. These strategic actions will build capacity of local level cooperative enterprises including those of women, small and marginal landowners and landless people resulting in the social and economic empowerment of these forest dependent people.

l) Improved food security

SO7 and SO14 will both improve food security of the poor, small and marginal farmers. SO7a will enable better decisions to be made about crops to grow and will enhance crop productivity whilst SO7b will increase land productivity and food security of small land holders. SO7f will encourage increased crop and livestock production ensuring food security, better nutrition and improved health- especially of small and marginal farmers. Furthermore, SO14a has the potential to incentivize improved land use practices and generate non-carbon benefits such as better food security.

(3) Social inclusion and gender empowerment

Table 5.2.7 indicates the positive impacts related to social inclusion and gender empowerment arising from the strategic options.

Table 5.2.7: Positive impacts of strategic options on social inclusion and gender empowerment

Empowerment	SO1: Land tenure, carbon rights and benefit sharing SO11: Law enforcement SO12: Good governance & anti-corruption
Increased voice for women / powerless	SO1: Land tenure, carbon rights and benefit sharing SO13: Land use planning for each of the physiographic regions SO14: Building REDD+ institutional architecture and processes that enable equity (as well as efficiency and effectiveness)
Social inclusion (gender balance)	SO12: Good governance & anti-corruption SO14: Building REDD+ institutional architecture and processes that enable equity (as well as efficiency and effectiveness)
Reduced workload/drudgery (women)	SO7: Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency SO9: Environmentally-friendly infrastructure construction and maintenance SO10: Forest and non-forest enterprises
Gender friendly technology introduced	SO8: Energy access and efficiency SO10: Forest and non-forest enterprises
Reduced social gaps	SO1: Land tenure, carbon rights and benefit sharing

m) Empowerment

Some strategic options can lead to collective and individual empowerment of local people including the poor, marginalised groups and women (eg SO1a, SO1d, SO1e, SO11g and SO12c) and avoid negative impacts on these groups, including by:

- empowering the powerless in general and women in particular, eg by taking their voices and concerns into consideration via ‘enhancing local (forest related) voices to influence decision making at all levels’
- overcoming the systematic exclusion of women.
- introducing pilot participatory M&E mechanisms of law enforcement at different levels.

n) Increased voice for women / powerless

Some proposed strategic options will allow some currently voiceless people in communities to be heard, eg women and the powerless – by clarifying rights (SO1a), establishing and strengthening (gender-sensitive) grievance-addressing mechanisms (SO1d), conducting multi-stakeholder,

integrated planning processes at regional/landscape and national levels (SO13b), and ensuring adequate representation of such groups on key local decision-making bodies and processes (SO14b).

o) Social inclusion (gender balance)

SO12c proposes to ‘adopt REDD+ international standards on participation, inclusion and informed decisions’ and SO14b to ‘ensure adequate representation of women, poor and socially marginalised land users on key local decision-making bodies and processes’. These strategic actions impact will positively enhance social inclusion and gender balance in key decision-making bodies and processes. As a result, it will increase the accurate reflection of the views of women, dalits, IPs, poor and other marginalised groups, and help to redress the issues and concerns of such currently excluded groups, achieving a sense of ownership in forest and biodiversity conservation endeavours.

p) Reduced workload/drudgery (women)

Many of the proposed strategic options and strategic actions will lead to reduction in the heavy workloads, time (for collecting) and drudgery faced by Nepalese women, through:

- measures that save time in fodder collection (SO7e) - women will have to walk less to collect and carry fuelwood, fodder and other products on their backs in difficult terrain.
- Promoting sustainable management of natural wood fuel resources (SO8);
- active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber (SO8b);
- increased investment and access to fuel wood efficient and alternative energy technologies (including improved cooking stoves)and reducing urban demand for fuelwood (SO8c);
- promoting sustainable, cost-effective renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro) (SO8d).
- improving access of the poor to alternative and affordable technologies (eg small sawmills carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc)’ (SO10d) – also opening up opportunities for entrepreneurship and income generation.

Figure 5.2.9 Firewood and fodder collection is women’s responsibility



Figure 5.2.10 Improved cook stove and clean kitchen



Figure 5.2.11 From handloom to power loom



q) Reduced social gaps

SO1 aims to enable fairness and effectiveness in land tenure, carbon rights and benefit-sharing. In this respect SO1b proposes to ‘increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, and to initiate reforms at national and local levels to address (fragmentation) and inequity’. This strategic action will lead to a reduction in the prevailing social gaps based on gender, class, caste/ethnicity or indigenous status.

(4) Increased participation, knowledge and ownership

Table 5.2.8 indicates the positive impacts related to participation, knowledge and ownership arising from the strategic options.

Table 5.2.8: Positive impacts of strategic options on participation, knowledge and ownership

Maintain/strengthened cultural norms/services	SO1: Land tenure, carbon rights and benefit sharing SO2: Community-based forest management (formal & customary) SO4: Government managed forest
Increased knowledge / capacity for forest management	SO2: Community-based forest management (formal & customary) SO4: Government managed forest SO7: Agriculture productivity and food security for small and marginal farmers SO9: Environmentally-friendly infrastructure construction and maintenance

SO10: Forest and non-forest enterprises
 SO11: Law enforcement
 SO12: Good governance & anti-corruption

Increased use of local, indigenous/ & traditional knowledge & practices

SO2: Community-based forest management (formal & customary)
 SO4: Government managed forest
 SO7: Agriculture productivity and food security for small and marginal farmers
 SO9: Environmentally-friendly infrastructure construction and maintenance

r) Maintain/strengthened cultural norms/services

Some strategic options will have as positive impact by maintaining/strengthening cultural norms through local forest services, eg by: clarifying carbon rights (SO1a), enhancing forest productivity under community based forest management regimes (SO2a), preparing a national forestry strategy through a multi-stakeholder process that incorporates specific strategies for the Mountains, Terai and Middle Hills regions (SO4b). These initiatives should lead to the conservation and sustainable use of natural resources which strengthens cultural norms and services, eg

- maintaining reverence for certain species of trees;
- maintaining running water for cultural purposes - in many communities, running water in water spouts, ravines and streams are tokens of physical and spiritual cleanliness, especially during funeral rites;
- in different ethnic/caste groups women’s physical and spiritual cleanliness and purification (after menstruation and child birth) is linked to specific trees and plants and the running water;
- enabling households in mountain areas to maintain a stock of household fuelwood as an indicator of wellbeing; and
- Allowing terai communities to continue to revere forest as a goddess.

Figure 5.2.12 Stocking of firewood in mountain homes



Figure 5.2.13 Water and plants for purifying women



s) Increased knowledge / capacity for forest management

Some strategic actions will lead to increased knowledge and capacity-building for forest management amongst local forest dependent communities (eg SO2, SO4, SO7, SO9, SO10, SO11 and SO12), notably:

- implement sustainable management of forests (practices, technical skills and technologies) that enhances forest productivity under community based forest management regimes (including forest fire management(SO2a);
- improving and implementing existing district forest management plans and fire management plans (SO4C);
- promoting multi-purpose fodder management stall feeding and scaling up of fodder reserve systems (SO7e);
- promoting access to crop and livestock breeding improvement programs (SO7f).

These strategic actions will lead to local communities acquiring new knowledge to improve and increase crop, livestock and dairy production and fodder management, thus ensuring food security and better nutrition for local forest dependent families.

Several strategic actions will lead to human resources development, build the capacity of local level associations (including those of women and marginalized groups) to establish alternative income generation and sustainable enterprises, thus relieving them from forest dependency and ensuring the conservation of forests, eg through:

- the ‘use of sustainable technologies, and inbuilt maintenance and repair arrangements’ (SO9a3);
- promoting vocational education and skill-based training opportunities for both forest and non-forest enterprise development for economically poor and marginalized (SO10c);
- strengthening the organisation of enterprises through the development of associations, cooperatives, federations, etc (SO10f);
- introducing pilot participatory M&E mechanisms of law enforcement at different levels (SO11g); and
- supporting capacity-building (for forest governance) of local communities, excluded groups, IP organisations, Dalits, and women’s organizations/mothers’ groups (SO12d).

t) Increased use of local, indigenous and traditional knowledge & practices

Some strategic options will lead to increased use of local, indigenous and traditional knowledge about managing natural resources, and the possibility of reviving such traditional practices– some of which have deteriorated through various development interventions, eg the nationalization of forests (eg SO2, SO4, SO7 and SO9), eg through:

- increasing public awareness (sense of responsibility) – including amongst local communities - and promote attitude change towards understanding the real value of forest products and services in the context of climate change and REDD+’ (SO2b);
- improving and implementing existing district forest management plans and fire management plans (SO4c);
- agricultural intensification (increasing productivity through climate smart agriculture, including agro-forestry (SO7b); and
- ensuring effective IEE and EIA for all forest land use conversion for other infrastructure development (including tourism ventures, expansion of settlements – e.g. green urbanization) (SO9c3).

The incorporation of traditional knowledge into education curricula and awareness programmes for sustainable forest management can change attitudes and behaviour, and lead to the revitalisation of traditional practices that value forests. Additionally, there will be improvement and scaling up of existing traditional practices, eg considering trees as wealth and giving individual trees to daughters

as a dowry, and managing/conserving as religious forests. If such traditions are revived, there will be improvement in the conservation of forest products. Knowledge is power. So, increased use and promotion of local indigenous/traditional knowledge and practices, especially those of women, dalits and IPOs in contributing to conservation of biodiversity and sustainable management of resources. This will lead to the empowerment of women, dalits, IPOs and other local forest dependent communities, thus leading to their increased participation in and ownership of conservation programmes. Furthermore, environmentally friendly infrastructure construction also promotes the use of indigenous knowledge which has a low impact on the environment and people.

u) Increased participation / ownership

Some strategic options aim to increase participation and ownership of local forest dependent communities in the forest and biodiversity conservation (SO2, SO4, SO9, SO10, SO12 and SO14), through:

- building public awareness of the value of forest products and services in the context of climate change and REDD+' (SO2b). As noted above, this will increase use of the indigenous knowledge and practice in forest conservation and thus increased participation and ownership of IPs and local forest dependent communities in forest conservation and management;
- preparing a national forestry strategy through multi-stakeholder process - thus increasing the participation in and the sense of ownership of local communities, ensuring its easier implementation in practice (SO4b);
- ensuring integrated local-level road route planning, implementing, monitoring and evaluation of road projects through democratic and inclusive decisions, decentralised and participatory planning (SO9a1) - thus leading to a feeling of ownership and sustainability of development projects, and ensuring the participation of local women, poor, IPs and Dalits in road construction and maintenance;
- strengthening the organisation of enterprises through the development of associations, cooperatives, federations, etc (SO10f) - which will improve the role of communities in enterprise decision-making and participation in cooperative enterprises (including those of women and marginalized groups);
- supporting decentralized, participatory and community based governance models (particularly as regards overseeing distribution & management of REDD+ benefits) (SO123bn) - increasing community participation (including women and disadvantaged groups) in decision-making on benefit-sharing;
- ensuring adequate representation of women, poor and socially marginalized land users on key local decision-making bodies and processes' (SO14b) - thus ensuring the participation of women (gender balance), representation of IPs and the marginalized groups in decision-making bodies and processes, and enabling their concerns to be accurately reflected and redressed- ultimately leading to a feeling of ownership by forest-dependent people of conservation programmes.

v) Environmental & social awareness

In addition to increased participation and ownership of conservation programmes as indicated above, several strategic options could increase community-level environmental and social awareness (SO7, SO9, SO10 and SO12), through:

- agro-ecological zoning (SO7a) –leading to women and socially disadvantaged groups becoming more aware of land use policies and practices, and understanding agro-ecological potential - thus raising their awareness about their rights and enhancing productivity and food security, improving livelihoods and health:

- ensuring integrated local-level planning, monitoring and evaluation of infrastructure development projects (through democratic and inclusive decisions, decentralised and participatory planning) - increasing awareness of infrastructure development plans (SO9b1);
- ensuring effective IEE and EIA for all forest land use conversion for other infrastructure development (SO9b3) - ensuring that local people are informed about the impacts of infrastructure and potential mitigation measures;
- improving access by the poor to alternative technologies- leading to improved awareness about the positive environmental and social impacts of using such technologies(SO10d); and
- adopting REDD+ international standards on participation, inclusion and informed decisions (SO12c) - ensuring increased awareness of forest dependent communities about their rights and protective safeguards.

w) Strengthened local organizations

SO12d proposes to ‘support capacity building (for forest governance) of local communities, excluded groups, IP organisations, Dalits, and women’s organizations/mothers’ groups’. It will lead to capacity development (and increased technical knowledge) of community level organizations especially those of women and other marginalized groups.

(5) Enhanced accountability

Table 5.2.9 indicates the positive impacts related to accountability arising from the strategic options.

Table 5.2.9: Positive impacts of strategic options on accountability

Reduced corruption/ bribery	SO2: Community-based forest management (formal & customary)
Reduced conflict	SO8: Energy access and efficiency SO10: Forest and non-forest enterprises SO12: Good governance & anti-corruption SO14: Building institutional architecture
Reduced illegal activities	SO11:Law enforcement

x) Reduced corruption / bribery

SO2a proposes to ‘implement sustainable management of forests (practices, technical skills and technologies) that enhances forest productivity under community based forest management regimes (including forest fire management). The increased capacity of local communities in forest management and the strengthening of the community-based management will lead to reduced corruption with less bribery of officials by private sector entrepreneurs to acquire timber.

y) Reduced conflict

Several strategic options will help to reduce intra-community and inter-community conflict and conflicts between communities and the State (SO8, SO10 and SO12), through:

- sustainable management of natural wood fuel resources (SO8a) - which will reduce inter-community conflict arising from the temptation to harvest fuelwood from neighbouring community forests; and the conflict between the communities and the State as a consequence of sustainable management of fuelwood by communities reducing temptation to harvest fuelwood from government managed forests;

- promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people’ (SO10a) - which will mitigate conflict between the State and the people by ensuring that sustainable forest products are available to forest dependent and marginalized people and reducing the temptation to harvest forest products from government managed forests:
- facilitating open and constructive debate on key forest governance issues, management modalities, ways to resolving existing contestations and conflicts(eg through public hearings and social audits) (SO12a) - ensuring participation of all stakeholders that will lead to a reduction of conflicts.

z) Reduced illegal activities

SO11promotes ‘good governance and anti-corruption’ (by increasing accountability and transparency including meaningful and effective engagement of all relevant stakeholders and contributing to preventing and punishing corruption) through:

- institutional reform to increase accountability and transparency of all concerned agencies (SO11a);
- sensitising border authorities and exploring cross-border law enforcement collaboration with Indian and Chinese (Tibetan) authorities (SO11h).

These strategic actions will lead to reduced forestry-related illegal activities and increased legal harvesting and marketing; thus reducing leakage and ensuring that benefits reach local forest dependent communities.

5.2.2.2 Negative Impacts

(1) Social exclusion and displacement

Table 5.2.10 indicates the negative impacts related to social exclusion and displacement arising from the strategic options.

Table 5.2.10: Negative impacts of strategic options leading to social exclusion and displacement

Exclusion of landless, poor & marginalised eviction, loss of land/property	SO1: Land tenure, carbon rights and benefit sharing SO4: Government managed forest SO7: Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency SO14: Building REDD+ institutional architecture and processes that enable equity (as well as efficiency and effectiveness)
Social exclusion	SO7: Agriculture productivity and food security for small and marginal farmers SO10: Forest and non-forest enterprises
Exclusion/devaluation of women	SO1: Land tenure, carbon rights and benefit sharing SO2: Community-based forest management (formal & customary) SO7: Agriculture productivity and food security for small and marginal farmers SO11: Law enforcement
Exclusion/elimination of cultural / spiritual values & traditional	SO3: Private forestry SO4: Government managed forest

practices	SO8: Energy access and efficiency
Ignoring/displacing traditional/indigenous knowledge	SO10: Forest and non-forest enterprises
Small farmers & local enterprises out-competed, displaced	SO7: Agriculture productivity and food security for small and marginal farmers
	SO10: Forest and non-forest enterprises

a) Exclusion of landless, poor and marginalized, eviction and loss of land/property

There is a possibility that some strategic options will lead to the exclusion of landless, women, poor and marginalized, eviction, loss of land/property or erosion of user rights if they are not implemented in an equitable, efficient and effective manner, eg

- Unfairly defined carbon rights (SO1a)
- Inaccessible financing mechanisms and inequitable benefit-sharing mechanisms (SO14a)
- Inadequately accountable forest governance and district forest sector planning structures (SO14c).

If these mechanisms and processes are not implemented fairly and even-handedly, then they could result in the exclusion of landless and women, and push poor local communities onto marginal lands and erode their user rights. In turn, this would likely lead to their further impoverishment and undermine the intended co-benefits of REDD+ in Nepal to enhance local livelihoods. And it would impede progress to achieve Millennium Development Goal 1(eradicating poverty).

Most vacant lands are used in common by communities for multiple purposes, including for animal grazing, collection of firewood, fodder, and edible NTFPs, to support the livelihoods of landless and poor households. Where incentives are provided for tree planting in private and public lands (as promoted with regards to private forestry under SO3), this will provide potential for such incentives to be captured by powerful elites (land grabbing). This will lead not only to restricting the landless, poor and marginalized from accessing these resources, but also their exclusion from participating in the new initiatives of REDD+ and carbon benefit-sharing. When carbon rights are linked exclusively to land and/or forest ownership, landless and poor people will be excluded from the benefit-sharing. Box 5.2.5 provides an example.

Box 5.2.5: Example of exclusion when Carbon benefit is tied to forest ownership

Under Forest Carbon Trust Fund’s Operational Guidelines (2011)⁴⁶, 15% of the carbon benefit fund is designated to women as a social safeguard. The ICIMOD/ANSAB/FECOFUN REDD+ Pilot Project (see section 3.4.6) provided funds to Chelibeti CFUG in Chitwan District (a women-managed community forest). The whole 15% was used for women’s empowerment and the women received this allocation the, the funds were provided to the FUG. This CFUG case has been praised as an example of the exemplary use of carbon benefits.

It was learned during SESA consultations that women from mixed CFUGs elsewhere in Chitwan district were not provided with the 15% to specific accounts managed by women, or to women as cash. They were not consulted on how they wished to receive their 15%. Instead they were asked if they would like to receive goat kids (but they did not understand the fund payment system and said

⁴⁶ Forest Carbon Trust Fund (2011) Operational Guidelines for Regulating the Seed Grant under Community Forestry REDD+ Project Nepal.

yes). Women subsequently received two (but sickly) goat kids. When they were later informed of the payment system, they complained that they had been excluded and felt isolated and dejected as being “worth only two sickly goat kids in the name of “women empowerment”. Women’s groups suggested that they should receive 50% of carbon benefits directly transferred to their collective fund.

Another negative impact on women of exclusion from benefit-sharing arises from the lack of inheritance rights and land entitlement. Historically, daughters have been denied the right to inherit ancestral property, and so land ownership by women in Nepal is minimal. According to the Population and Housing Census 2011, less than 20% of Nepalese households reported that land or homes were owned by women. So, when carbon benefit is tied to the individual’s ownership of land, women are excluded from benefit-sharing. Thus, it is important that REDD+ SO1a is implemented carefully and equitably.

Eviction and loss or reduction of farm land/property may also occur in protected areas where conservation and development activities are implemented, eg ecotourism (as promoted by SO4). Buffer zones restrict traditional access rights and land use and are found to lead to conflict and economic loss, and destruction of traditional land tenure systems. Disruptions occur in local agriculture and create hostility among local people toward conservation in general. Unequal benefit distribution creates social conflicts⁴⁷. Similarly the development of small, medium and mega hydro projects often leads to eviction and loss of livelihoods (promoted by SO8) (see Box 5.2). Also, during agro-ecological zoning for maximizing land productivity potential (promoted by SO7), highly productive areas may be allocated to certain groups of people (generally the wealthy and elite) at the expense of women, marginalized groups and IPs, leading to them losing access to farm land. In cases of agro-zoning, conflict may arise between small farmers wishing to engage in food-cropping versus entrepreneurs interested in cash-cropping. This will also have implications on food security of small farmers due to increased dependency on uncertain markets (both the cash crop market and the food crop market). It further leads to lack of access to nutrition of marginalized groups because of the increase of food prices in the local market. Lack of access to nutrition leads to family health problems in general, and maternal and child health problems in particular.

See Boxes 5.2.6 and 5.2.7 on how poor, small landholders, women and IPs lose their land and food security.

Box 5.2.6: Social impact of hydropower dams: the case of Kulekhani hydropower scheme

A classic example of social displacement and associated gender problems is provided by the Kulekhani hydropower scheme in Makawanpur District, completed in late 1980s. This displaced 3,500 IPs belonging to Tamang community. Cash was provided as compensation, but led to many social anomalies; the money was quickly spent on gambling, drinking and merry making⁴⁸.

With reference to South Asian experiences, Basistha (2006) states that cash compensation generally disempowers women. On the one hand, women generally do not own land so they do not get compensated. On the other hand, women do not have control over finance within the family and male members spend the money for their own amusements⁴⁹.

⁴⁷ West, P., Igoe, J. and Brockington, D. (2006). “Parks and Peoples: The Social Impact of Protected Areas”, The Annual Review of Anthropology, June 5, 2006. < anthro.annualreviews.org >

⁴⁸ Zaman M.Q. (1990), “Land Acquisition and Compensation in Involuntary Resettlement”, Culture Society Quarterly, 14.4, Winter 1990.

⁴⁹ Basistha, N. (2006). “Destitute of Development”, Refugee Watch Online, Wednesday, January 25, 2006.

Box 5.2.7: Displacement and eviction in the tea industry

Tea growing began in Nepal in the late 1880s when plantations were initiated in Ilam district (due to the proximity of the world famous Darjeeling Tea). The tea industry grew rapidly in the 1960s and 1970s when it was accompanied by considerable land acquisition and consolidation, with the displacement/eviction of poor and small land holders who lost land/property and food security. State ownership of the tea industry is now diminishing as wealthy industrialists acquire estates. The Tea Industry Vision 2020 envisages expansion of the industry in at least 23 districts of Nepal. However, it is not planned to achieve this through land acquisition, but by encouraging small farmers to grow tea. However, this will raise a conflict between cash crops and food security for farmers. It might also imply an increase in the size of landholdings, and hence potential clearing of forests.

Currently, 60% of labour in the tea industry is provided by women engaged in intensive work. These women are from those families who were evicted and/or marginalized during the land consolidation for tea plantation and had lost the food security of their families.

b) Social exclusion

Strategic options SO7 and SO10 may lead to the further social exclusion of already excluded groups. Examples of the potential social exclusion of landless, poor and marginalized groups are noted above. Strategic action SO7a proposes 'agro-ecological zoning (maximising production potentials for each land category) at national and local levels'; which can lead to highly productive areas being allocated to certain groups with influence at the expense of marginalized groups and women. In this respect SO7d proposes to 'promote the development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies)'. This strategic action could lead to social conflict between large- and small-scale farmers in accessing government incentives (subsidies, tariff reductions or tax exemptions/variations based, for example, on land holding size) and there is potential that women and socially excluded groups will not get adequate and timely information about subsidies, etc. Furthermore, strategic action SO7f proposes to 'promote access to crop and livestock breeding improvement programmes'; from which the rich farmers will benefit directly, whilst women and socially excluded groups may not be able to access information about improved breeds.

Strategic action SO10a proposes 'promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people'. However, there is potential that only elite groups will become more active if no dedicated financial and organisational support is provided to the poor and marginalized groups. Additionally, SO10b proposes to 'scale up investment in non-forestry sector employment programmes and off-farm income generation activities targeting rural areas to reduce forest dependency'. In this case, the poor and marginalised are also more likely to be un-informed; thus they may be able to access new employment opportunities. Furthermore, access to credit is key to the establishment of businesses; but, if credit is not widely accessible to all groups, this might exclude women and marginalised groups.

c) Exclusion/devaluation of women

Some proposed strategic options may specifically lead to the exclusion and devaluation of women (SO1, SO2, SO4, SO7 and SO11). Strategic action SO1b proposes to 'increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address (fragmentation) and inequity'. Nonetheless, it could lead to elite capture and inequitable access by women due to inter-household and intra-household gender

discrimination. Strategic action SO1c proposes to ‘establish clear and legally defined benefit-sharing mechanisms that can deliver to grassroots levels’. However once the forest legally becomes a market oriented commodity, women might lose their current access to and control over forest resource as a basis for household livelihoods and subsistence agriculture. Furthermore, gender conflict could occur as a result of SO2a which proposes to ‘implement sustainable management of forests (practices, technical skills and technologies) that enhances forest productivity under community based forest management regimes (including forest fire management)’. Such conflict could arise because timber is a priority for men, and women may lose their access to and use of forest products that are their priorities - such as fodder and fuelwood. Capacity-building for REDD+ implementation at the local levels (in terms of providing technical skills and technologies) could exclude women due to gender insensitivity (this has been experienced in the REDD+ pilot projects). Strategic action SO4c proposes to ‘improve and execute existing district forest management plans and fire management plans’. However, such plans have a high potential to ignore long-practiced, traditional, indigenous and gender-specific knowledge of forest management.

The proposition of SO7b for ‘agricultural intensification (increasing productivity through climate smart agriculture, including agro-forestry)’ could lead to the loss and devaluation of women’s indigenous knowledge, thus disempowering them. Agricultural intensification is generally based on external inputs such as chemical fertilizers, and women may not be able to afford or be able to access fertilizers. SO11f proposes to ‘expand participatory forest management systems to forest areas where law enforcement is difficult’. In this context, in the name of forest conservation, gender-related conflicts may arise due to local community forest guards barring women from forests to collect fodder and fuelwood– even to the extent of inflicting violence against them. Furthermore, in the process of participatory forest management, women may be excluded due gender insensitivity and/or devaluation of their participation as worthy of consideration – this was also experienced in the REDD+ pilot projects. The experience of the Chitwan pilot project was that meetings were held during the peak season for rice plantation when women did not have time to attend meetings.

d) Exclusion/elimination of cultural / spiritual values and traditional practices

Some proposed strategic options might lead to the elimination of cultural values and traditional practices of forest dependent communities (SO3 (private forestry), SO4 (government managed forest) and SO8 (alternative energy)). SO3 proposes to expand private forestry, but this may lead to land grabbing resulting in the demolition of traditional spiritual and holy places, and temples in and around forest areas.

Figure 5.2.14 Churiya Goddess temple in Churiya forest range



Figure 5.2.15 Bhadrakali Goddess temple in Pokhara



SO4c proposes to ‘improve and execute existing district forest management plans and fire management plans’. Fire elimination may reduce traditional cultural practices such as burning to encourage new growth. On the other hand fire management is likely to promote the adoption of more sustainable burning such as cold fires and firebreaks. These avoid propagation of fire beyond

the intended areas. Additionally, SO8d proposes to ‘promote sustainable, cost-effective renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro) linking the energy end-use to enterprise development/income generation’. The promotion of alternative forms of fuel may potentially disregard some people’s traditional forms of energy such as fuelwood. Currently, not using fuelwood means no fire burning in the fireplace that traditionally is the cultural focus of family gathering in the home; and in colder houses, particularly in high mountains, there is a genuine need for an open hearth that burns firewood to keep the house warm, especially during the winter season.

Figure 5.2.16 Dual purpose of firewood



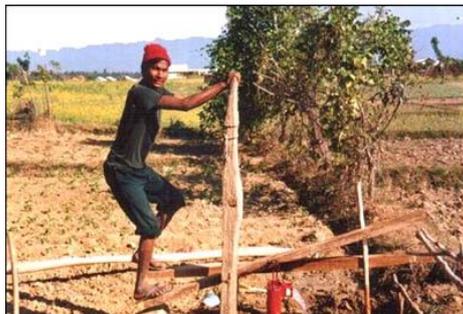
Figure 5.2.16 Hearth as a place of family cooking and heating



e) Ignoring/displacing traditional/ indigenous knowledge

SO10d proposes to ‘improve access by poor to alternative technologies. As discussed above, this undermines cultural and traditional practices. But it may also lead to the displacement of indigenous knowledge, skills and practices which may be more sustainable and environmentally friendly.

Figure 5.2.18 Traditional forms of land irrigation and mustard oil extraction

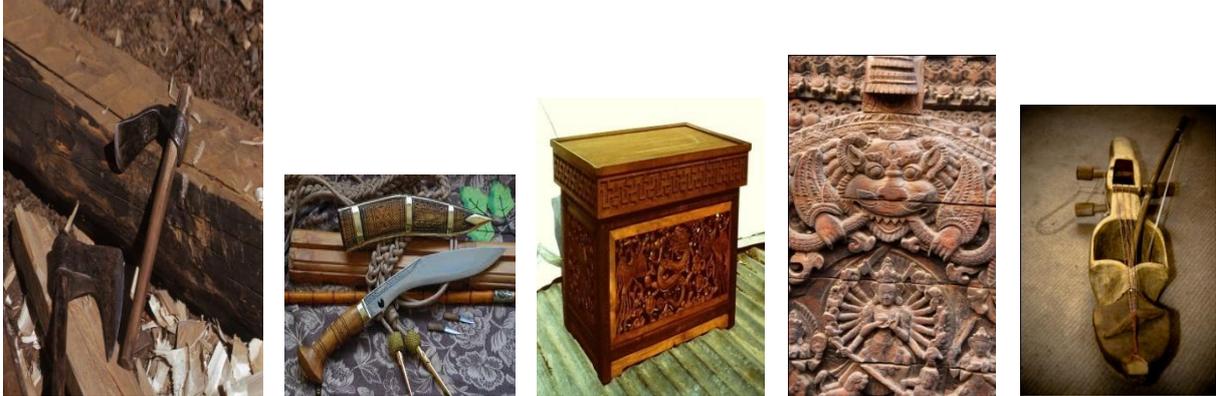


f) Small farmers and local enterprises out-competed, displaced

Some strategic options such as SO7 and SO10 may result in small farmers and local enterprises being displaced and out-competed. SO7d proposes to ‘promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies)’. However, women and marginal farmers do not get adequate and timely information about subsidies, etc. This results in them being out-competed. Additionally, SO10h proposes to ‘develop policies that encourage private investment in efficient and alternative timber technologies (e.g. bamboo housing, timber drying, timber treatment, timber processing)’ and SO10j proposes to ‘develop a mechanism to engage the private sector in forestry for the entire value chain of forest products, from planting to end-product development’. Encouraging and engaging the private sector has risks that the poor and

the marginalized people may lose access to and control over local forest products and local enterprises - by being displaced/out-completed by larger scale private businesses. In turn; this will lead to loss of livelihoods for forest-dependent local communities. Furthermore, it can also lead to loss of local handicrafts.

Figure 5.2.19 Local woodcrafts and products



(2) Inequity

Table 5.2.11 indicates the negative impacts related to inequity arising from the strategic options.

Table 5.2.11: Negative impacts of strategic options leading to inequity

Inequity in benefit-sharing (loss of)	SO1: Land tenure, carbon rights and benefit sharing SO3: Private forestry SO5: Biodiversity and ecosystem services: Conservation of biodiversity outside protected areas promoted SO6: Payment for ecosystem services SO7: Agriculture productivity and food security for small and marginal farmers
Elite capture (of resources, benefits, access, etc)	SO1: Land tenure, carbon rights and benefit sharing SO4: Government managed forest SO7: Agriculture productivity and food security for small and marginal farmers SO9: Environmentally-friendly infrastructure construction and maintenance SO10: Forest and non-forest enterprises
Inequitable/loss of access to forest resources/products	SO1: Land tenure, carbon rights and benefit sharing
Increased costs (transaction, labour, time)	SO1: Land tenure, carbon rights and benefit sharing SO6: Payment for ecosystem services SO7: Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency
Land grabbing	SO2: Community-based forest management (formal & customary) SO3: Private forestry

g) Inequity in benefit-sharing (loss of)

SO1, SO3, SO5 and SO7 have the potential to cause inequity and/or loss in benefit-sharing. SO1a proposes to 'define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation'. But the increased value of forests due to carbon rights and performance-based payments could exclude the landless or push IPs and poor local communities onto marginal lands and erode their user rights. Additionally, an unclear definition of carbon rights could lead to unequal benefit-sharing. Furthermore, the exclusion of women from the inheritance law and practice can limit women's benefit.

Figure 5.2.20 Women farmers asserting self-respect, landownership, livelihood and identity



In the context of the possibility of loss of benefit due to unclear definition; SO1c proposes to 'establish clear and legally defined benefit-sharing mechanisms that can deliver to grassroots levels'. Nonetheless, the possibility of inequity in benefit-sharing may remain in cases where women are faced with losing access to and control over forest resource once it legally becomes a market oriented commodity. Similarly, SO3 proposed 'private forestry', but that too could lead to inequity in benefit-sharing due to land grabbing with the benefits from carbon revenue accruing to large-scale forestry landowners only. Furthermore, the traditional collective ownership of forests by IPs is threatened by private forestry.

SO5a proposes 'biodiversity conservation in managed ecosystems for sustaining livelihoods (including through local land use planning; and complementary implementation of community based development and UNFCCC (REDD+ co-benefits)'. However, there is a potential that those communities currently dependent on forests may find their access to, and ability to derive benefit from, forest resources may be limited unless immediate alternative livelihood options are provided. In addition, SO7d proposes to 'promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies)'. In this case, there is also a potential that women and socially excluded groups may not get adequate and timely information about subsidies, tax reliefs, etc., and thus lose the chance to share benefits.

h) Elite capture (of resources, benefits, access, etc)

Caution will be required when some of the proposed strategic options (SO1, SO4, SO7, SO8, SO9 and SO10) are implemented. They have the potential to cause negative social impacts, especially enabling elite capture of access to the benefits from forest and non-forest related activities. While SO1b proposes to 'increase and ensure access to forests by women, IPs, vulnerable groups, forest dependent people and other marginalised people, including reform at national and local levels to address land fragmentation and inequity, if not implemented effectively, then poor governance could lead to elite capture and result in inequitable access to forest products and inequity in carbon rights and benefits-sharing. Additionally, SO4a proposes to 'establish and strengthen protected areas and Integrated Conservation and Development Projects, and promote participatory models for protected area management and ecotourism'. But if not implemented with caution, the participatory models may not be effective and thus could also lead to elite capture of both access to forest resources and the benefits accruing from forests.

Lack of caution in implementing other strategic actions could lead to highly productive areas being allocated to elites at the expense of women and marginalized groups, IPs and others, eg:

- agro-ecological zoning (SO7a)

- promoting multi-purpose fodder management stall feeding and scaling up of fodder reserve systems (SO7e)– there is a possibility that such systems might only be affordable by and benefit elite and large farmers;
- promoting access to crop and livestock breeding improvement programs (SO7f)

SO9a3 proposes to ‘use sustainable technologies, and inbuilt maintenance and repair arrangements’ to encourage environmentally friendly infrastructure construction and maintenance. There is also a potential for elites to secure more contracts for such construction work.

There is a further risk of elite capture in relation to SO10a (promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people) if dedicated financial and organizational support is not ensured for such people.

i) Inequitable/loss of access to forest resources/products

In addition to the risk of elite capture stated above ineffectiveness in the implementation of the strategic action SO1b to ‘increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address fragmentation of land and inequity’ could result in loss or inequity in access to forest resources and forest products by the very people for whom the strategic action is envisaged. There can be inter-community, inter-household and intra-household inequity in access to forest resources and forest products due to social exclusion and gender discrimination. As already stated in sections above that value of forests and forest products differ among different people in terms of gender, class, caste/ethnicity, indigenous status and the state of forest dependency.

j) Increased costs (transaction, labour, time)

Strategic options SO1, SO6, SO7 and SO8 could have significant implementation costs in terms of monetary transactions, labour and time, eg:

- in establishing and strengthening (gender-sensitive) grievance-addressing mechanisms (SO1d) - transaction costs and time to pursue could dissuade people from seeking redress, especially women who lack both money and available time;
- establishing payments for ecosystem services - for sustainable agriculture interventions (SO6a) or for reduced emissions, watershed management and biodiversity conservation (SO6b) – both of which potentially have large transaction and time costs to individuals. In this case, to save transaction costs, User Groups will need to establish mechanisms to ensure compensation payments reach the household level. Furthermore, mechanisms will be needed to ensure that payments reach community women’s groups and/or individual women in households. Furthermore, the payment of subsidies and provision of tax exemptions could be a disincentive to the State to implement this strategic option.
- promoting the development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies) (SO7d);
- promoting the application of Sloping Land Agriculture Technologies (SO7c);
- promoting multi-purpose fodder management stall feeding and scaling up of fodder reserve systems (SO7e). There is the added potential of additional labour requirements to manage feedstock production and stall feeding of livestock which could be a disincentive for local communities to participate in this option;
- promoting active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber (SO8b);
- increased investment and access to fuelwood efficient and alternative energy technologies (including improved cooking stoves), for forest-dependent poor and marginalised people, and to reduce urban demand for fuelwood (SO8c). Such technologies involve large

installation and production costs which the poor and marginalized cannot afford, so that they are likely to be excluded and unable to derive benefits

k) Land grabbing

SO2b proposes to build public awareness of the real value of forest products and services in the context of climate change and REDD+. But raising awareness will raise expectations which could lead to land grabbing (taking control of public land) by those with information, knowledge, connections and financial resources. SO3 proposes ‘private forestry’ which, if promoted at a large scale, again has the potential to encourage land grabbing by those with connections and access to financial resources.

(3) Loss of livelihoods

Table 5.2.12 indicates the negative impacts related to loss of livelihoods arising from the strategic options.

Table 5.2.12: Negative impacts of strategic options leading to loss of livelihoods

Reduced food production	SO3: Private forestry
Loss of/ limited access to, employment	SO3: Private forestry SO10: Forest and non-forest enterprises
Loss of livelihoods, income, economic opportunities	SO4: Government managed forest SO10: Forest and non-forest enterprises SO11: Law enforcement

l) Reduced food production

SO3 aims to expand ‘private forestry’ which could lead to the conversion of agricultural lands to timber plantations resulting in reduced food production. This would reduce food consumption, leading to poorer nutrition and a deterioration of human health especially amongst women and children (mainly girls) due to gender discrimination in intra-household food distribution. In Nepalese households, “women and girls eat the last and eat the least”.

m) Loss of or limited access to employment

Expanding ‘private forestry’ (SO3) could result in the loss of, or limitation of access to, employment - due to the conversion of agriculture land to timber plantation. Plantations require a long period to grow before they can be harvested, so that there could be an immediate loss of employment. Generally, unskilled labour performs most jobs required at early stage of establishing plantations. Their pay tends to be low and they are usually on short and often precarious contracts. Furthermore, SO10b proposes to ‘scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural areas to reduce forest dependency’; poor and marginalised groups are more likely to be un-informed and thus may not get access to new employment opportunities. Thus these strategic options need to be implemented effectively, efficiently and equitably.

n) Loss of livelihoods, income, economic opportunities

SO4a proposes to establish and strengthen protected areas and Integrated Conservation and Development Projects in Government Managed Forests, and promote participatory models for protected area management and ecotourism. But if participatory models are not effective, elites will capture the access to and benefits from the new economic opportunities, and the poor and

marginalised groups will become further marginalised to the extent of losing their existing incomes and livelihoods.

SO10i proposes to establish a mechanism for periodic analysis of demand and supply of forest products by geographic region, and develop distribution programmed to address demand-supply gaps. In this process those communities prevented from extracting forest resources in degraded areas could suffer loss of livelihoods.

SO11h proposes to sensitize border authorities and explore cross-border law enforcement collaboration with Indian and Chinese (Tibetan) authorities' to eliminate leakage. Albeit illegal, the implementation of this strategic action could lead to the loss of livelihood of the poor people whose income has been traditionally dependent on illegal timber lopping and transporting to the (illegal) market.

(4) Loss of authority/autonomy and induced risk and dependency

Table 5.2.13 indicates the negative impacts related to loss of authority/autonomy and induced risk and dependency arising from the strategic options.

Table 5.2.13: Negative impacts of strategic options leading to loss of authority/autonomy and induced risk and dependency

Loss of user/traditional rights, or access to forest products & resources	SO1: Land tenure, carbon rights and benefit sharing SO2: Community-based forest management (formal & customary) SO4: Government managed forest SO5: Biodiversity and ecosystem services: Conservation of biodiversity outside protected areas promoted SO8: Energy access and efficiency SO10: Forest and non-forest enterprises
Health risks	SO4: Government managed forest SO7: Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency SO9: Environmentally-friendly infrastructure construction and maintenance
Lack of awareness / information	SO2: Community-based forest management (formal & customary) SO7: Agriculture productivity and food security for small and marginal farmers SO10: Forest and non-forest enterprises
Not accessible to poor, marginalised (can't afford)	SO7: Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency
Dependence on external inputs	SO7: Agriculture productivity and food security for small and marginal farmers
Monopolies setting prices (eg timber)	SO3: Private forestry

Token participation	SO10: Forest and non-forest enterprises
Politicisation of community decisions	SO1: Land tenure, carbon rights and benefit sharing

o) Loss of user/traditional rights, or access to forest products and resources

Care will be required when implementing certain strategic options to avoid negative impacts on user/traditional rights or on gaining access to forest resources and products (notably SO1, SO2, SO4, SO5, SO8 and SO10):

- SO1a proposes to define carbon rights in relation to land and forests and SO1c aims to establish clear and legally defined benefit sharing mechanisms. However, these actions are likely to increase the value of forests when claims are made by State and non-State actors. When establishing claims, elite capture of forests and land may erode the user rights of poor local communities and IPs’ and pushing them onto marginal lands. Women might lose access to and control over forest resources once it legally becomes a market oriented commodity; especially losing access to and control over NTFPs they had been traditionally using for household and agricultural purposes.
- SO2a is concerned with implementing sustainable management of forests to enhance forest productivity under community based forest management regimes. This could affect the poor and marginalised, causing them to lose access to, and opportunity to use, forest products- especially NTFPs. Additionally, there could be gender related conflicts since timber is priority for men, but fodder, fuel, leaf-litter and other NTFPs are priorities for women.
- SO4a would support the establishment and strengthening of protected areas and Integrated Conservation and Development Projects in government managed forests, and promote participatory models for protected area management and ecotourism. If not implemented effectively, there could be elite capture with forest dependent people losing access and benefits. As already noted, buffer zones can restrict traditional access rights and land use, leading to the destruction of traditional land tenure systems⁵⁰. Additionally, restrictions on access to forest resources have been a source of conflict between local residents and park officials leading to significant tensions between park officials and local residents in most protected areas⁵¹. During the field visit of SESA team, Bote women from the buffer zone of Patiyani VDC in Chitwan district reported that they are barred from using their traditional fishnets. The prescribed new hand nets do not catch sufficient fishes, and, as a result, they are losing their livelihoods poverty is increasing in Bote communities⁵². However, it is clear that continued unsustainable harvesting of resources would result in their depletion in the medium- and long-term. Hence communities have to be prepared to pay some short-term costs.

⁵⁰West, P., Igoe, J. and Brockington, D. (2006). “Parks and Peoples: The Social Impact of Protected Areas”, The Annual Review of Anthropology, June 5, 2006. < anthro.annualreviews.org>

⁵¹Karant, K. K. and Nepal, S. K. (2011). “Local Residents Perception of Benefits and Losses From Protected Areas in India and Nepal”, Environment Management. Springer Science + Business Media, Published online: 13 November 2011. http://www.globaltigerforum.com/resources_files/local_residents.pdf

⁵²Focus group discussion held in Chitwan district on 22 November 2013.

Figure 5.2.21 Prescribed hand-net does not catch sufficient fish



- SO5a focuses on biodiversity conservation in managed ecosystems to sustain livelihoods (including through local land use planning; and complementary implementation of community based development and UNFCCC (REDD+ co-benefits). While prescribing community-based development, if strict regulations for social inclusion are not set out, these strategic options could inadvertently result in the poor and marginalized forest dependent people losing traditional rights of access to and benefits from forest resources. The limitations of community based forest management include elite capture, social disparity, inequitable benefit-sharing, and exclusion of poor and marginalised groups⁵³.
- As already discussed, unless SO8d (promoting renewable energy sources) is implemented with sensitivity to traditional cultural practices, it lead to the loss of traditional rights over using fuelwood for both cooking and heating cold homes, and the use of open hearth with burning woods as the centre of family gatherings.
- SO10e aims to promote underdeveloped markets and pilot alternative distribution and marketing mechanisms for forest- and non-forest based enterprises. This could lead to women and marginalised losing free access to NTFPs due to elite capture of markets. Hence the government needs to ensure that such groups can benefit directly from new markets, especially through creating new cooperative and/or strengthening existing community cooperatives of women and the marginalised groups. SO10h (developing policies to encourage private investment in efficient and alternative timber technologies) could also lead to poor and marginalized people losing access to and control over local forest products.

p) Health risks

Some strategic options have potential to cause negative impacts on human health (SO4, SO7, SO8 and SO9).

- SO4a proposes to establish and strengthen protected areas. As noted above, restrictions on the use of traditional fishnet shave already resulted in Bote communities in Chitwan district suffering reduced or lost fish catches, with fish being eliminated from their diet leading to deteriorated nutrition and health problems. This emphasizes the importance of finding alternative livelihoods; in this case, it could have been aquaculture. REDD+ effectiveness will require diversification of sources of income. Local people may also face health risks due to tourists bringing diseases, unsanitary latrines and open defecation by tourists and by the promotion of sex-tourism and prostitution.
- SO7b (agricultural intensification, including some conservation agriculture practices) could lead to the use of chemical fertilizers and pesticides. Lack of awareness about appropriate and safe use of chemical fertilizers/pesticides amongst poorly educated women, IPs, poor, Dalits and marginalized people could result in negative impact health impacts.

⁵³Gurung, A., Bista, R., Karki, R., Shrestha, S, Uprety, D. and Oh, S. E. (2013). "Community-based forest management and its role in improving forest conditions in Nepal". Springer, published online: 5 August 2012.

SO8a (sustainable management of natural wood fuel resources) could lead to speculation and decreased dependency on cooking gas, and increased use of fuelwood. It would affect the health of the family members due to smoke and the health of women in particular due to close exposure to harmful organic residues such as smoke, soot, etc. It could also result in negative health impacts, particularly for women, due to their heavy workload in collecting fuelwood⁵⁴.

SO9a (ensuring sustainability of rural road construction and maintenance) could lead to communities being less reliant on home-produced food and more likely to consume transported processed foods. If local communities are not aware of the harmful effect of processed foods available in the market, it can lead to them getting exposed to unhealthy fast/fad-foods (now transported in) impacting negatively on their health. In addition, new and improved roads will enable to access outside markets for local products like fruits, vegetables, lentils and food grains. This will lead to increase in the prices of local products at the local level, and poor people will be increasingly unable to afford nutritious foods produced by local communities, impacting negatively on their health.

Figure 5.2.22 Rural road access leads to external products getting in and local products getting out



q) Lack of awareness / information

As already discussed, the lack of awareness of rural people could lead to negative impacts arising from implementing some strategic options (eg SO2, SO7 and SO10).

SO2b aims to build public awareness and promote attitude change towards understanding the real value of forest products and services. But there is a danger of awareness-raising not reaching target groups without a concerted effort in this regard. Social exclusion and gender discrimination exists in marginalised groups and so women may not be able to have access to or benefit from awareness-raising and the provision of information. Women and socially excluded groups might not receive adequate and timely information about agriculture intensification (SO7b), especially concerning climate smart agriculture, and thus remain excluded from increasing yields in their fields and receiving benefits from emissions reduction.

SO10b (scaling up investment in non-forestry sector employment programmes and off-farm income generation activities) and SO10c (promoting vocational education and skill-based training opportunities for both forest and non-forest enterprise development for economically poor and marginalized) are both well-meaning options. But, as previously mentioned, the really needy - women, the poor and marginalised people - could still remain un-informed due to the lack of sensitivity to social exclusion and gender discrimination among project implementers. Additionally, these groups may be excluded from education and training due to elite capture of the opportunities. Furthermore, such groups lack formal education and may not benefit from training laden with

⁵⁴Refer to Social Thematic Paper Section 5.7 Health Issues Related to Forest.

technical jargon. Thus, vocational education and skill-based training need to be conveyed in simple language and at slow pace for the target groups to understand, become interested, and benefit.

To address the above problems that may face women, the poor and marginalised groups, it should be mandatory to apply the Gender and Social Inclusion (GSI) strategy⁵⁵ in REDD+ programmes. Furthermore, GSI training needs to be made mandatory for personnel at all levels - from policy-making, to programme formulation, implementation, monitoring and evaluation.

l) Exclusion and marginalization from investment and credit

SO7b (agricultural intensification) has merit for REDD+ but women, landless, poor and socially excluded groups have limited capacity to purchase the necessary inputs (improved seeds, fertilisers, seedlings) which would limit their potential to gain from this strategic option. Furthermore, climate smart agriculture and agro-forestry cannot benefit the landless, thus leading to their further marginalization.

Women, poor and the marginalised groups may not be able to afford fuelwood-efficient, alternative or renewable energy technologies (promoted by SO8c and SO8d). Women lack control over financial resources within the family. Poor and marginalised people may not be able to access credit (it requires credible collateral) because they do not own land or livestock. Furthermore, they may not try to accessing credit due to their lack of confidence to repay loans on time.

m) Dependence on external inputs

SO7b (agricultural intensification) could also create dependency on external inputs resulting in further exclusion and marginalization. Women, poor and the marginalised groups do not have control over the market reach of such external inputs and have limited ability to pay for them.

n) Monopolies setting prices (eg timber)

SO3 (promoting private forestry) could lead to monopolization of price setting by socially and economically powerful private owners. This could keep prices high and prevent the poor and marginalised groups from purchasing of timber and other forest resources – thus undermining the government’s goal to empower such groups through expanding private forestry.

o) Token participation

SO10f (strengthening the organisation of enterprises through the development of associations, cooperatives, federations, etc.) could lead to token participation of women, dalits, janajatis and other marginalised groups if project implementers are not sensitive to existing gender discrimination and social exclusion.

p) Politicisation of community decisions

In cases where there is poor governance, implementing SO1b (increasing and ensuring access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people) could lead to the politicisation of community decisions resulting in elite capture through their political influence.

(5) Social conflict and violence

Table 5.2.14 indicates the negative impacts related to social conflict and violence arising from the strategic options.

⁵⁵MoFSC/GoN.(2007). Forest Sector Gender and Social Inclusion Strategy. Kathmandu: Ministry of Forests and Social Conservation, Government of Nepal.

Table 5.2.14: Negative impacts of strategic options leading to social conflict and violence

Violence against women	SO4: Government managed forest
Social Conflict	SO1: Land tenure, carbon rights and benefit sharing SO2: Community-based forest management (formal & customary) SO7: Agriculture productivity and food security for small and marginal farmers SO8: Energy access and efficiency SO10: Forest and non-forest enterprises
Human-wildlife conflict	SO4: Government managed forest SO5: Biodiversity and ecosystem services: <i>Conservation of biodiversity outside protected areas promoted</i>

q) Violence against women

SO4a proposes to establish and strengthen protected areas (PAs) and Integrated Conservation and Development Projects. But there are many cases of violence by forest guards against women when they are extracting fuelwood, water, fodder, etc. from forests. Additionally, the militarization of PAs has led to considerable sexual abuse, unwanted pregnancies and the birth of illegitimate children amongst women in PA buffer zones⁵⁶.

r) Conflict

Social conflicts of various forms could occur through implementation of some strategic options (SO1, SO2, SO7, SO8 and SO10).

- SO1a is concerned with clarifying carbon rights. But the tying of carbon rights to land and forest ownership can, when unclearly defined, lead to conflicts of various kinds: conflict between ‘haves’ and ‘have-nots’, inter-community conflicts, and intra-household gender conflicts over carbon rights and benefit-sharing. Most vacant lands are used in common by communities for multiple purposes, including for animal grazing, collection of firewood, fodder, and other NTFPs, to support the livelihoods of landless and poor households. When carbon benefits are tied up with the expansion of private forestry, elite capture of community commons could result in conflict between the rich and powerful private forest owners and the poor (landless and small land holder households) in the community. Additionally, tying up of land and forest ownership can lead to a temptation to steal forest products from neighbouring forests whilst conserving one’s own. This practice can result in conflict between neighbouring communities. Furthermore, inheritance law and practice can limit women’s benefit due to lack of land entitlement, thus leading to intra-household gender conflict over benefit-sharing.
- SO1b (increasing and ensuring access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people) could result in conflict between community groups (targeted vs. non-targeted groups), between households (targeted vs. non-targeted), and between target groups and forest workers.
- SO2b (building public awareness and understanding of the value of forest products and services) could inadvertently lead to raised expectations and, if these are not met (eg raised incomes not realised), then it could result in social conflict (see Box 5.2.5 in the section

⁵⁶Refer to Social Thematic Paper Section 5.6, Box 5.3.

Exclusion of landless, poor and marginalized, eviction and loss of land/property).

Additionally, raised awareness could lead to land grabbing especially by elites with information, knowledge, connections, financial resources, etc.; thus resulting in elite-marginalised group conflict.

- Implementation of SO7b (agricultural intensification) and SO7d (promoting development of policies supportive of small-scale sustainable agriculture) could lead to social conflicts between large-medium and small-scale farmers in accessing productive land, scarce irrigation water, government's support of agro-forestry and government incentives (tariff reduction, tax exemptions and subsidies). Additionally, SO10g (developing financing schemes accessible to poorer land users and women) could also lead to conflicts over who is judged to be eligible for finance.
- SO8c promotes increasing investment and access to fuelwood efficient and alternative energy technologies (including improved cooking stoves) for forest-dependent poor and marginalised people, and reducing urban demand for fuelwood'. But if this leads to an expansion of the briquette industry, it could generate conflict between those involved in collecting/charring (generally poor) and other members of CFUGs (generally rich). Such conflict has been observed in Dolakha and Sindupolchak districts.

s) Human-wildlife conflict

SO4a proposes to establish and strengthen protected areas; and SO5a promotes biodiversity conservation in managed ecosystems. Care will be needed to mitigate human-wildlife conflict around conservation areas, protected areas and buffer zones. There have been significant experiences to date of such conflicts, resulting in crop loss, livestock loss and the loss of human life.

5.2.3 Forest encroachment

One of the drivers of deforestation identified by the R-PP is encroachment: either due to infrastructural development or people squatting illegally on forest land. In the latter stages of conducting this SESA, the SESA team learned that MoFSC has developed a draft Forest Encroachment Control Policy – only available in Nepali. The team was able to access a translation from the World Bank of its key elements (Box 5.2.8)

Box 5.2.8: Key elements of the proposed Forest Encroachment Control Strategy

1. In order to meet the national target of not reducing Nepal's forest land below 40%, the government will prevent all types of potential encroachment, and gradually recover the forest land that has already been encroached.
2. Forest land will only be provided to other sectors for infrastructure development and for other purposes when absolutely necessary, following the provisions of "Procedure of giving forest land for other purposes 2007". The latter states that if it is absolutely critical to provide forest land for other purposes such as hydro power, the concerned entity should plant trees in the area equal to the forest area taken up by the development project, protect the plantation for five years and hand it over to respective district forest offices.
3. Instead of providing forest land to landless people or to people affected by floods and other natural disasters, alternative livelihood options will be arranged for such people, coordinating with relevant ministries and agencies.
4. People who have encroached and settled in forests will not be able to register such under their name.
5. If the encroachment has taken place due to landless people or people affected by floods and other natural disasters, **such households will be evacuated from the forest area and alternative settlement will be managed for them.**
6. Three levels of institutional arrangement will be established to control encroachment:
 - National Coordination Committee for the Control of Forest Encroachment – chaired

by MoFSC with seven other members from: Ministers for Finance, Home Affairs, Local Development, Land Reform, Physical Planning, the Chairperson of Natural Resources Coordination Committee in the House of Representatives, and the Secretary of MoFSC.

- Central Forest Encroachment Control Mechanism - coordinated by the Secretary of MoFSC with 10 other members – mainly key ministry Secretaries.
- District Forest Encroachment Control Committee - coordinated by the Chief District Officer and including district level chiefs of eight relevant sectors.

7. Government will provide financial resources to control encroachment on priority basis.

Addressing such encroachment strategy will come with associated risks and negative impacts on people and the environment, particularly where forest land is provided for infrastructure such as road building and hydropower.

Item 5 in Box 5.4 indicates that a provision of the policy is the forced removal of certain people considered to be occupying forest land illegally. Such action was not envisaged when the 14 strategic options were developed as a basis for this SESA and has therefore not been addressed in the SESA analysis as a risk factor. But if this very recently prepared policy is taken forward, then such removal will have significant social impacts which will need to be addressed, including the disruption to livelihoods, employment, education and social connections that relocation would involve. It would also raise the need to prepare Resettlement Action Plans and possibly to consider compensation issues. These issues would ultimately trigger the World Bank's involuntary resettlement policy. The legal position with regard to such removals has not been investigated by the SESA team.

The recommendations in Chapter 7 include the need for analytic work to further understand the nature of encroachment and its underlying causes, in order inform what kind of programmes/projects might be appropriate under REDD+, and what frameworks for mitigating the impacts.

Finally, implementation of the 14 strategic options would be expected to deliver positive environmental and social impacts. But to do so, it will be necessary to ensure that the activities and projects for each option are implemented efficiently and effectively, and particularly in an equitable way. If this presumption is not met, then the analysis undertaken for the SESA indicates that various inadvertent and unexpected perverse negative environmental and social impacts may result – leading to increased deforestation and forest degradation and eroded livelihoods, worsening health and increased poverty, undermining the aims and objectives of REDD+.

It seems inconceivable that a REDD+ strategy on its own can bring about the changes in governance and social behaviour that will be necessary to guarantee such effectiveness, efficiency or equitability. REDD+ will need to be integrated with much broader legislative and policy reform, general awareness-raising, attitude changes and strengthened institutional capacity.

5.3 CUMULATIVE EFFECTS AND LINKAGES

As mention above in section 5.1, all of the potential impacts identified all of the strategic options will be cumulative since they are generic in nature and do not apply to individual projects. The significance and extent of such impacts will depend on the volume of activities and projects implemented under each option. And some impacts are likely to be exacerbated over time by increasing demands and pressures as a result of population increase - particularly those concerned with livelihoods. Tables 5.1.3 – 5.1.6 illustrate how the cumulative primary impacts of implementing strategic individual options and sub options will be compounded across multiple options.

Beyond this, impacts are not a matter of simple cause-and effect. They are subject to cascading primary, secondly, tertiary and subsequent impacts. This generates a complex web of interacting

linkages which need to be understood by policy makers and decision-takers. Developing a picture of such linkages is a complex process and takes considerable time to brainstorm. Figures 5.3.1 and 5.3.2 are examples of such impact linkage diagrams developed by the team for one of the strategic options – Option 10: promoting forest and non-forest enterprises. The SESA team has not been able to develop similar linkage diagrams for the remaining strategic options to due to budget and time limitations. But in Chapter 7, we recommend that the exercise of developing such diagrams be completed during the preparation of the actual REDD+ strategy to inform the strategy developers of how well intended interventions can lead to complex, and often unexpected cumulative and cascade impacts (some perverse) with the potential for significantly compounded them.

Figure 5.3.1: Strategic option 10: positive cumulative impact linkages

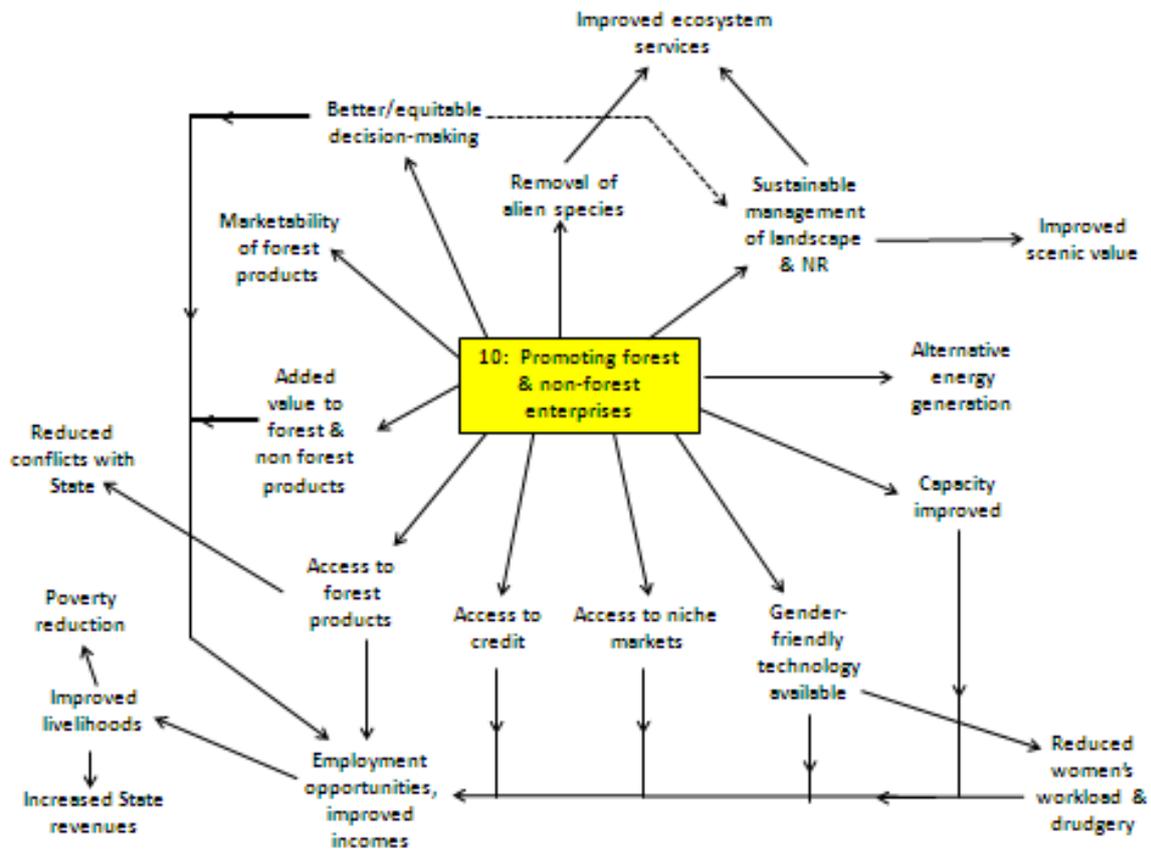
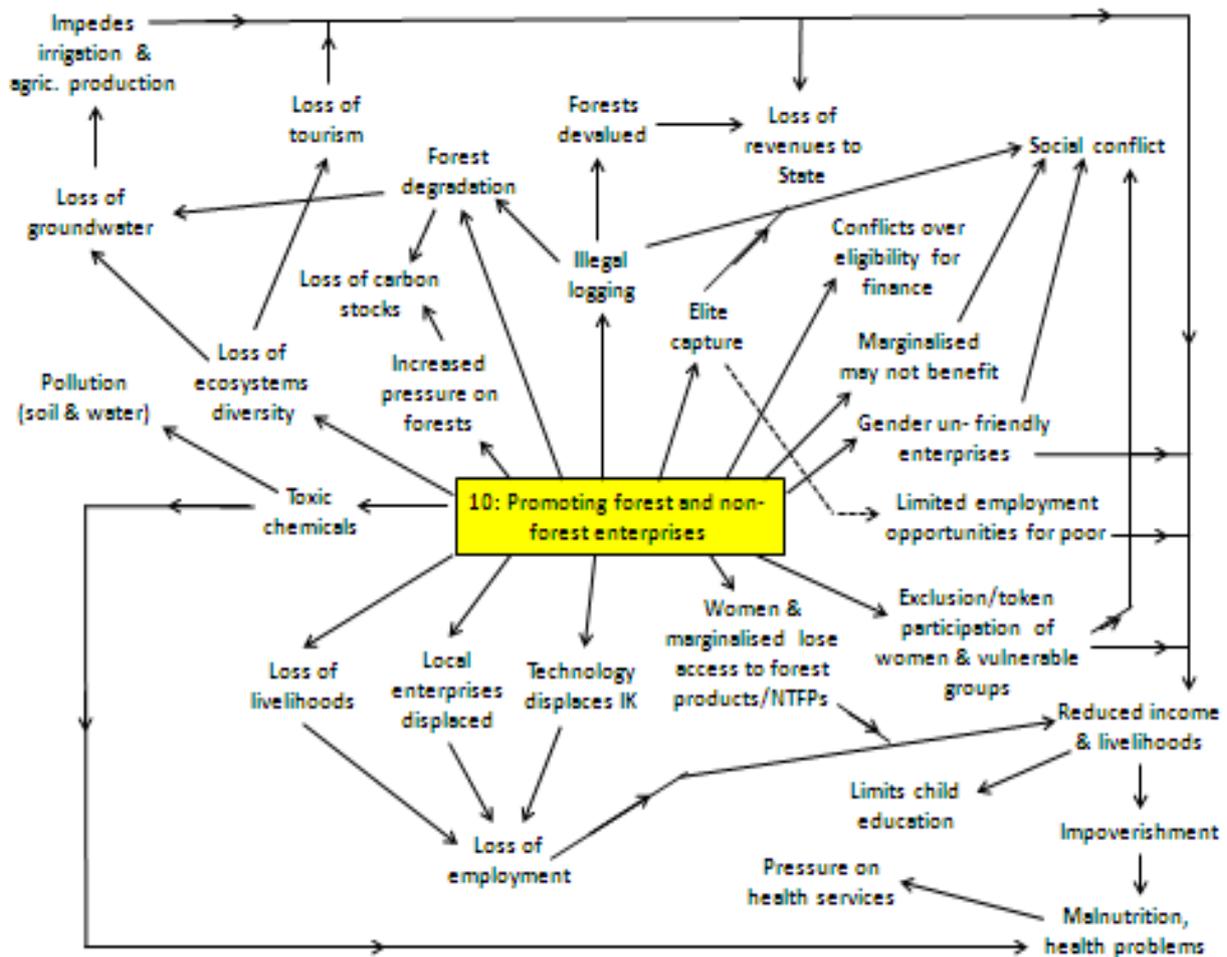


Figure 5.3.2: Strategic option 10: negative cumulative impact linkages



5.4 BUSINESS-AS-USUAL SCENARIO (THE NO-REDD+ SCENARIO)

In the event that a REDD+ strategy is either not concluded or cannot be implemented, then current forest management practices will continue – although they will obviously be subject to any non-REDD+ related changes that may be introduced – but which cannot be predicted by the SESA team. In these circumstances, the likelihood is that the forest-related environmental and social issues and trends described in sections 3.2 and 3.4 will persist. The extent and severity of some of the negative trends and issues discussed are likely to increase, particularly as population growth places more pressure on forests to sustain livelihoods, and as general development continues in other sectors which interact closely with forestry (agriculture, energy, infrastructure, etc.)

The key issues that are likely to get worse are listed in Box 5.4.1.

Box 5.4.1: Key environmental and social impacts under the ‘No REDD+’ scenario

Environmental

- Deforestation and forest degradation due to the high dependency of Nepal’s population on forests for wood products, timber and fuelwood (for energy) [although this might be offset to some extent as, where increases in incomes are achieved, households are able to switch to cleaner sources of energy such as Liquid Petroleum Gas], fodder, grazing, herbs and other NTFPs – leading to a continued increase in carbon emissions. The problem is likely to be more acute in the terai.

- Encroachment of forests for resettlement (particularly of “Sukumbasi (landless people”) and free bonded labourers) and/or for agriculture; and acquisition of forest area for infrastructure development.
- Forest conversion, and increased access to forest areas (facilitating easier illegal logging of trees and their conveyance to end users), due to road construction (particularly unplanned and unregulated roads) in fragile areas as Nepal continues to improve its transport network; with associated soil erosion and landslides.
- Forest conversion due to other infrastructure developments such as electric transmission lines, hydropower plants and reservoirs, irrigation, etc.
- Forest conversion for ‘slash-and-burn’ agriculture and illegal settlements.
- Forest degradation due to invasion by alien species and illegal grazing (particularly in high altitude forests).
- Illegal harvesting of forest products, eg illegal logging – most of which is not accounted for) – diminishing biodiversity, particularly high value species; and illegal grazing, preparation of charcoal, collection of forest litter and under-growth – all impairing forest health.
- Soil erosion
- Land degradation of watersheds due to deforestation, encroachment of forest land, overgrazing and poorly maintained marginal lands, etc.
- Loss of ecosystems, habitats and biodiversity (although less a problem in the mid-hills) due to deforestation and forest degradation which changes forest structure and ecological dynamics.
- Increased use of agricultural chemicals, with potential to pollute forests and affect biodiversity (particularly windborne chemicals which can be carried from fields to nearby forest lands).
- Indoor air pollution and resultant health issues (particularly respiratory diseases amongst women) as a result of cooking with fuelwood.

Social

- Implementation modalities of different models of participatory forest management (Community Forests, Leasehold Forests, Buffer Zone Forests, and arrangements for Conservation Area management and Collaborative Forest management) will continue to vary at the local level.
- Inequity in sharing the costs and benefits of these different forest management models will continue.
- Similarly, the extent to which women, Dalits and disadvantaged groups are engaged in forest management activities (e.g., decision making) will continue to vary.
- Nevertheless, forestry, in general, and community forestry, will continue to make a significant contribution to the natural, social, human, financial and, to some extent, the physical capital of community forest users; and contribute significantly to poverty reduction.
- The forestry sector will continue to contribute to the social development of communities through the improvement of education and health, access to information and communication, social inclusion and empowerment of women and establishment of networking and linkages.
- But, there will remain significant incidences of gender and social exclusion (and token representation) in forest management.
- Gender and caste/ethnicity differences and discrimination will remain a factor in forest management. In general, women will continue to contribute more labour, especially in forest watching, pruning and thinning trees, and weeding and watering nurseries for fodder species. Whilst women will be likely to make an increasing contribution to community forestry, their participation (and that of lower castes) in decision-making (CFUG committees) will remain much lower than higher caste men – and males will continue to dominate CFUG discussion agendas and decision-making.
- Caste/ethnicity discrimination will still influence women’s participation in community forestry activities.
- Various forms of people-forest conflicts will continue: people-State, people-park, elite capture,

rich-poor, near-distant users, exclusion of women from the forest and violence against women.

- ‘Faulty’ (as perceived by indigenous people) laws and government policies and programmes will continue to be a significant contributor to deforestation and forest degradation (eg. Private Forest Nationalization Act (1957), Establishment of Resettlement Company (1963), *Jhoda Act* (1971) and the National Park and Wildlife Conservation Act (1973)).

5.5 INSTITUTIONAL ASPECTS OF IMPLEMENTING THE REDD+ STRATEGIC OPTIONS AS REGARDS ENVIRONMENTAL AND SOCIAL CONCERNS

The implementation of all strategic options (SOs) (described in Chapter 4, Box 4.1) will give rise to some positive institutional outcomes as well raising or exacerbating a number of institutional concerns. The range of issues are summarised in Table 5.5.1 and listed in detail for each of the 14 SOs in Appendices 10.1 – 10.14.

Drivers of deforestation and forest degradation are both sectoral (forest use and management) and extra-sectoral (energy, infrastructure, agriculture, etc.). Effective implementation is beyond the forest sector realm. Therefore, coordination among government sectors including planning and finance ministries is critical to stimulating changes that will contribute to achieving REDD+ objectives. In addition, participation of private sector, CSO and local communities (acknowledging their heterogeneity and ensuring representation of different interests) is essential for effecting the land use changes that will reduce emissions and deliver non-carbon benefits. Strong institutional capacity in these organizations and their articulation with government institutions can complement the roles that all have to play in REDD+ implementation.

Table 5.5.1: Summary of key institutional issues resulting from implementing strategic options for REDD+

Positive issues	Negative issues
<ul style="list-style-type: none"> • Need for compensation • Commitment and investment • Improved forest (and other) governance, administration & coordination (including cross-sector) • Strengthened CFUGs • Monitoring & enforcement of harvesting of ‘allowable cut’. • Increased transparency & accountability (eg in decision-making), & reduced corruption • Formal financial institutions established & strengthened • Security of tenure • Improved social inclusion • National & local institutions established and/or strengthened • Administration improved • Enhanced capacity (all levels) & knowledge • Strengthened grievance mechanisms • Empowerment of local institutions • Improved communication • Increased awareness/understanding of issues & links • Potential for improved laws, policies, regulations and statutes, and harmonisation • Potential for improved organisation of private 	<ul style="list-style-type: none"> • Conflicts, elite capture • Lack of reliable data to assess performance in reducing emissions and on livelihoods • Insensitivity to gender & social inclusion – women marginalised and their rights, role/contribution unrecognised • Diversion of social/women’s local funds for infrastructure • Politicising of decisions • Misuse of grievance systems • Marginalised people under-represented • Displacement of customary practices • Tokenism regarding participation • Over-regulation • Investment impeded • Slow EIA system delays project approval • Difficulties in monitoring some impacts • Increased corruption • Weak government/institutional capacity • Weak coordination • Bureaucratic complexities & inefficiencies • Limited extension coverage • Non-participatory decision-making • Lack of consensus, eg on benefit-sharing • Potential that powerless and poorest are punished whilst the powerful are not

sector

- Enterprise and local industry development
 - Potential to improve coordination and cross-sectoral interaction
 - Development of local industries & markets, & improved access to them
 - Strengthened private sector capacity
 - Contribution to national economy
 - Strengthened participatory planning
 - Potential to promote farmers associations, cooperatives, service delivery
 - Job creation
 - Environmental & social impact assessment measures implement
 - Research stimulated
 - Extension centres strengthened
 - Technology enhancement
 - Loan and credit schemes made easy
 - Increased government revenue
 - Community-level by-laws introduced
 - Transboundary coordination (eg with China)
- Large transaction costs
 - Unregulated marketing (eg chemical fertilizers)
 - Policy conflicts & gaps
-

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

6.1.1 General

4. It is difficult to conceive that a REDD+ strategy on its own can bring about the changes in governance and social behaviour that will be necessary to guarantee that activities and projects are undertaken effectively, efficiently or equitably. REDD+ will need to be integrated with much broader legislative and policy reform, general awareness-raising, attitude changes and strengthened institutional capacity.
5. Overall, REDD+ is a positive concept, but when strategic options are examined in detail, there are likely to be both environmental and social implications (positive and negative) – with potential for unexpected perverse feedback if options are not implemented effectively, efficiently and equitably.
6. In considering the kinds of activities and projects that may arise in implementing the REDD+ strategy, two key issues are important: geographical coverage, and types of projects– which are discussed in section 3.2 of the draft ESMF:
 - *Geographical coverage.* It is assumed that the REDD+ strategy will provide definition of the scale of REDD+ implementation at sub-national and national levels. The area of REDD+ implementation will need be large enough to ensure that leakage (displacement of emitting activities elsewhere) can be contained. This means that the nature of drivers need to be addressed, and thus the activities to mitigate against them (ie REDD+ projects), on a large landscape scale (eg watershed)⁵⁷. In such landscapes there will be a diversity of resources as well as different actors, interests and rights.
 - *The type of projects.*
 - Some projects will aim to enhance readiness at national and subnational levels, eg capacity building; generation/provision of information; measurement, reporting and verification (MRV); and implementing safeguards. These activities are likely to engage CSOs/IPOs at different levels, including academia and research institutions as well as government. The overall objective is to establish a conducive environment for REDD+ implementation.
 - Some projects will aim to reduce emissions (see Table 3.2.1 in ESMF for examples) – mostly technological interventions in activities such as conservation agriculture, efficiency in production of biomass energy, sustainable forest management - combined with the development of local level capacity (eg developing organizational skills, support to access inputs, adding value to products, helping access to credit, markets etc.).

Thus, apart from this SESA of the overall REDD+ strategy, further smaller scale SESAs may be needed to address issues at subnational level once Nepal has defined the priority areas (and extent/acreage) where interventions should focus.

⁵⁷ In Nepal, pilot projects have been implemented in various watersheds. For example, in 2009-2012, ICIMOD, ANSAB and FECOFUN implemented a pilot project entitled 'Design and setting up of a governance and payment system for Nepal's Community Forest Management under Reduced Emission from Deforestation and Degradation (REDD)'. This covered 10,00 ha including Kayarkhola watershed in Chitwan district, Charnawati watershed in Dolakha district, and Ludhikhola watershed in Gorkha district (see section *** n the SESA report).

6.1.2 Environmental

4. Forest loss. With a REDD+ strategy in place, we should be looking at equitable access to forest resources (including for disadvantaged groups). This will improve social equity in the forestry sector, and could ensure positive participation of people in undertaking of forestry as well as REDD+ activities. But a possible side is that such increased access may lead to further forest degradation, exacerbated even more by increased population pressure. There is also potential for agricultural intensification to contribute towards forest loss and degradation, both in terms of encroachment as a result of agricultural expansion and the unsustainable extraction of forest-based agricultural inputs.
5. Climate change will undoubtedly have an impact on forests – general models predict higher temperatures in the lower altitudes and drier conditions throughout the country- impact on distribution, composition and productivity, etc) – over time. But models are very general and no precise predictions regarding this can be made in this SESA.
6. With REDD+, dependency on forests as such will not change, but the types and amounts of forest products used will change. For example, promoting biogas will reduce fuelwood collection, but could increase cattle populations (dung is the main ingredient for biogas production) which need fodder from forests and fuelwood to cook animal feed (takes more fuelwood energy than human food) - so this will increase pressure of CFUG Executive Committees to raise the allowable offtake of fodder from forests and this may breach sustainable yield and the ecological balance and forest degradation will follow.

6.1.3 Social

12. Forestry remains closely associated with the livelihoods of the majority of people; and forestry and agriculture are intimately linked. And this balance will continue well into the future. If implemented effectively, some of the strategic options (eg SO8) have potential to promote workable livelihood alternatives, although there may be some perverse negative environmental impacts (eg from agricultural intensification).
13. REDD+ options aim to provide equitable benefit-sharing which genuinely reaches all eligible community households. If this is implemented effectively and equitable, it will eliminate a range of conflicts that currently exist between classes (haves and have-nots), ethnic groups, men and women, close and distant users, etc.
14. Strategic option 8 (promoting affordable, reliable and sustainable sources of energy and alternative cooking technologies) will reduce workloads and drudgery for women, with positive health impacts and saving their time for other productive purposes. Furthermore, promoting their access to affordable alternative energy technologies will help women to develop enterprises and generate income. This, in turn, will ensure improved family wellbeing through being able to afford better nutrition and medical care, improving family health and access to education for children.
15. Strategic action 4b (preparing a national forestry strategy through multi-stakeholder process) will ensure increased participation and a sense of ownership amongst local communities, facilitating its easier implementation.
16. Strategic option 7 should provide potential to increase both on- and off-farm incomes leading to reduced poverty. But if adequate safeguard measures (eg ensuring subsidies for agricultural intensification reach everyone, not just landowners) are not put in place, further exclusion of the landless, forest-dwellers, etc. may result.
17. Enhanced agriculture and livestock productivity (through strategic option 7) supplemented by forest and non-forest based enterprise development (promoted by strategic options 10) and income generating opportunities will lead to improved livelihoods and food security, and raise income levels; thus reducing poverty amongst forest-dependent poor and marginalized groups.

18. The adoption of REDD+ international standards for participation, inclusion and informed decisions (through strategic options 12c) will enhance the empowerment of local communities, particularly women, IPs, dalits and other forest dependent poor and marginalized groups – and this will help to alleviate the negative impacts they frequently endure from being excluded. Furthermore, the establishment and strengthening of (gender-sensitive) mechanisms to address grievances (strategic option 1d) will ensure an increased voice for the powerless in general, and for women in particular.
19. General health indicators in Nepal are comparatively low in terms of life expectancy, morbidity and the mortality. The increased availability of, and assured access to, forest products (strategic options 1b) should result in reduced workloads, improved livelihoods and food security, leading to improved health.
20. Women, poor, IPs, dalits and marginalised people are generally landless having only usufruct rights to land and forests. When carbon rights and benefits-sharing are tied to land and forest ownership; it can result in the exclusion of these groups, limiting their access to forests and benefits. Hence, alternative mechanisms of providing carbon rights and benefit-sharing (strategic option 1a) are needed so that these groups benefit from the REDD+ programme and do not lose their usufruct rights to land and forests.
21. Violence against women is common in forest management. While preparing the REDD+ strategy, safeguards and mitigation measures against such violence will be necessary.
22. To address the possibility of gender discrimination against women and social exclusion of IPs, dalits, poor and other marginalised groups, the application of the Gender and Social Inclusion (GSI) strategy⁵⁸ should be mandatory in REDD+ programmes. GSI training should be required for personnel at all levels, from policy-making to programme formulation, implementation, monitoring and evaluation. Furthermore, GSI orientation should devolve to the community level to eliminate social conflicts that could arise during REDD+ implementation.

6.1.4 Legal and policy matters

From the viewpoint of the REDD+ process, a number of major issues should be addressed in reforming laws and policies:

8. The management of Government-Managed Forests can be improved through promoting community involvement in preparing forests action plans; by separating authority for harvesting and marketing of forests products; and by introducing a fair and market price based payment system for providing forests areas for development activities.
9. To promote the development of leasehold forestry, consideration should be given to eliminating royalty payments and developing a mechanism to enable the sharing of benefits arising out of the use and management of leasehold forestry.
10. Communities can be encouraged to engage in forest and non-forest enterprises that add value by introducing tax rebates and other support facilities.
11. The threshold for cases to be heard by the DFO needs to be increased from the present level of NRs 10,000.
12. A separate oversight mechanism is required within the forests administration system to take disciplinary action against those found to be engaged in irregular or illegal activities. The forests law can be invoked to prosecute those charged with offences.
13. Laws beyond those concerned with the forestry sector need to be reviewed thoroughly with a view to ensuring harmony and consistency with the Forests Laws (eg The Local Self-Governance

⁵⁸ MoFSC/GoN. (2007). Forest Sector Gender and Social Inclusion Strategy. Kathmandu: Ministry of Forests and Social Conservation, Government of Nepal.

Act, 1999; the Mines and Minerals Act, 1985; Public Roads Act of 1974; Water Resources Act of 1967).

14. The forest laws need to be reviewed and clarified, addressing issues such as land tenure, recognition and definition of carbon rights; ownership of carbon rights in the case of forests other than private forests; sharing of benefits arising out of carbon trading; and distant users of forests.

6.1.5 Institutional matters

4. Effective coordination across institutions engaged in REDD+ will be critical for the successful implementation of the REDD+ Strategy, and particularly for implementing the ESMF.
5. During the preparation of the actual REDD+ Strategy, it is assumed that structures its implementation and coordination, and for coordination across all concerned bodies at international, national and local levels, will be proposed. As part of such structures, in the ESMF, it is recommended to establish a formal Assessment and Monitoring Unit within MoFSC (we suggest within the proposed REDD+ Coordinating Division) to coordinate all environmental and social assessment and monitoring process related to REDD+, with additional arrangements at district and local levels. Coordination of these mechanisms should be with MoFSC so that they are closely aligned with all other coordination procedures for overall REDD+ implementation.
6. There will need to be close liaison and cooperation with other line ministries, agencies and bodies (based on future programmes/projects) that have particular expertise and responsibilities relevant to ESMF implementation, particularly MoSTE as regards formal approval of EIA reports (see ESMF).
 - a. Formal coordination is needed between MoFSC and MoSTE (which has responsibility for implementing the environmental assessment legislation, and is also the focal body of UNFCCC for Nepal) Such coordination is require on environment issues and projects for the effective implementation of ESMF-REDD+.
 - b. We recommend that the currently dormant Climate change Section under MoFSC should be made active in order to contribute to climate change aspects of REDD implementation.

We also recommend that a coordinating mechanism should be established (with representatives from MoFSC (particularly the proposed AMU), MoSTE, other relevant line agencies as well as experts. This national level mechanism would be tasked to align work on environmental and social issues related to REDD+ implementation.
7. The AMU and other ministries/departments, districts and local bodies will need considerable training, budget resources and time to undertake their functions – these are elaborated in the ESMF.

6.2 RECOMMENDATIONS FOR FURTHER WORK

The limitations of this SESA are described in section 2.2.2. It has been undertaken in the absence of an actual REDD+ strategy and dislocated from the process of developing that strategy. Expressions of interest by consultants to undertake the task of developing the strategy were invited in January. The process is expected to commence in May 2014, after this SESA has been completed.

In SESA, best practice is that it is would be undertaken by being fully integrated with the process of developing A REDD+ strategy. Where such integration is not possible, the next best option is to conduct the SESA in parallel, but ensuring that the two processes are undertaken with maximum synchronisation, sharing of steps (eg joint consultations) where feasible, very regular communication between the SESA and strategy teams, etc. Failing this, a sub-optimal option is to undertake a SESA after a strategy has been completed, but this will have much less opportunity to support and influence (in a positive way) strategy development than the previous two options. But this SESA was conducted prior to strategy development – an undesirable option - and this generated considerable technical and operational challenges, not least of which was the question “what could be assessed in the circumstances”.

In the circumstance, the SESA team constructed 14 possible strategic options (but which it believes are logical and well-founded) based on an analysis of the R-PP and several other document (see Chapter 4) against which to undertake an assessment. Despite the drawbacks of being undertaken in the vacuum of 'no strategy', the range of positive and negative environmental and social issues identified by the SESA signal what would be likely to arise if particular (and already mooted) strategic options were to be carried forward into the actual strategy.

The limitations have also meant that the team has only been able to undertake limited consultations at regional, district and local levels, and some tasks important tasks have not been possible (eg convening focus group sessions, expert workshops, and developing linkage diagrams to indicate how cumulative impacts are likely to arise for each strategic option).

Developing an ESMF (presented in a sister volume) has been inhibited by the absence of an actual REDD+ strategy and lack of clarity on the institutional structure that will be established to implement it – into which ESMF structures and modalities will need to fit (eg (assessment & monitoring bodies, capacity building, establishing training and awareness-raising activities, and defining costs).

In all these circumstances we conclude that this SESA represents a first, but important step, in assessing the impacts of the forthcoming REDD+ strategy. It provides a solid analysis of the baseline conditions (environmental; climate; social; legislative, regulatory and policy regime, and institutional situation relevant to REDD+) and a solid analysis of environmental and social impacts likely to associated with REDD+ in Nepal.

But this SESA is not adequate as it stands. Further work will be necessary, linked to the development of the actual REDD+ strategy to provide a reliable platform of analysis and recommendations to support the strategy. It should identify where and how positive impacts can be enhanced, how risks and negative impacts can be minimised, and how cumulative impacts can be diminished. We recommend that it include the following components - to be undertaken over a year from the completion of the current SESA work.

Further analytic work should be conducted building on the SESA work. A **comprehensive and thorough consultation programme** in targeted districts is required, including engaging stakeholders (particularly forest users, CSOs and IPs) and local government throughout the country in discussions on the draft SESA documents and to ensure their views and information is documented and reflected in the final SESA report and linked technical papers. This will ensure that the SESA results are shaped and owned by local government officers and stakeholders. Without effective stakeholder participation, the SESA, ESMF and the REDD+ strategy which draws from it will have little credibility and influence with those to be involved in its implementation.

An initial component of further analytical work should be to develop **linkage diagrams** for each strategic option to illustrate how primary impacts can lead to secondary and tertiary ones, feeding back and compounding cumulative impacts. This is the best way to illustrate to decision-makers and stakeholders the complex web of positive or negative impacts that may be generated by each option – that will not be obvious from tables, lists and narrative text. The team has been able to develop an example for strategic option 10 (see section 5.3). Each diagram requires considerable brainstorming based on the assessment tables presented in this SEA. And such linkage diagrams should be subjected to expert and stakeholder inputs to both improve and verify them as well as to build understanding and consensus.

An **integration plan** should be developed to ensure that further SESA work is fully integrated with the REDD+ strategy development process – to align steps, thinking, analysis, consultations and team exchange to ensure maximum mutual support.

It was evident during the SESA work that CSO and IPOs did not understand the purpose, role or nature of the SESA. There was consistent confusion that the SESA was actually the process of strategy development. Thus it will be important to include an element of **capacity-building for CSO**

and IPOs on SESA in further work – through both awareness-raising activities and directly engaging them in SESA discussions and analysis. This will also serve to build trust and consensus and smooth the path of the strategy itself.

A **small fund for REDD+ stakeholders** should be included in the budget for further SESA work to enable three or four representative organisations to engage directly in the SESA process and to take advantage of their contacts and knowledge-base at local level. This fund would be used to enable stakeholders to support the SESA team's consultations by undertaking SESA-related deep consultations in a few districts with more isolated communities and reporting back on their findings. This work could be undertaken with separate funding that the REDD Cell has earmarked for Civil Society Organisations/Indigenous Peoples Alliance working with the sector. The REDD Cell and SESA team would consult with the CSO/IP Alliance on the most appropriate CSOs/IPs to conduct the consultation activities

We recommend the organisation of **public hearings in the five regions** of the country. These hearings should be open interactive events and conducted in regional centres. The SESA draft report from Phase 1 should be translated in full or in part and distributed to local, district and regional officers who should be involved in the hearings. Prior to each public hearing, the report should be disseminated to the relevant stakeholders including the CSO/IPO Alliance. Comments on the report should be requested – to be provided in written format which would then be discussed during the public hearing. The aim should be to reach consensus during each public hearing on pertinent issues to be address/ integrated into an updated SESA report. The hearings should actively involve community leaders and local CSOs/IPs. A record of submissions and key issues and viewpoints should be prepared for each regional hearing.

In order to deepen enquiry and analysis, it is recommended that further SESA work include **three district case studies** (perhaps in Dolakha, Chitwan and Gorkha). These studies should involve stand-alone supporting consultations with stakeholders. The issues and experiences for lessons for national application should be documented.

In support of the above, it is recommended that a **limited number of special technical studies** (up to four) be undertaken on important issues, as agreed with the REDD Cell. A tentative list of candidate such studies includes:

- Encroachment and the encroachment strategy drafted by the government and the implications for resettlement policy based on the REDD+ strategy;
- Land tenure issues in Nepal as they relate to REDD+;
- Where best the implementation of REDD+ emission reductions would take place;
- The political/socio-cultural economy encompassing issues of land tenure institutional relations between different social groups, social cast and gender issues in country, governance, participation and social accountability;
- How best to establish socially inclusive, gender appropriate and equitable benefit sharing mechanism for REDD+;
- A review of Nepal's experience with community forestry;
- Assessing customary practices of managing forest resources at local level and their implication to REDD+;
- Propose mechanism to promote payment of ecosystem services from forests in Nepal;
- Develop national data base of basic forest attributes of all forest management regimes (community forests, collaborative forests, national forests, government managed forests, protected forests etc.);
- Institutional and cost-benefit sharing arrangements among various stakeholders.
- The impacts of ER-PIN – as a test of the draft ESMF.

Expert Focus Group sessions should be convened to extend and deepen the impact assessment and incorporate feedback and new perspectives from the stakeholder consultations and address evolving thinking on the REDD+ strategy options – each session focusing on particular themes/issues.

An indicative ESMF is presented in the sister volume to this SESA report. Once it is clear what the institutional arrangements for REDD+ implementation will be, the **ESMF should be reviewed, revised and tailored** to the requirements of those arrangements.

A **final national stakeholder workshop** would be conducted for presentation and discussion of: 1) the draft SESA, ii) results and lessons learned from case studies, iii) results of regional public hearings, iv) CSOs report back on their findings from consultations, v) presentation of results of special studies; and vi) wrapping up of issues and leading into a clear vision of how report is to be finalized

APPENDIX 1. TERMS OF REFERENCE

Note: that this is the original terms of reference. Due to restricted budget availability, during contract negotiations, it was agreed that the TOR would be revised, particularly in relation to deliverables. Revisions to the TOR are outlined in the Inception Report

Government of Nepal
Ministry of Forests and Soil Conservation
REDD-Forestry and Climate Change Cell
Babarmahal, Kathmandu, Nepal

Terms of Reference (TORs)
for a
Strategic Environmental and Social Assessment (SESA)
and the formulation of an
Environmental and Social Management Framework (ESMF)
(FCPF/REDD/S/QCBS-5)

Introduction

General

Reducing Emissions from Deforestation and Forest Degradation (REDD+) is evolving as a means to reduce forest sector carbon emissions through forest management and forest governance improvements in forestry and related sectors. The World Bank's Forest Carbon Partnership Facility (FCPF) assists Nepal with financial and technical support to develop and apply strategies to address the drivers of deforestation and forest degradation.

Nepal is one of the countries participating in the FCPF REDD+ Readiness Fund and is currently implementing the REDD+ Readiness Programme. Part of this process includes the solicitation of consultant services to conduct a series of activities which will inform the readiness process and increase the country's REDD+ readiness.

Technical

The Strategic Environmental and Social Assessment (SESA) is essential for both avoiding negative impacts and ensuring positive or additional REDD+ benefits, especially in terms of safeguarding livelihood improvements and the rights of forest-dependent communities (i.e. indigenous peoples, women, dalits); promoting the conservation of the environment and biodiversity; and maintaining cultural heritage, gender balance, capacity development and good governance. For this, it is essential to identify the likely outcomes, opportunities and adverse impacts associated with implementation of strategic options before implementing REDD+.

Background Information

REDD+ implementation will involve forest dependent communities, women and other affected marginalised groups to the best extent possible. Although REDD+ is expected to have significant climate change benefits, it risks causing negative impacts on the environment and local forest dependent communities. Therefore, the SESA will be conducted in order to assess these potential

positive and negative impacts. Furthermore, the participatory SESA process will aim to involve all relevant stakeholders while maintaining a focus on the most affected stakeholder groups.

Given the FCPF is the main source of funding for REDD+ readiness, the World Bank's Safeguard Policies have to be fulfilled. These include (i) OP 4.01 on 'Environmental Evaluation'; (ii) OP 4.04 on the Natural Habitats; (iii) OP 4.10 on Indigenous Populations; (iv) OP 4.11 relating to Physical Cultural Resources; (v) OP 4.12 on Involuntary Resettlement; and (vi) OP 4.36 on the Forests. Furthermore, the SESA must adhere to the following REDD+ objectives, which have emerged from numerous stakeholder consultations: (i) regulating forest sector activities and promoting the fight against deforestation and forest degradation, and (ii) protecting and promoting the rights, responsibilities and opportunities of forest dependent people from the start.

The SESA must not only comply with the World Bank's safeguard policies but also consider existing national legislation, international agreements ratified by the government and the principles of international practices and protocols protecting the rights of citizens, especially with regard to impacts on the environment, traditional rights and access to natural resources.

An initial stakeholder analysis was conducted during the preparation of the Readiness Preparation Proposal (R-PP), including specific consultations with forest dependent communities. Possible drivers of deforestation and degradation and feasible strategic options for addressing those drivers were also identified during the R-PP process.

Objectives

The overall objective of the SESA is to identify opportunities to mitigate environmental and socioeconomic risks during under the implementation of a REDD+ mechanism in Nepal. The SESA may also identify where REDD+ can improve development activities and other environmental measures adopted to combat climate change.

The specific purpose of the SESA is to identify opportunities that:

- Enable an understanding of the operating environment for REDD+ programs, including stakeholder analysis and the socio-environmental dimensions of the forestry sector in Nepal;
- Screen and assess possible social impacts and issues related to REDD+ programs in Nepal;
- Develop a multi-stakeholder engagement approach to address these impacts;
- Propose methods and measures to mitigate environmental and socioeconomic risks during REDD+ strategy implementation; and
- Provide leads to improve development activities and the state of the environment through REDD+ as well as any associated measures adopted to counter climate change.

In order to develop an Environmental and Social Management Framework (ESMF), the consultant will present proposals that aim to strengthen the positive impacts of the REDD process on: the quality of the environment; the social, cultural and economic well-being of the population, particularly that of population groups most dependent on forest ecosystems and biodiversity; the respect for traditional modes of using natural resources; and the community consultation and participation process.

The ESMF will have to specify procedures for:

- Consultations with concerned stakeholder groups;
- Institutional capacity-building;
- Environmental and social impact screening, assessment, and monitoring; and
- Grievance redress.

The ESMF will also provide the inter-institutional arrangements for the preparation of time-bound action plans for managing and mitigating adverse impacts related to future projects, activities, or policies/regulations.

Scope of Work

The Strategic Environmental and Social Assessment (SESA) will include a comprehensive stakeholder analysis, a description of the initial social and environmental situation of the forestry sector in Nepal, an analysis of the possible impacts of different REDD+ strategy option scenarios, an analysis of impacts of different REDD+ alternatives and the verification of compliance with World Bank policies.

SESA preparation will be the basis for the formulation of an ESMF:

- The SESA will ensure compliance with relevant safeguards during both preparation and implementation of the R-PP.
- The ESMF will be an output of SESA. It examines the risks and potential impacts associated with one or more projects, activities, or policies/regulations that may occur in the future as part of the implementation of the REDD+ strategy options designed during the readiness preparation phase.

Moreover, it is important that the SESA confirms the two major REDD objectives mentioned above.

The consultant should identify interfaces with the REDD+ SES process that has been initiated in Nepal and clearly spell out the scope for synergies with this process.

Major tasks

SESA

Task 1: Review stakeholder analysis

The consultant shall review and update the comprehensive list of stakeholders identified during R-PP development that are directly linked with the social and environmental impacts of the REDD readiness and implementation process. The consultant should prepare a map of the stakeholder landscape including the positions and views of various stakeholders in the forestry sector, with a particular focus on REDD+ programs. The consultant shall identify and focus on those stakeholders who have been most actively engaged in the process so far and critically assess if any group of stakeholders has been left out of the process due to lacking awareness and capacity to engage with REDD+ discussions.

The feedback solicited during past stakeholder consultations (as part of the R-PP preparation or the preparation of individual projects) should be reviewed during this analysis.

Task 2: Initial description of the social and environmental situation of the forestry sector in Nepal

This task provides an update of the diagnostic already done for the R-PP and draws on the detailed studies of environmental and social issues regarding REDD+ that are already underway. The consultant will collect, analyse and present basic data relating to the current environmental and social situation of the forestry sector in Nepal, including:

- A map of the forest dependent communities and disadvantaged groups accessing forest resources (following the lines of the stakeholder analysis);
- A review of their relationship to the forests from an ethnic, historical, cultural and economic perspective as well as an analysis of their attachments, access to and use of forest resources, including the formal/ informal institutions and internal mechanisms regarding the use of forests and the sharing of benefits from this utilisation;
- A summary of their views, concerns and recommendations for REDD+ program.

Task 3: Outline the legislative, regulatory, and policy regime

The outline of the legislative, regulatory, and policy regime (in relation to forest resources management, land use, forest-based enterprises, etc.) should draw from the assessment described in Section 2a of the R-PP template with a focus on any proposed reforms to this regime as part of the REDD+ strategy implementation. This part of the analysis must include:

- A review of relevant acts, regulations and government policies regarding forest resource use versus the traditional use and usufruct rights to forest resources;
- An analysis of constitutional provisions and ILO 169 on indigenous and tribal populations, relevant stakeholder understandings and its implications for REDD+ programs.

Task 4: Outline of REDD+ strategy option(s)

The consultant will prepare a description of the indicative REDD+ strategy option(s), the main social and environmental considerations, and the various risks involved in implementation.

Task 5: Formulation of arrangements for implementation

The consultant shall prepare a description of the required arrangements for implementation modalities with a focus on the procedures for (i) screening and assessment of site-specific environmental and social impacts; (ii) the preparation of time-bound action plans for reducing, mitigating, and/or offsetting any adverse impacts; (iii) monitoring the implementation of the action plans, including arrangements for the participation of relevant stakeholders in such monitoring.

Task 6: Analysis of the particular institutional needs within the REDD+ implementation framework

The consultant will review the authority and capability of institutions at different administrative levels (e.g. local, district, provincial/regional, and national), also in view of their capacity to manage and monitor ESMF implementation. Capacity gaps need to be highlighted and be addressed in the 'Capacity Building' task below. The analysis should draw mainly from Section 2c. of the R-PP template but may propose new acts, rules and regulations, new agencies or agency functions, staffing needs, inter-sectoral arrangements, management procedures, operation monitoring and maintenance arrangements, budgeting and financial support.

Task 7: Analysis of the possible impacts of different REDD+ strategy option scenarios

The consultants will analyse the social and environmental impacts of each strategic option. This will help the implementing agency to move the program in the right direction for poverty reduction, environmental protection, socioeconomic development and the protection of traditional rights and biodiversity.

ESMF formulation

Task 8: Development of an Environmental and Social Management Framework (ESMF)

The consultant will develop an ESMF that addresses the following issues:

- The consultant will recommend **strategies and procedures** to implement the framework throughout the REDD+ process in view of adopting measures that prevent adverse environmental and social impacts.
- The consultant will recommend a **simple screening methodology to monitor the activities** recommended each year in the annual work plans from a social and environmental perspective in order to remove or reduce risks and negative impacts. The proposal should take into account existing national legislation and provisions regarding EIA and IEE.
- The consultant will also recommend a **simple monitoring and evaluation system** for the social and environmental impacts of the REDD+ process, with monitoring indicators and a corresponding evaluation procedures and methodology. In order to avoid duplication of efforts, the consultant will take into consideration the monitoring indicators developed as part of the REDD+ SES process.
- Based on the analyses and recommendations above, the consultant will do an initial screening to test the **compliance of the REDD+ process with the World Bank's Safeguard Policies** mentioned in the Background Section above.
- Finally, the consultant will recommend a **stakeholder consultation mechanism for the monitoring and evaluation of the REDD+ process**. Taking into account the public consultation

mechanisms developed under various other REDD+ initiatives (e.g. REDD+ SES), the consultant will make concrete recommendations to increase the understanding of forest management and strengthen the involvement of forest dependent people, placing particular emphasis on indigenous groups, women, *dalits*, NGOs and other civil society institutions and the private sector during implementation and monitoring of the REDD+ process.

The draft ESMF will have to be publicly disclosed and disseminated through a major consultation event (or through multiple meetings at lower levels). Comments generated will be addressed when finalizing the ESMF.

Preparation of the **final ESMF** suitable for inclusion in the R-Package will have to contain specific sections addressing the requirements of Government of Nepal's applicable safeguard policies. These sections can take the form of free-standing chapters within the ESMF that would resemble the frameworks provided for in the policies themselves, including (as relevant):

- Environmental Management Framework (EMF) to address any potential environmental impacts, including cumulative and/or indirect impacts of multiple activities;
- Resettlement Policy Framework/Process Framework to address any potential land acquisition and/or physical relocation, loss of livelihoods or restriction of access to natural resources, including in legally designated parks and protected areas;
- Indigenous Peoples Planning Framework (IPPF) to address any effects on Indigenous Peoples; and
- Cultural Heritage Management Framework, which must be implemented to ensure that the programs and activities do not harm the physical or moral cultural heritage, or traditional practices and customs.

Task 9: Required technical assistance

The consultant will identify required technical assistance by public- and private-sector institutions, communities, and service providers to support implementation of the ESMF.

Task 10: Capacity building

The consultant will present a 'Learning Plan' that provides a detailed capacity-building strategy with measures to ensure that the ESMF can be effectively implemented. The consultant will recommend public and/or civil society institutions likely to conduct this capacity-building work and define the necessary budget. This capacity-building process could include institutional adjustments or procedures, recruitments or new assignments and training for national, local and regional institutional leaders and civil society organizations.

Task 11: Outline of the budget for implementing the ESMF

Estimated costs of the ESMF shall be evaluated for each measure recommended above. If there is no specific estimate, a methodology for estimating costs should be suggested. This estimate includes the needs for institutional improvement and training to apply the given safeguard measures. The consultant will present the ESMF in the form of measures incorporated directly into the REDD+ process activities (e.g., methodological improvements, supplements to recommended activities) so that it does not duplicate or overlap with the REDD+ process.

Schedule and Deliverables

The consultant will prepare a detailed **work plan** within two weeks of taking up the assignment.

Summaries of the outputs of the various SESA tasks will be prepared to later be included in the SESA section of the R-Package.

Initial drafts of the ESMF will be submitted within four months after taking up the assignment.

Final versions of the ESMF (including the 'Learning Plan' for capacity building) are expected within six months from contract signature. The two documents will include the outcomes from all the steps listed above. The presentation of the SESA and the ESMF will be complemented by annexes containing all supporting data, supplementary analyses, consultation reports with summaries of key issues identified, suggested mitigation measures, as well as lists of participants in specific activities.

Consultant Qualifications and Expected Level of Effort

Consultant qualifications

The SESA/ESMF team will have to be capable of addressing all the safeguard policies triggered by the project(s), activity(-ies), or policy(-ies)/regulation(s) that may occur in the future from the implementation of the emerging REDD+ strategy option(s), as well as be capable of carrying out all the tasks outlined in the Scope of Work above. Expertise and experience in the application of safeguards policies are therefore mandatory for all members on the team.

As multiple safeguard policies need to be addressed, ideally a multi-disciplinary team with the necessary ecological, legal and socio-cultural expertise will prepare the ESMF.

The experts to be involved in this assignment should demonstrate the ability to analyse a range of sensitive issues in relation to REDD+ and to facilitate multi-stakeholder consultation processes surrounding these issues. The experts to lead the team should also demonstrate sufficient experience in leading multi-disciplinary teams.

Coordination with the REDD Cell

The REDD+ Cell will provide a supervising officer to oversee the contract and to support implementation of the study by providing feedback and coordination with other government agencies as necessary.

A close coordination is desired between the SESA/ESMF team and the REDD+ Cell. The Team Leader will meet the REDD+ Cell once a month to discuss the progress of work, any outstanding issues and prepare an intended timeline for subsequent work.

APPENDIX 2. THE SESA CONSORTIUM

ICEM: International Centre for Environmental Management

ICEM is the lead firm for the association and will take overall management responsibility for the project. ICEM will use its management, technical expertise and innovative integrated assessment, tools to drive project performance and ensure delivery of outputs. ICEM's lead in the project will ensure a cost effective and technically rigorous approach and result in clear environmental and social strategies.

ICEM is a global leader in integrated assessments, biodiversity, water resources and climate change management. Through the development of strategic assessment and integration methodologies and targeted capacity building ICEM ensures that economic, environmental and social concerns are integrated into private sector, government and community plans and programs. In 2012, ICEM received the global award from the International Association of Impact Assessment (IAIA) for excellence and achievement in its Strategic Environmental Assessment (SEA) work. ICEM's focus in Asia has meant it is now a regional 'knowledge-hub' for integrated environmental assessments. Recently, ICEM completed an SEA of the Forestry Master Plan in Vietnam for the World Bank and Ministry of Forestry. ICEM's head office is in Hanoi, Vietnam, and run by full time international and national technical and administrative staff. ICEM also has country offices in Cambodia, Lao PDR and Australia, and a project office in Nepal.

IIED: International Institute for Environment and Development

IIED is a partner in this consortium, providing extensive expertise and experience in SEAs and Nepal. IIED is an international NGO, registered and based in London, UK, with 100+ staff (British and international) recognized world-wide for its work on environment and development concerns in developing countries around the world. IIED's mission is to build a fairer, more sustainable world, using evidence, action and influence in partnership with others. Its founder, Barbara Ward, introduced the concept of sustainable development, and the institute prepared the report of the World Commission on Environment and Development (the Brundtland report). IIED undertakes a broad portfolio of work on policy research, advocacy, awareness-raising and consultancy that supports its mission. It operates through five key areas: natural resources, climate change, sustainable markets, human settlements, and governance.

IIED has broad and in-depth experience and expertise in a wide variety of fields related to this consultancy, including: environmental and sustainable development policy; forestry policy and management (with significant work on REDD), climate change adaptation planning, resilience and mainstreaming in planning; sustainable water management; environmental economics; poverty reduction; land use planning and land resources evaluation; natural resource management; training and capacity building.

IIED's governance work includes a 20+ year track record at the forefront of international efforts to develop and promote approaches to environmental assessment (SESA, SEA and sustainability appraisal). It has assisted the uptake of SEA approaches in development cooperation and undertaken SEAs and SEA reviews in countries around the world. Since 2004, it has provided the Technical Secretariat for the OECD DAC Task Team on SEA and has led the development of OECD SEA Guidance and Advisory materials and an SEA review methodology.

In the past few years, IIED has played a significant role in Nepal in supporting development of the NAPA/LAPA framework, facilitating the Nepal Environmental Mainstreaming Initiative, and building awareness of, and promoting uptake of, SEA (e.g. developing a major SEA programme focusing on protected areas in partnership with the Department of National Parks and Wildlife Conservation).

SchEMS: The School of Environmental Science and Management

SchEMS is the local associate and will provide on the ground knowledge of the local area through local experts that have worked for 30 years in the region. Located in New Baneshwor, Kathmandu, SchEMS is an autonomous academic and research institution affiliated with Pokhara University and is registered under the Company Act of Nepal. SchEMS was established in 1999 with the primary aim of becoming a centre for excellence for policy research and capacity building in environmental management and sustainable development for Nepal in particular and the South Asia region in general. A team of highly qualified and motivated professionals, who were actively involved in academic and research sectors for more than three decades, have played pivotal role in establishing SchEMS. To date, it has completed 35 consultancy activities primarily related to environmental management. SchEMS has been supporting the development of the human resource base and also providing technical back-up for strengthening Environmental Impact Assessment (EIA), Initial Environmental Examination (IEE), and Social Impact Assessment (SIA) capability to government agencies including Ministry of Environmental and other related Ministries. It has a strong network for environmental management and sustainable development activities.

Since establishment, SchEMS has participated in streamlining the Environmental Impact Assessment (EIA) system of Nepal and the South Asian Region by preparing EIA guidelines for different development sectors, undertaking Strategic Environmental Assessment (SEA) of development plans, preparation of EIA Reports and Environmental Management Action Plan (EMAP) of development and economic activities. SchEMS is also undertaking Environmental Monitoring and Auditing of the project implementation and capacity building program for various government and non-government and private sector agencies. SchEMS also handles researches on pollution control of air, water, and solid waste, biodiversity conservation, ecology, socio-biology, fisheries, and climate change.

APPENDIX 3. AGENDA AND LIST OF PARTICIPANTS ATTENDING THE FIRST NATIONAL STAKEHOLDERS WORKSHOP

12 October 2013

Venue: Indreni Foodland, New Baneshwor, Kathmandu

AGENDA		
9:30-10:00	Arrival and Registration	
Inaugural session		
10:00 - 10:10	Welcome Remarks	Mr. Resham Dangi, Chief, REDD Cell
10:10 – 10:20	Introductory Session	Prof Barry Dalal-Clayton (IIED)
Working Session 1		
10:20 –11:20	Outline of the Approach to the SESA	Prof Barry Dalal-Clayton (IIED)
11:20 – 11:30	Tea Break	
11:30 – 12:30	Presentation on strategic options for REDD+ Strategy	Mr Simon Milledge (IIED)
12:30 –13:00	General Discussions (Suite of options)	SESA Team
13:00 –14:00	Lunch Break	
Working Session 2		
14:00-16:00	Discussions of each specific options Tea at 1500 pm	SESA Team
16:00	Vote of Thanks and Closure	Dr Narendra Chand (REDD Cell)

List of participants and invited people

No.	Name	Organization	Contact
1	Mr. Nagendra Lamsal	Nepal Forum of Environmental Journalists	
2	Mr. Rajan K.C.	Galkot Youth Forum	
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52	Mr. Antonio Marzoli	MRV	
53	Mr. Bala Ram Adhikari	Department of Forest	
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56	Mr. Anil Suwal	FenFIT	fenfitnepal@yahoo.com

Invited but could not attend

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9	Mr. Bhaskar Karky	ICIMOD	9851072991
10	Ms. Shikha Shrestha	CARE Nepal	9841232975
11	Mr. Ram P. Acharya	Practical Solution	9841276700

APPENDIX 4. AGENDA AND LIST OF PARTICIPANTS ATTENDING THE FIRST SECOND NATIONAL STAKEHOLDERS WORKSHOP

12 March 2014

Venue: Indreni Foodland, New Baneshwor, Kathmandu

Agenda

8:30 – 9:00	Registration and Tea/Coffee
9:00 – 10:00	Welcome and introductions (Resham Dangi) Introduction to SESA: principles, approach, limitations & report outline (Barry Dalal-Clayton)
10:00 – 11:00	Strategic Options of REDD+ (Simon Milledge)
11:00 – 11:15	Tea/Coffee
11:15 – 12:15	Environmental impacts of strategic options (Ajay Mathema)
12:15 – 13:15	Social impacts of strategic options (Chandra Bhadra)
13:15 – 14:15	Lunch
14:15 – 15:15	Environmental and Social Management Framework (Barry Dalal-Clayton)
15:15 – 16:00	Discussion on way forward for SESA/ESMF of REDD+ Strategy

List of participants

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21	Dr. Bhaskar Singh Karky	ICIMOD	
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23	Ms. Roshani Meche	NEFIN	
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34	Dr. Yadav Kandel	WWF Nepal	
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60	Nirmal Dahal	E-ARC Nepal	
61	Prof Barry Dalal-Clayton	SESA Team	
62	Prof Chandra Bhadra	SESA Team	
63	Ajay Mathema	SESA Team	
64	Binay Bikram Adhikari	SESA Team	

APPENDIX 5. LIST OF NATIONAL AND DISTRICT CONSULTATIONS: MEETINGS, ORGANISATIONS AND INDIVIDUALS MET

National Consultations

5 th October	REDD Cell stakeholder workshop
10 th October	Consultations CSOs /IPOs <i>Mr. Ganesh Tamang - DANAR</i> <i>Mr. Dandu Sherpa - Vice President, NEFIN</i> <i>Ms. Kamala Thapa Magar - NEFIN</i> <i>Mr. Bholu Bhatteari - NAFAN</i>
1st November	Consultations CSOs /IPOs <i>Ms. Kusum Bhattachan - NWIF</i> <i>Ms. Nirmala Bhujel - NIWF</i> <i>Mr. Dandu Sherpa - NEFIN</i> <i>Mr. Arun Rai - NEFIN</i> <i>Mr. Mohan Singh Lama - NEFIN</i>
12 th November	First National Stakeholder Workshop (Indreni Food Hall – see Appendix 5)
13 th November	Scoping workshop (national experts) <i>Dr. Sushila C. Nepali</i> sushinep@gmail.com <i>Ms. Dibya Devi Gurung</i> dibyaqurung@wocan.org <i>Er. Suraj Regmi</i> suraj.regmi@aepc.gov.np <i>Mr. Arun Rai</i> arunrai149@gmail.com <i>Ms. Sagarika Bhatta</i> sagarikab537@gmail.com <i>Dr. Narendra Chand</i> narendrachand@gmail.com <i>Mr. Kalyan Gauli</i> kalyangauli@ansab.org <i>Dr. Gopi Krishna Sedhain</i> g.sedhain@gmail.com <i>Ms. Pratigya Kattel</i> pratigya.kattel@gmail.com <i>Dr. Bhaskar Singh Karky</i> bkarky@icimod.org <i>Prof. Barry Dalal – Clayton</i> barry.dalal-clayton@iied.org <i>Prof. Ram B. Chhetri</i> rbc4452@gmail.com <i>Prof. Chandra Bhadra</i> chandra.bhadra@gmail.com <i>Mr. Bishnu Prasad Gyawali</i> bishnuqyawali@gmail.com <i>Mr. Ajay B. Mathema</i> ajaymathema1@gmail.com <i>Mr. Binay B. Adhikari</i> binay@schems.edu.np <i>Mr. Khim Ghale</i> khimghale@gmail.com

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17 th November	ICIMOD	
	<i>Bhaskar Karki</i>	
2 December	WWF-Hariyoban	
	<i>Keshav Prasad Khanal,</i>	
	<i>Shika Shrestha</i>	

District consultations

- 21 November Jana Pragati CFUG, Shaktikhor, Chitwan
REDD Pilot Project
LaxmiKarki, Pragati CFUG, Facilitator, REDD Network
Hom Kumari Thapa, Secretary, Jana Pragati CFUG
Indreni Community Forest
Mr. Chandra Man Praja, (Chairperson)
Pragati Community Forest
Ms Laxmi Karki, Treasurer and REDD Network Facilitator
- 22 November CSO and IP meeting, Jungle Safari Lodge, Sauraha, Chitwan District
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Punya Prava Adhikary HIMAWANTI
Sabita Shrestha Journalist
Bina Bote NIWF
Durpati Bote NIWF
Bishnu Kumari Sharma, FECOFUN
Amrita Parajuli, FECOFUN
Surbir Pokharel, FECOFUN
Bishnu Paudel, Assistant DFO
Ganesh Sapkota, Office Assistant, DFO
Women's group meeting, Sauraha, Chitwan District
Ms. Punya Prava Adhikari, HIMAWANT
Ms Sabita Shrestha (Journalist, Correspondent for HimalPatrika dealing with issues of IPs relating to climate change and REDD;
Ms Bina Bote and Ms Durshani Bote, Nepal Indigenous Women's Federation (NIWF) representing indigenous Bote community from the Buffer Zone in Patyani V.D.C. of Chitwan district.)
FECOFUN, Bharatpur, FECOFUN Office, Chitwan District
Ms Bishnu Sapkota – General Secretary,
Surbir Pokharel – Chairman,
Amrita Parajuli – Office Secretary)

23 November

Motel Avocado, Hetauda, Makwanpur District

Ashok Sujan Shrestha , NEFIN 9855068353

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RatnaLal Biswokarma, MuktiSamaj, 9845293443

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Kedar Prasad Bataula SCFUG 9855056006

Puspa Raj Parajuli, FECOFUN 9845022649

Gopi Maya Adhikari, KalikaHariyali CF 9806867931

Pancha Maya Syanktan, FECOFUN 9845124572

Shiva Bahadur Bhandari, Basamadi CF 9845296368

Women's group meeting, Hetauda

Ms Sanam Pariyar, Feminist Dalit Organization; DWO 9845287800

Ms Durga Adhikari, Secretary, 9845030139

*Mahila Srijana Samudayik Ban User Group (women only community
forestry);*

*MsTika Kumari Bogati, Vice Chairperson, Samaj Sudhar Tatha
Samrakshan Centre;*

Ms Chitra Kumari Gurung, Chairperson, Rural Women Org 9845126511

Mahila Srijana CFUG and Vice-Chairperson of district CFUG federation;

Ms Dudu Maya Sintan, Media person; 9855070404

*Ms Ranjita Dangol, Journalist from Indigenous Journalist Federation
and Radio Nepal; 9845236705*

Ms Sita Mizar, Feminist Dalit Organization.

24 November

Regional workshop (participants from Makawanpur, Chitwan, Bara and Parsa Districts) – see Appendix 8)

25 November

Halkhoriya Collaborative Forest Management Users Group Office \ Dumarwana, Bara District

*Raj Kumar Aryal, Halkhoriya Collaborative Forest Management,
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19 December 2013 Mr. Dil Raj Khanal, Legal Advisor, FECOFUN

20 December 2013 Mr. Bholu Bhatteari, NAFAN

Mr. Sunil Pariyar, DANAR

Mr. Gajadhar Sunar, DNF

26 December 2013 Consultation Meeting at DANAR office, Anamnagar
22 participants from DWO, DNF, DANAR, FeDO

27 December 2013 Consultation Meeting at Pokhara
30 participants from NEFIN, FECOFUN, HIMAWANTI, DANAR

APPENDIX 6. AGENDA AND LIST OF PARTICIPANTS ATTENDING THE REGIONAL WORKSHOP

23 November 2013, Orchid Hall, Motel Avocado, Hetauda, Makwanpur

Agenda

10:00-10.30	Registration	
10:30 - 10:40	Welcome Remarks	Mr. Ram Nandan Sah, REDD Cell Chair by Mr Raj Dev Yadav, Regional Director, Forests
10:40 – 10:50	Introduction of participants	
11:10 – 11:30	Outline of the Approach to the SESA Key environmental and social impacts of implementing REDD+ - Presentation	Prof Barry Dalal-Clayton, IIED
11:30 – 13:00	Implications of implementing REDD+ and ESMF	2 Working Group: • Government officials • CSOs/IPOs
13:00 –14:00	Plenary – report back – key points	
14:00	Closure and Lunch	

List of participants

Name	Agency	Contact
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Chandra Bhadra	SESA Team	
Ajay Mathema	SESA Team	
Binay Bikram Adhikari	SESA Team	

APPENDIX 7. A SUMMARY OF THE VIEWS, CONCERNS AND RECOMMENDATIONS OF FOREST-DEPENDENT COMMUNITIES AND DISADVANTAGED GROUPS REGARDING REDD+

This summary is based on field data/information collected during consultations undertaken by the SESA team in Chitwan, Makwanpur and Bara districts; and based on regional consultations held in Hetauda, Makwanpur district and Pokhara, Kaski District.

Views of Women:

1. Chitwan district women expressed the view that dissemination of information on the REDD+ pilot programme was not gender responsive - it was done through an orientation programme organized during the rice planting season when women could not attend. Women learned about REDD through men who attended the orientation. In the REDD+ pilot programme, women were made to participate but only symbolically or nominally in order to fulfil the quota. The 15% of carbon fund allocated for women was judged by women to be too small an amount. The cash did not go directly to women's funds; rather women received the benefit in kind such as goat kids or piglets. Women would prefer the transfer of carbon funds directly to their collective fund; through which they can buy better quality goat kids or piglets if they wish to use the money for goat or pig farming.
2. Makwanpur district women stated that there has to be 50% representation of women in all national level REDD+ institutions; and women representatives have to be trained to enable their effective participation and to encourage them to assert their ideas concerning policies and programmes; the National institutional framework has to be replicated to Regional level and District level REDD+ institutions in terms of gender equality and empowerment of women.
3. Bara district women expressed that they are keen to learn about REDD and also keen on participating in REDD+ activities. They would like to be informed about forest conservation and trained about ways to conserving and improving forests.

Views of a Chepang man:

A Chepang man, who is Chairperson of a community forest in Chitwan district, was of the view that the REDD+ programme is creating awareness and knowledge about environment and building capacity and skills in environment conservation. He felt that carbon funds coming to the communities have to be used for development works that benefit disadvantaged people. He had heard that the REDD+ programme fund has to be distributed to disadvantaged and underprivileged people; but the CFUG has not received any carbon fund since he became the Chairperson. He would like his CFUG committee members to be trained on the REDD+ concept and activities; but after REDD+ pilot programme was completed, the REDD+ pilot project personnel did not visit his community forest. He said that, as Chepangs live in and around the forest, they have to conserve the forest whether or not a REDD+ programme is promoted in the area. However, his community forest has the entitlement to receive the carbon fund for stocking carbon through forest conservation.

Views of Bote Women from a Buffer Zone:

Bote women from the Buffer zone in Patyani VDC, Chitwan District, said that the REDD+ pilot programme did not cover their VDC; but they had heard about REDD+. Bote communities are dependent on fishing for their livelihood but now only hand-net are allowed and these do not catch much fish; so due to the (protected) Park, Bote households are becoming increasingly poorer. Restrictions on fishing, collecting fuelwood, extracting herbal vegetables such as *kurilo* and *negro* and medicinal plants/herbs are threatening the livelihood of Bote communities. They expect that the

REDD+ programme can provide alternative livelihood options and carbon funds to disadvantaged groups like theirs.

Views of FECOFUN/Makwanpur District:

FECOFUN members in Makwanpur district have engaged in some interaction programmes regarding REDD+. REDD+ sensitization training has also been conducted for CFUGS, but FECOFUN is not able to cover all CFUGs in the district. FECOFUN plays a major role in the implementation of the REDD+ pilot project. However, FECOFUN will implement REDD+ strategy programme only if it aims to promote gradual and sustainable forest management and conservation - because the priority should be to fulfil community forest users' needs before conservation. FECOFUN/Makwanpur district members perceive a challenge in implementing the REDD+ strategy programme in that for a CFUG to increase its carbon stock, it may engage in stealing forest resources from others community forests.

Views of Halkhoriya Collaborative Forest User Group:

They have heard about REDD+ only lightly and superficially. Members would be interested to learn about the immediate and the long-term benefits from the REDD+ strategy programme.

Views of Hetauda Regional Consultation Participants:

Participants were divided in two working groups – (a) government officials and (b) civil society organizations and requested to consider the following questions regarding the strategic options developed by the SESA team:

- A Are there any missing/additional major options that the REDD+ Strategy should consider?
- B What role should district institutions play in implementing the ESMF as regards
 - Screening of proposed activities
 - Environmental and social preparatory studies
 - Monitoring REDD+ activities, compliance, changes, impacts, etc.
- C Is current legal framework supportive for the above actions?
- D Do district institutions have adequate fund, skills and capacities? How will such additional responsibilities affect existing duties and activities?

The views of the CSO/IPO group are listed in Boxes A7.1.

Box A7.1: Views of CSO/IPO Group

- A. Are there any missing/additional major options for REDD+ Strategy to consider?**
- A new strategic option regarding “distant users” (ie stakeholders other than those immediately adjacent to particular forests who also use or have a legitimate interest in forest resources) should be added to the REDD strategic paper, and with a definition of “who are the users and their types”. This will ensure equitable distribution of REDD benefits.
 - Livelihood issues concerning the traditional poor need to be assessed locally prior to initiating REDD activities, to provide baseline evaluation against which the contribution of REDD+ contribution to livelihoods can be measured over time.
 - The characteristics, needs and perspectives of poor and marginal forest-dependent groups (including IP, *dalit*, women, etc.) need to be assessed and taken into account at the local level as they vary by locality.
 - The concept of REDD+ has not been widely discussed and is not understood by local level stakeholders. In order to ensure an ‘enabling environment’ for REDD+ implementation, raising awareness and understanding of REDD+ needs to be undertaken at the grass-roots

level.

- Specific REDD+ programmes for protected areas are needed.
- The SESA should highlight that REDD+ benefits need to be shared largely with local level forest dependent households, and these need to be identified locally.

B. What role should district institution play in implementing the ESMF as regards (a) screening of proposed activities, (b) environmental and social preparatory studies, and (c) monitoring REDD+ activities, compliance, changes, impacts, etc.

- A joint screening body is needed consisting of (a) District level related government line agencies, (b) FECOFUN, ACOFUN, CFUGs, Leasehold Forestry etc., and (c) civil society, media, and CBOs, mothers/womens' groups
- A study is needed on the livelihood impact of the REDD+, and a feasibility study and needs assessment of REDD+ activities at the local level.
- An independent, inclusive Joint monitoring body is required, acceptable at district level, and comprising experts and representatives of both government and civil society organizations, with equal representation of women. There should be a joint monitoring framework with specified criteria and indicators. Monitoring should aim to ensure equality and equity.
- The REDD+ network formulated amongst REDD pilots can be adopted by the REDD strategy, But will require scaling up to district and regional levels.

C. Is the current legal framework supportive for above actions?

- The legal framework needs to include provisions to maximise benefit sharing amongst communities involved in *collaborative forest management*. Currently benefits are shared between the government and communities on a 50%-50% basis. This ratio needs to be reconsidered favour communities more favourably and also be applied to for carbon benefit sharing.
- Carbon benefit sharing should be formulated to focus on the target groups.
- In addition to benefit sharing, issues of compensations should also be explored in relation to issues such as damage from wildlife raiding. Compensations should be distributed equitably.
- The 15% allocation of benefits to women within REDD pilots is considered to be too small. It needs to sufficiently cover womens' needs and should be paid directly deposited into a womens' fund. A purely women committee can be formed to manage the women fund.

D. Do district institutions have adequate fund, skills and capacities?

- The capacity of district level stakeholders needs to be strengthened in terms of: managing funds, human resources development, increased technical knowledge (e.g. carbon measurement); and institutions need to be established/strengthened to undertake REDD activities.
- The roles and activities of district level stakeholders have to be explicitly reflected and specified in the REDD+ Strategy.

Views of Pokhara Regional Consultation Participants:

Participants were divided into five groups for the workshop. They were asked to comment on the strategic options developed by the SESA Team. The following workshop questions were translated into Nepali language for participants' understanding.

1. Are there any missing/additional major options for REDD+ Strategy to consider?
2. What role should district institution play in implementing the ESMF as regards:
 - (a) screening of proposed activities,
 - (b) environmental and social preparatory studies, and
 - (c) monitoring REDD+ activities, compliance, changes, impacts, etc.
3. Is the current legal framework supportive for above actions?
4. Do district institutions have adequate fund, skills and capacities?

Additionally, translated version of 12 strategic options was provided to all groups for their feedback.

Participants views are recorded in Box A7.2.

Box A7.2: Views on REDD+ Strategic Options

1. Land tenure, carbon rights & benefit sharing

- *Land tenure has to be separated as individual, community and the government*
- *Carbon benefits should be divided into individual and the community*
- *Religious forests should be included as a form of land tenure*
- *Land ownership rights should be given to local communities*
- *Both carbon rights and carbon benefits must be given to communities*
- *For sustainability, the government should transfer community forests to communities along with land tenure rights*
- *Private forestry is private, so the carbon benefit for private forest should be equal to the carbon stock*

2. Sustainable community-based forest management

3. Sustainable government managed forest

4. Sustainable private forestry

5. Agriculture productivity and food security

- *Organic farming and organic pesticide should be promoted*
- *There should be REDD+ related insurance, compensation and alternative livelihood options for farmers*
- *There should be opportunities for agriculture, food security and employment for the actual landless*
- *The provision of quality seeds and provision of adequate irrigation is needed*
- *It should not be allowed to convert agricultural lands to convert residences*

6. Energy access and efficiency

- *More effective access to energy is required*
- *Alternative energy needs to be made easily accessible and affordable through a subsidy*
- *The capacity of local communities should be enhanced for alternative energy production and promotion*
- *Alternative energy needs to be provided to forest dependent communities*
- *Efforts should be made to exploit Nepal rich in hydro-power potential for energy generation*

7. Environmentally-friendly infrastructure development

- *Industries should be made liable/accountable for destroying forests*
- *The degradation of agricultural lands should be prevented by not forbidding haphazard residential growth, industrialization and road construction; because such degradation*

leads to degradation of forests

8. Sustainable tourism

- *Tourism should be made rural-focused; currently it is perceived to be urban-centred*
- *For tourism-based development, the capacity of local people need enhancing*

9. Forest and non-forest enterprises

- *While industrialising, pollution has to be prevented*

10. Law enforcement and good governance

- *The participation of indigenous/ethnic, dalit and Muslim communities in forest governance should be legally ensured*
- *Legal procedures should be simplified*
- *For good governance of the forestry sector, capacity development of local citizens is necessary*

11. Land use planning for each of the physiographic regions

- *MRV human resources development, capacity-building and implementation should be devolved to the level of DDCs, VDCs and Wards*

12. Institutional architecture

- *The role of local agencies in REDD+ implementation needs to be clarified*
- *Along with national level institutions, regional level and local level institutions should be established*

Following new strategic options were recommended:

13. Respect and promotion of local knowledge, skills and values

14. Conservation of cultural diversity

15. Social cohesion and solidarity

16. REDD+ as the national priority

Box A7. 3 records the views on the ESMF of participants attending a Regional Consultation Meeting in Pokhara held on 27 December 2013.

Box A7.3: Views on Role of District Level Institutions on Implementation of ESMF

Role of District Development Committee (DDC): As the local governance institution comprising people's representatives, the DDC office should be in overall charge of REDD+ activities such as formulation of criteria, seeking proposals, selecting projects, monitoring, supervising and conducting periodic impact evaluation.

Role of District Forest Office (DFO): As the district level technical agency, the DFO should be responsible for screening proposed REDD+ activities and selecting projects in coordination with DDC office.

Role of academic/research institutions: Academic and research institutions should be involved in environment and social preparatory studies and independent impact evaluations of REDD+ activities and projects. In the initial stages, district level academic/research institutions may not have adequate capacity to conduct preparatory studies and/or impact evaluation. In this context, central level academic/research institutions should be engaged to work in coordination with district level academic/research institutions - aiming to develop the capacity of local institutions.

APPENDIX 8. ENVIRONMENT IMPACTS OF OPTIONS

8.1 Environment impacts of Option 1: Land tenure, carbon rights and benefit sharing: Enabling fairness and effectiveness in carbon rights and benefit sharing

Positive impacts	Negative impacts
1a: Define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation	
<ul style="list-style-type: none"> Improved conservation and NRM (with better incentives) Increased/maintained ecosystems services beyond regulating services (i.e, provisioning and supporting services) 	<ul style="list-style-type: none"> It might too carbon centric (biodiversity get low priority)
1b: Increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address (fragmentation) and inequity	
<ul style="list-style-type: none"> Better conservation and NRM (with better incentives) 	<ul style="list-style-type: none"> Over harvesting Loss of biodiversity and ecosystem services (indiscriminate thinning of forest) Might lead to forest clearing to establish permanent settlements and cultivation areas
1c: Establish clear and legally defined benefit sharing mechanisms that can deliver to grassroots levels	
<ul style="list-style-type: none"> Increased incentive for conservation and REDD co-benefits (biodiversity conservation) 	<ul style="list-style-type: none"> Over exploitation of forest if no proper legal instrument and management plan are in place or not enforced
1d Establish and strengthen (gender-sensitive) grievance-addressing mechanisms	
<ul style="list-style-type: none"> Reduce potential for using unsustainable land use practices such as fire and over- or illegal harvesting of timber and fuelwood Reduced potential for marginalized people to engage in illegal activities that degrade carbon stocks and biodiversity 	
1e Enhancing local (forest related) voices to influence decision making at all levels	
<ul style="list-style-type: none"> Management decision can be made on local knowledge 	<ul style="list-style-type: none"> Can increase the destruction of forest – if the forest working policies and mechanisms are manipulated by the elite groups

8.2 Environmental impacts of Option 2: Community-based forest management (formal and customary): Strengthening institutional arrangements, technologies and sustainable management practices in forests under different tenure and management regimes

Positive impacts	Negative impacts
<ul style="list-style-type: none"> • 2a: Implement sustainable management of forests⁵⁹ (practices, technical skills and technologies including forest fire management) that enhances forest productivity under community based forest management) 	
<ul style="list-style-type: none"> • Improved biodiversity, forest quality, • Enhancement of ecosystems services in general (eg water availability; protection against landslides and other erosion hazards) 	<ul style="list-style-type: none"> • Risk of economically driven forest management reducing ecosystem services⁶⁰ & biodiversity and trade-off between biodiversity and uses
<ul style="list-style-type: none"> • 2b: Build public (local communities, wider civil society, govt. private sector) awareness (sense of responsibility) and promote attitude change towards understanding the real value of forest products and services in the context of CC and REDD+ 	
<ul style="list-style-type: none"> • Improved environmental management, and appreciation (including better choices by rural & urban population about what resources to use, and how) • Improved ecosystem services) • Improvement on and scaling up of existing traditional practices (eg individual trees given to daughters as dowry – so conserved for products) 	<ul style="list-style-type: none"> • If economic issues are given prominence, could lead to unsustainable use

⁵⁹ [Food and Agriculture Organization \(FAO\)](http://www.fao.org/docrep/003/x6896e/x6896e0e.ht) (<http://www.fao.org/docrep/003/x6896e/x6896e0e.ht>) defines sustainable forest management as: “The stewardship and use of *forests* and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.” In other words, sustainable forest management is the extraction of timber according to the annual allowable, i.e., extraction of timber below or equivalent to annual growth to maintain the forest functions in the long term. Extraction of non-timber forest products equally should be according to growth and maintenance of diversity.

⁶⁰ An ecosystem is a dynamic complex of plant, animal, and microorganism communities and the non-living environment interacting as a functional unit. Humans are an integral part of ecosystems. Ecosystems vary enormously in size; a temporary pond in a tree hollow and an ocean basin can both be ecosystems. *Ecosystem services*. Ecosystem services are the benefits people obtain from ecosystems. These include:

- *Supporting services*: The services that are necessary for the production of all other ecosystem services including soil formation, photosynthesis, primary production, nutrient cycling and water cycling.
- *Provisioning services*: The products obtained from ecosystems, including food, fibre, fuel, genetic resources, biochemicals, natural medicines, pharmaceuticals, ornamental resources and fresh water;
- *Regulating services*: The benefits obtained from the regulation of ecosystem processes, including air quality climate, land degradation, erosion, floods, droughts, water purification, disease, pollination, natural hazard regulation;
- *Cultural services*: The non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences – thereby taking account of landscape values;

8.3: Environmental impacts for Option 3: Promotion of promotion of plantations of faster growing species (particularly native) creating mosaic landscapes.

Positive	Negative
<ul style="list-style-type: none"> • Conversion of agricultural land to timber – less fertilizers, pesticides? • Can reduce pressures on conservation areas (by reducing offtake) • Reduced pressure on timber & biomass extraction from natural forests. • Enhanced soil productivity where agroforestry systems practised. • Restored & rehabilitated degraded areas 	<ul style="list-style-type: none"> • Loss of biodiversity loss, ecosystem services – as result of mono-culture practices • Risk of soil erosion and flood (if land clear felled first) – not if conserving existing plantations, or if on degraded lands • Plantations focused on fast growing species might limit growing agriculture crop potential • Inappropriate species selection can cause water scarcity and result in soil erosion)

8.4: Environmental impacts for Option 4: Government managed forests for conservation of biodiversity and maintenance of fragile ecosystems and land

Positive	Negative
4a: Establish and strengthen protected areas and Integrated Conservation and Development Projects, and promote participatory models and ecotourism	
<ul style="list-style-type: none"> • Conservation of biodiversity (including rare & endangered species - & discourages illegal trade) • Enhancement of ecosystem services • Soil erosion control • Maintenance of watersheds & aquifers • Enhances “sense of place” & natural beauty • Protection of slopes and avoided land slides 	<ul style="list-style-type: none"> • Where combined with tourism, can generate negative impacts (eg pollution – plastic, garbage, effluent, over-harvesting of fuelwood & NTFPs), • Increased human-wildlife conflict • Negative effects of associated poorly placed/designed construction (building, roads)
4b Prepare national forestry strategy through multi-stakeholder process, incorporating specific strategies for the Mountains, Terai and Middle Hills regions	
<ul style="list-style-type: none"> • More effective strategies that address physiographic complexity and variations – promoting forest species suitable to particular areas/eco-conditions 	0
4c Improve and execute existing district forest management plans and fire management plans	
<ul style="list-style-type: none"> • Improved biodiversity conservation – if designed & implemented effectively • Improved ecosystem services • Enhanced production & sustainability of forest products • Decreased carbon emissions directly from forest burning and conversion to other land uses • Decrease soil erosion and flooding, and landslides • Removal of invasive alien species – improves regeneration of natural forest • Fire management (eg controlling intense or frequent fires) promotes regeneration of certain species (some seeds require fire to germinate) 	<ul style="list-style-type: none"> • Potential for biodiversity loss (if management focuses on economically valuable species only – neglecting traditionally valued species)

8.5: Environmental impacts for Option 5: Biodiversity and ecosystem services: *Conservation of biodiversity outside protected areas promoted*

Positive	Negative
<ul style="list-style-type: none"> Local level flora and fauna biodiversity conserved Ecosystem services identified and managed 	0

Appendix 8.6: Environmental impacts for Option 6: Payment for ecosystem services to support adoption of improved land productivity, efficient and sustainable use of resources by land users

Positive	Negative
6a. Develop & promote PES for sustainable agriculture interventions	
<ul style="list-style-type: none"> Promote maintenance and enhancement of ecosystems services Performance based compensation increases land users' commitment to implementing sustainable land use practices (reduced forest and biodiversity loss, reduced soil erosion, etc) Reduced emissions 	0
6b. Develop and promote PES for reduced emissions, watershed management and biodiversity conservation)	
As 6a	0

8.7: Environmental impacts for Option 7: Agricultural productivity and food security for small and marginal farmers: *Reducing forest encroachment through more equitable access to productive land, increased productivity with agriculture intensification and creation of off-farm employment opportunities*

Positive	Negative
7a Agro-ecological zoning (maximising production potentials for each land category) at national and local levels	
<ul style="list-style-type: none"> • Land use according to potential • Use of traditional crop varieties suitable in particular agro-ecological zones increases stock of locally-adapted and resilient germplasm • More sustainable land management 	<ul style="list-style-type: none"> • If it promotes monoculture and use of GMOs, then can reduce crop diversity, & affect resilience and adaptation to changing climate
7b Agricultural intensification (increasing productivity through climate smart agriculture, including agroforestry)	
<ul style="list-style-type: none"> • Conservation of agro-biodiversity • Improvement of soil quality • Avoided deforestation through prolonged production on particular plots will contribute to maintaining or enhancing carbon stocks and biodiversity • Reduces severity of driver (small scale farmers) • Agricultural practices improved • Better land & crop management (eg less erosion, avoided deforestation if agriculture more productive) • Reduced land degradation (shifting agriculture tends to induce soil erosion) • Enhanced carbon sequestration, flood regulation (from perennial crops - trees) 	<ul style="list-style-type: none"> • Risk of increased use of fertilizers/pesticides, and environmental issues related to it. • Erosion/ soil quality / loss of agro-diversity due to use of GMO/ • Increased productivity might generate potential high profits which could incentivise clearing of forests for agriculture • Over-abstraction of water for irrigation affecting ecosystem functioning • Increased potential for use of GMOs affecting crop diversity and indigenous crop varieties
7c Promote the application of Sloping Land Agriculture Technologies [contours with fodder trees/grasses in bari lands]	
<ul style="list-style-type: none"> • Reduces soil erosion – improved terracing, reduced landslides • Potential water retention for crop development • Prevention of runoff and siltation 	<ul style="list-style-type: none"> • If applied to uncultivated areas, then risk of soil erosion/landslides
7d. Promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies)	
	<ul style="list-style-type: none"> • Potential increased use of fertilizers and pesticides if subsidies applied to these (pollution & health issue)
7e Promote multi-purpose fodder management, stall feeding and scaling up of fodder reserve systems, especially silage and hay, for use during slack periods	
<ul style="list-style-type: none"> • Improvement in ecosystem services • Reduced pressure on forest 	<ul style="list-style-type: none"> • Potential monoculture can affect diversity of feedstocks, increasing vulnerability to plant diseases.

- Reduced grazing pressure (optimised livestock carrying capacity and avoided overstocking)
- Can lead to increased livestock population and thus to increases emissions of methane (more hazardous GHG than CO₂)

Diversity of feedstocks:

- where tree fodder involved, can increase carbon sequestration
- Feed grasses (eg Napier) can reduce soil erosion

7f Promote access to crop & livestock breeding improvement programs

- Increased animal population likely to increase excrements that can be used for production of biogas (reduce pressure on forests for biomass energy) and organic manure (improved soil fertility and crop production)
- If monoculture crops promoted, then negative impacts (as above)

8.8: Environmental impacts of Option 8: Energy access and efficiency: Ensuring access to affordable, reliable and sustainable sources of energy to all

Positive	Negative
8a: Sustainable management of natural wood fuel resources	
<ul style="list-style-type: none"> • Conservation of forests and biodiversity from implementation of management plans • Illegal harvest of forest products reduced • Maintenance & increase of trees (biomass: carbon sequestration) • Enhanced ecosystem services • Increase in effective rainfall, reduction of erosion & run-off, improved land stability 	<ul style="list-style-type: none"> • Depends on how managed: If focus only on sustainably harvesting (pruning) existing resources, then no negative impact. But – if valuable species planted or competitive species removed, this might reduce biodiversity
8b: Active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber	
<ul style="list-style-type: none"> • Soil conservation (planting on terrace edge contour bunds) • Creation of micro-habitats/corridors for wildlife • Increased ecosystem services (improved soil fertility, erosion control, water regulation) • Increase in extent & quality of forest • Avoided deforestation 	<ul style="list-style-type: none"> • Threat to biodiversity (if forest clearing & monoculture promoted)
8c: Increase investment and access to fuel wood efficient and alternative energy technologies (including improved cooking stoves), for forest-dependent poor and marginalised people, and to reduce urban demand for fuelwood.	
<ul style="list-style-type: none"> • Reduces levels of deforestation & biodiversity loss • Reduced emissions of carbon dioxide – by 	<ul style="list-style-type: none"> • Promoting use of briquettes on a country-wide basis, could stimulate over-harvesting of forest biomass to supply the industry.

Positive	Negative
<ul style="list-style-type: none"> reducing amount of fuelwood harvested • Reducing emissions of carbon monoxide by more efficient burning • Less loss of forests and thus increased potential for biodiversity conservation and maintenance of ecosystems services • Decrease in environmental pollution (smoke in HH) 	<p>[cumulative impact]</p> <ul style="list-style-type: none"> • Localised loss of soil (borrow pits) for mixing with char in briquette making
<p>8d: Promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro) linking the energy end-use to enterprise development/income generation</p>	
<p>ALL</p>	
<ul style="list-style-type: none"> • Less pressure on forests, reduced forest degradation – GHG emission reduction (avoids negatives of fuelwood or gas) 	
<p><u>Hydro schemes</u></p>	<p><u>Hydro-schemes</u></p>
<ul style="list-style-type: none"> • Can involve improvements to watersheds (planting trees, slope stabilisation measures) – usually upstream of intakes (downstream might get neglected) 	<ul style="list-style-type: none"> • Changes to river courses – creating ‘low flow zones’ between intakes and tail races (changed ecosystem) – can be extensive • During construction – lots people living near to river – over-fishing (sometimes use of dynamite) • Small scale (but locally important) land use change – some productive agricultural lands may be lost in flat areas (where facility construction happens) • Disturbance to fish migration routes through ‘low flow zones’ • Forest loss to create space for facilities • Temporal disturbance to wildlife – particularly during construction • Construction of associated power lines: deforestation of power line route; fragmentation of forests/habitats; road construction and vehicular dust; • Quarrying for materials: destabilising slopes
<p><u>Biogas</u></p>	
<ul style="list-style-type: none"> • Reduces waste (ie natural loss of gases – preventing release of methane). Biodigesters capture methane - converts to CO₂) • Manure as bi-product 	
<p><u>Solar panels</u></p>	<p><u>Solar panels</u></p>
<ul style="list-style-type: none"> • Placing of solar rarely impedes on land use 	<ul style="list-style-type: none"> • Problem disposing of batteries (lead, acids,

Positive	Negative
	etc)

Appendix 8.9: Environmental impacts for Option 9: Environmentally-friendly infrastructure construction and maintenance

Positive	Negative
9a: Ensuring sustainability of rural road construction and maintenance by considering environmental, social and economic aspects	
9a.1: Ensure integrated local-level road route planning, implementing, monitoring and evaluation of road projects through democratic and inclusive decisions, decentralised and participatory planning	
(i) Planning	
<ul style="list-style-type: none"> Maintenance of ecosystem services 	
(ii) Construction	
<ul style="list-style-type: none"> Green roads promote tree planting on vulnerable slopes 	<ul style="list-style-type: none"> Landslides (if bulldozers used) and cutting trees Side casting road debris kills vegetation
(iii) Operations	
	<ul style="list-style-type: none"> Increased loss of forests resulting from increased accessibility to remote areas
9a.2: Provide for compulsory tree planting to substitute forest cleared for roads	
<ul style="list-style-type: none"> Trees planted on barren and fallow agriculture lands Decrease impact of landslides 	
9a.3: Use of sustainable technologies, and inbuilt maintenance and repair arrangements	
9a.4: Ensure effective IEE and EIA for all forest land use conversion for road construction	
<i>Comment: Focussing too much on environment sometimes causes lapses in rights, so need to strike balance between both ecological and rights based approaches while thriving for sustainability)</i>	
<ul style="list-style-type: none"> Promotes maintenance of ecosystem services Environmental mitigation measures applied – reducing risk of environmental hazards/disaster 	
9b: Other infrastructure ensuring sustainability of rural infrastructure development and maintenance by considering environmental, social and economic aspects	
9b.1: Ensure integrated local-level planning, monitoring and evaluation of infrastructure development projects (implementing, monitoring and evaluation of construction projects through democratic and inclusive decisions, decentralised and participatory planning)	
<i>(need also to address infrastructure development planning for major/mega projects (eg hydropower and industrial facilities)</i>	
<ul style="list-style-type: none"> Reduced loss of forests, biodiversity & ecosystem services 	<ul style="list-style-type: none"> Infrastructure likely to stimulate unplanned settlement (increased demand on forest products – with negative environmental impacts)

Positive	Negative
9b.2: Provide for compulsory tree planting to substitute forest cleared for infrastructure development	
<ul style="list-style-type: none"> Rehabilitation and restoration of degraded lands and enhancement of carbon stocks Promotes mosaic landscapes if involves multi-species planting (including plantation of native species) Leguminous trees may stimulate restoration of soil fertility 	<ul style="list-style-type: none"> Potential for plantation of exotic species in monocultures (reduced biodiversity, increased susceptibility to plant diseases, potential for planted species to displace native species in adjacent areas – Eucalypts degrade water tables)
9b.3: Ensure effective IEE and EIA for all forest land use conversion for other infrastructure development (including tourism ventures, expansion of settlements – e.g. green urbanization) (impacts dependent on types of infrastructure)	
<ul style="list-style-type: none"> Environmental mitigation measures applied – reducing risk of environmental hazards/disaster, minimising forest loss and ecosystem degradation, etc 	

8.10: Environmental impacts of Option 10: Forest and no-forest enterprises: Promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people

Positive	Negative
10a Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector (for both timber and NTFPs, including ecotourism)	
<ul style="list-style-type: none"> Promotes biodiversity Sustainable harvesting practiced Promote maintenance of landscapes and scenic views 	<ul style="list-style-type: none"> Increased value of forest products might increase the demand for raw materials, causing illegal logging, forest degradation and loss of carbon
10b Scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural areas to reduce forest dependency	
<ul style="list-style-type: none"> Reduces forest degradation and biodiversity loss, and Improves ecosystem services (through creating alternative livelihood opportunities and thus reducing forest dependency and pressure) 	<ul style="list-style-type: none"> May have environmental impact on other sectors if investments not subjected to EIAs and undertaken to implement sustainable land use plans
10c Promote vocational education and skill-based training opportunities for both forest and non-forest enterprise development for economically poor and marginalized	
<ul style="list-style-type: none"> Improved management of natural resources as result of capacity built 	
10d Improve access by poor to alternative technologies (eg small sawmills carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc)	
<ul style="list-style-type: none"> Reduced pressure on forests Invasive and alien species eliminated through briquette-making 	<ul style="list-style-type: none"> Sawmills might increase timber processing capacity and thus increase tree cutting (loss of ecosystem services, biodiversity, etc) Some food processing (eg fruit preserving pickling, juicing) activities are fuel-intensive

Positive	Negative
	and could stimulate more forest loss.
10e Promote of underdeveloped markets (e.g. NTFP, ecotourism) and pilot alternative and more efficient distribution and marketing mechanisms for forest- and non-forest based enterprises (e.g., community-based, private, local-government-based)	
<ul style="list-style-type: none"> • If sustainably practiced, can maintain and enhance biodiversity and carbon stocks • Active cultivation of some NTFPs can increase forest biodiversity 	<ul style="list-style-type: none"> • If unsustainably practiced, overharvesting of some NTFP species reduced ecosystem diversity
10f Strengthen the organisation of enterprises through the development of associations, cooperatives, federations, etc. as appropriate	
<ul style="list-style-type: none"> • Organised institutions minimise people extracting forest products individually, enable a collective managed approach – and thus can indirectly lead to positive impacts on conservation of forests and biodiversity 	<ul style="list-style-type: none"> • Increased pressure on forests in order to sustain and ensure growth of operations of strengthened enterprises (scale of production likely to increase to generate profits)
10g Develop financing schemes accessible to poorer land users and women who lack collateral	
<ul style="list-style-type: none"> • Reduced dependency on forests where investment is made in alternative technologies (eg biogas) 	
10h Develop policies that encourage private investment in efficient and alternative timber technologies (e.g. bamboo housing, timber drying, timber treatment, timber processing)	
<ul style="list-style-type: none"> • Wood preservation improves product carbon storage longevity, and reduces demand (reduced deforestation). • Bi-products (eg sawdust, offcuts) can be briquetted, providing an alternative energy source, and used for mulching (later turns to manure) 	<ul style="list-style-type: none"> • If timber treatment involves chemical preservation or tanalisation – can be toxic or carcinogenic to users, especially for workers.
10i Establish a mechanism for periodic analysis of demand and supply of forest products by geographic region, and develop distribution programmed to address demand-supply gaps	
<ul style="list-style-type: none"> • Minimisation of over-extraction of forest products • Reduced pressure on degraded forests [because this intervention will identify location of surpluses and degradation] 	
10j Develop a mechanism to engage the private sector in forestry for the entire value chain of forest products, from planting to end-product development	
<ul style="list-style-type: none"> • Promotion of voluntary certification (eg FSC) of forest management and products would promote sustainable forest management practices 	<ul style="list-style-type: none"> • Cost of third party verification and auditing process may reduce uptake of such schemes - hence limiting their potential benefit to ecosystems services

8.11: Environmental impacts for Option 11: Law enforcement: *Strengthening the capacity and independence of the forest agency (personnel, systems, legal provisions, etc.) and trial and justice system, and improve functional collaboration and cooperation among government agencies, CSOs, media and private sector*

Positive	Negative-
11a Undertake institutional reform to increase accountability and transparency of all concerned agencies	
<ul style="list-style-type: none"> Improved forest management and reduced environmental impacts (by limiting potential for poor and corrupt decisions) 	
11b Strengthen the incentive (to address illegal harvesting activities) and punishment system for both government officials and community-based forest management groups	
11c Restructure and reorient/sensitize Government staff and HRD systems to reduce corruption (including Department of Forests) to ensure offenders are sacked	
11d Work with media to ‘name and shame’ individuals and organizations involved in illegal forest products trade	
<ul style="list-style-type: none"> Reduced illegal forest activities 	
11e Create better awareness (of forest-related laws) and capacity (for enforcement) amongst all law enforcement agencies e.g. police, armed police, army, border police, on forest law enforcement issues	
<ul style="list-style-type: none"> Reduced illegal forest activities 	
11f Expand participatory forest management systems to forest areas where law enforcement is difficult	
<ul style="list-style-type: none"> See Option 2 	<ul style="list-style-type: none"> See Option 2
11g Introduce pilot participatory M&E mechanisms of law enforcement at different levels	
<ul style="list-style-type: none"> Reduced illegal forest-related activities – reduced forest loss 	
11h Sensitize border authorities and explore cross-border law enforcement collaboration with Indian and Chinese (Tibetan) authorities	
<ul style="list-style-type: none"> Reduced illegal harvesting of timber and forest products (destined for export) – reduced loss of forests & emissions, ecosystem services, biodiversity 	

8.12: Environmental impacts of Option 12: Good governance and anti-Corruption: *Increasing accountability and transparency including meaningful and effective engagement of all relevant stakeholders and contributing to preventing and punishing corruption*

Positive	Negative
12a Facilitate open and constructive debate on key forest governance issues, management modalities, ways to resolving existing contestations and conflicts	
<ul style="list-style-type: none"> Should lead to improved forest management and reduced loss of forest, ecosystem services and biodiversity 	
12b Support decentralized, participatory and community based governance models (particularly as regards overseeing distribution & management of REDD+ benefits)	
<ul style="list-style-type: none"> Reduced emissions, & conservation of biodiversity 	
12c Adopt REDD+ international standards on participation, inclusion and informed decisions	
12d Support capacity building (for forest governance) of local communities, excluded groups, IP organisations, Dalits, and women’s organizations/mothers’ groups	
<ul style="list-style-type: none"> Improved management of forests – reduced loss of forests, biodiversity & ecosystem services 	
12e Sensitize various actors on issues of forest sector governance and politically-induced encroachment, including political parties through parliamentary committees	
<ul style="list-style-type: none"> More forest sensitive political decisions may result in better forest management – reduced loss of forests, biodiversity & ecosystem services 	

8.13: Environmental impacts of Option 13: Land use planning for each of the physiographic regions: *Determining the optimal land uses across the physiographic regions (Terai, Siwalik, Mid-Hills and Mountains) according to potential and in support of decision-making*

Positive	Negative
13a Establish spatially explicit information systems on land use potential, allocations and potential conflicts/complementarity with REDD+ strategic options	
<ul style="list-style-type: none"> Improved decision making about resource allocation will limit conversion of forests to other uses 	<ul style="list-style-type: none"> Concentration of activities in certain areas of high potential might accelerate forest & land degradation
13b Conduct multi-stakeholder, integrated planning processes at regional/landscape and national levels, in order to seek consensus building, validation and clarify sector and extra-sector commitments to land use recommendations	
<ul style="list-style-type: none"> Increase in appropriate/optimal land use, Reduced loss of forest cover, biodiversity & ecosystem services 	<ul style="list-style-type: none"> Lack of consensus might result in conflicting decisions with negative impacts on forests, biodiversity and carbon stocks
13c: Establish mechanisms for monitoring, reporting and verification of land use changes (and	

their impacts on commitments to achieving emissions reduction and enhancement at sub-regional/jurisdictional and national level)

Comment: Misreporting of impacts in order to ensure payments might impede/undermine conservation efforts and emissions reduction

8.14: Environmental impacts of Option 14: Institutional architecture: *Building REDD+ institutional architecture and processes that enable equity (as well as efficiency and effectiveness)*

Positive	Negative
14a Ensure development of national REDD+ financing mechanism (including benefit sharing process), and MRV systems	
<ul style="list-style-type: none"> • Reduced deforestation, forest degradation and carbon emissions. • Reduced loss of biodiversity and ecosystems services 	
14b Ensure adequate representation of women, poor and socially marginalized land users on key local decision-making bodies and processes	
14c Promote and establish decentralized and accountable multi-stakeholder forest governance structures and support multi-stakeholder district forest sector planning	
<ul style="list-style-type: none"> • Better decisions will enhance appropriate/optimum forest, land and resource use – general environmental benefits 	<ul style="list-style-type: none"> • The ‘voice’ of forest interests may be diluted by other interests in a multi-stakeholder forum – leading to compromises that result in loss of forest areas
14d Strengthen coordination mechanisms for promoting policy and planning linkages among the MoFSC, National Planning Commission, Finance, Land Reform and Agriculture Ministries	
<ul style="list-style-type: none"> • Better decisions will enhance appropriate/optimum forest, land and resource use – general environmental benefits 	<ul style="list-style-type: none"> • The voice of MoFSC may be diluted by other sector interests – leading to compromises that result in loss of forest areas
14e Analyse fiscal policies and opportunities for raising national funds to support climate change mitigation including performance-based payment mechanisms.	
<i>Comment: Elimination of perverse investment incentives can contribute to better environmental management</i>	<i>Comment: Continuing business as usual in investment policies can cause negative environmental impacts</i>

APPENDIX 9. SOCIAL IMPACTS OF OPTIONS

9.1: Social Impacts of Option 1: Land tenure, carbon rights and benefit sharing: *Enabling fairness and effectiveness in carbon rights and benefit sharing*

Positive impacts	Negative impacts
1a: Define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation	
<ul style="list-style-type: none"> • Security of access, control & rights (to land & forest resources (including carbon rights) – including through safeguards implementation • Empowerment/ autonomy of local communities in decision making (including the poor, marginalised groups & women) • Conservation and sustainable use of NR might also strengthen cultural services (ie cultural/religious reverence for particular natural resources, eg water, certain tree species) 	<ul style="list-style-type: none"> • Increased value of forests due to carbon rights and performance based payment may push poor local communities onto marginal lands and erode their user rights. • Unclear on definition can lead to unequal benefit sharing • Exclusion of landless • inheritance law and practice can limit women’s benefit • Community contestation of rights • IP might lose land
1b: Increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address (fragmentation) and inequity	
<ul style="list-style-type: none"> • Social gaps minimised • More forest products for users • Improved health, particularly for women • Poverty reduction (enhancement of livelihood opportunities) • Gender-based knowledge of resource use/management recognised by policy-makers 	<ul style="list-style-type: none"> • Elite capture and poor governance • Inequitable access • Conflict between community groups, HHs, forest workers, etc. • Politicisation of community decisions • Lack of timely and complete information can exclude women from claiming their rights and benefitting from REDD+ (<i>criteria for quotas & benefit-sharing needs to be defined</i>)
1c: Establish clear and legally defined benefit sharing mechanisms that can deliver to grassroots levels	
<ul style="list-style-type: none"> • Improved understanding/ enhancement of rights and benefits • Incentives for investment (at household and community levels) in alternative livelihoods 	<ul style="list-style-type: none"> • Inequitable benefit sharing (in and between HH, community, district, etc) depends on the setup of the BS mechanism • Women might lose access to and control over forest resource once it is legally becomes a market oriented commodity
1d: Establish and strengthen (gender-sensitive) grievance-addressing mechanisms	
<ul style="list-style-type: none"> • Voice for the powerless • Womens’ voices & concerns taken into consideration 	<ul style="list-style-type: none"> • Cost, time
1e: Enhancing local (forest related) voices to influence decision making at all levels	
<ul style="list-style-type: none"> • Empowerment of women, local communities and IPs [<i>overcoming problem of systematic exclusion of women</i>] 	

9.2: Social impacts of Option 2: Community-based forest management (formal and customary): Strengthening institutional arrangements, technologies and sustainable management practices in forests under different tenure and management regimes

Positive impacts	Negative impacts
<p>2a: Implement sustainable management of forests (practices, technical skills and technologies) that enhances forest productivity under community based forest management regimes (including forest fire management)</p>	
<ul style="list-style-type: none"> • Increased capacity of local communities in forest management • Increase livelihoods, income, and social benefits in education and health, etc • Maintain cultural norms (eg sustainable production of fuelwood - a particular norm in mountain areas where stock of wood is one indicator of wealth • With expanding community-based management, this could make it less easy for private sector entrepreneurs to operate their forest businesses (ie harder to acquire timber by bribing officials – communities likely to be less easy to bribe) 	<ul style="list-style-type: none"> • Lost access and opportunity to use forest products • Gender related conflicts (timber is priority for men, and fodder and fuel wood for women) • Women may be excluded from - capacity building for REDD implementation (experience from the pilot projects)
<p>2b: Build public (local communities, wider civil society, govt. private sector) awareness (sense of responsibility) and promote attitude change towards understanding the real value of forest products and services in the context of CC and REDD+</p>	
<ul style="list-style-type: none"> • Incorporation of traditional knowledge used in sustainable management into education curricula & awareness programs • Improvement on and scaling up of existing traditional practices (e.g. individual trees given to daughters as dowry – so conserved for products) • Revitalisation of traditional practices in valuing forests • Increased community participation in forest management & conservation 	<ul style="list-style-type: none"> • Raising awareness raises expectations- if not met (e.g. raised incomes not realised), can lead to social conflict, eroded trust • As raised awareness can lead to land grabbing (by anyone with information, knowledge, connections, financial resources, etc.) • Awareness-raising not reaching target groups

9.3: Social impacts for Option 3: Private forestry - promotion of plantations of faster growing species (particularly native) creating mosaic landscapes.

Positive	Negative
<ul style="list-style-type: none"> • New economic opportunities, & support for livelihoods if plantation models are adopted that include out growers and other inclusive business models. • Improvement in supply of forest products. • Potential for cooperatives to emerge (except for small & marginal landowners & landless) • Private sector investment increases employment opportunities – but the poor may not necessarily benefit – would require measures to ensure employment of forest-dependent people) • Generation of revenue from corporate and individual income as well as value added and export taxes 	<ul style="list-style-type: none"> • Conversion of agriculture land to timber plantations – reduced food production; reduced employment Communities/small & marginal land holders/poor, not likely to gain – unless they can gain access to land and engage in restoration. • Monopoly of private owners in setting timber prices (eg to out growers and market) • Potential for land grabbing (if large scale) • Potential for inequity if benefits from carbon revenue accrues to large scale forestry landowners only • Collective ownership of forest by IPs threatened • Emphasis on commercial value of forests supersedes culture and spiritual values and ties of IPs with forests • Possibility for labour exploitation.

9.4: Social impacts of Option 4: Government managed forests

Positive	Negative
4a: Establish and strengthen protected areas and Integrated Conservation and Development Projects, and promote participatory models for protected area management and ecotourism	
<ul style="list-style-type: none"> • Participatory models generate opportunities for enterprises, income generation, employment (eg, from eco tourism), improved livelihoods 	<ul style="list-style-type: none"> • If participatory models not effective, elites could capture access & benefits • Health risks (from tourists bringing diseases), unsanitary latrines (open defecation), prostitution, • Cultural insensitivity (provocative dressing and insensitive behaviour) – particularly conservative communities, wrong behaviour in temples, etc. <p>Increased incidence of people-park conflict:</p> <ul style="list-style-type: none"> • Human-wildlife conflict; • Violence against women by forest guards, when extracting fuel wood, water, fodder, etc.) • Collection of forest products is restricted, directly impacting on forest dependent communities(loss of access to forest products). indigenous people may be negatively impacted • Lost economic opportunities if activities restricted eg collection of forest products by forest dependent communities) products) under PA status (eg agriculture) • Eviction of indigenous peoples and local communities from their ancestral land and territories
4b Prepare national forestry strategy through multi-stakeholder process, incorporating specific	

Positive	Negative
strategies for the Mountains, Terai and Middle Hills regions	
<ul style="list-style-type: none"> • More effective strategies that address physiographic complexity and variations – promoting forest management & use suitable to particular socio-economic & cultural conditions • Increase in sense of ownership among the all stakeholders of the strategy, thus easy to implement in practice 	0
4c Improve and execute existing district forest management plans and fire management plans	
<ul style="list-style-type: none"> • By improving possibility for communities to manage forests improves their forest management knowledge and skills • Promotes inclusion of IPs and local communities in forest management, acknowledging their roles and rights • Increased availability of forest products – leading to improved livelihoods, income, health (medicinal herbs and NTFP, able to collect nearby) 	<ul style="list-style-type: none"> • Potential to ignore traditional/ indigenous/gender-specific knowledge • Potential restrictions on traditional rights for using forest products • Fire elimination may reduce traditional cultural practices such as burning to encourage new growth of fodder grasses

9.5: Social impacts for Option 5: Biodiversity and ecosystem services: *Conservation of biodiversity outside protected areas promoted*

Positive	Negative
5a: Biodiversity conservation in managed ecosystems for sustaining livelihoods (including through local land use planning; and complementary implementation of CBD and UNFCCC (REDD+ co-benefits)	
<ul style="list-style-type: none"> • Increased economic value of natural assets • Potential for access and benefit sharing • Improved livelihoods • Biodiversity conservation results in performance based payments to the country and land users 	<ul style="list-style-type: none"> • Limit to access and benefit of the resources • Potential increase human and wildlife conflicts

9.6: Social impacts for Option 6: Payment for ecosystem services

Positive	Negative
6a. Develop & promote PES for sustainable agriculture interventions	
<ul style="list-style-type: none"> Increases existing source(s) of income Strengthened rights to resources managed sustainably 	<ul style="list-style-type: none"> Large transaction costs (time) (to individuals implementing sustainable practices) <p><i>Comment: If PES payments are made to User Groups, then they will need to establish mechanisms to ensure compensation payments reach the HH level.</i></p>
6b. Develop and promote PES for reduced emissions, watershed management and biodiversity conservation)	
As 6a	<ul style="list-style-type: none"> Large transaction costs (time) (to individuals) <p><i>Comment: If payments not transparent and equitable, then conflicts could arise (some users communities may be making only limited (or no) investments in sustainable watershed management – yet receive payments</i></p>

9.7: Social impacts for Option 7: Agricultural productivity and food security for small and marginal farmers: *Reducing forest encroachment through more equitable access to productive land, increased productivity with agriculture intensification and creation of off-farm employment opportunities*

Positive	Negative
7a Agro-ecological zoning (maximising production potentials for each land category) at national and local levels	
<ul style="list-style-type: none"> Opportunity for women and socially disadvantaged groups to be aware of land use policies. Increased production & generation of surplus for market. Understanding of agro-ecological potential by land users will lead to better decisions about crops to grow – eg use of traditional crop varieties suitable in particular agro-ecological zones can enhance productivity – thus food security, health, livelihoods, etc 	<ul style="list-style-type: none"> High productive areas allocated to certain groups with influence at expense of others (women and marginalized groups, IPs)
7b Agricultural intensification (increasing productivity through climate smart agriculture, including agroforestry)	
<ul style="list-style-type: none"> Food security/ nutrition Increased income from selling surplus agricultural products & poverty reduction, etc Promotion of local knowledge and resources Use of fair trade schemes to add value of 	<ul style="list-style-type: none"> Increased dependency on external inputs Health risk from chemicals Lack of awareness about appropriate use of chemical fertilizers/pesticides due to lack of education and knowledge of women, IPs, poor, Dalit and the marginalized population Limited purchasing capacity of inputs

Positive	Negative
<p>the product and ensure benefits accrue to land users</p> <ul style="list-style-type: none"> Where multiple crops are produced per year – supports livelihoods 	<p>(improved seeds, fertilisers, seedlings) can limit potential gains</p> <ul style="list-style-type: none"> Doesn't achieve food security if intensification promotes crops not for local consumption Inequitable distribution of subsidies to poor and marginal people Small farmers will be out-competed by large scale farmers. Loss and devaluation of women IK Risk of failure of experimental climate smart agri-technology, farmers suffer Social conflict between large- and small-scale farmers in accessing productive land, scarce irrigation water and government incentives Increased costs of production Women and socially excluded groups – may not be able to access fertilizers
<p>7c Promote the application of Sloping Land Agriculture Technologies [contours with fodder trees/grasses in bari lands]</p>	
<ul style="list-style-type: none"> Increase in agric. Productivity, leading to surplus, increased incomes, food security, nutrition, etc – especially for marginal farmers 	<ul style="list-style-type: none"> Costs to implement
<p>7d. Promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies)</p>	
<ul style="list-style-type: none"> Subsidies can promote investment leading to increased income, improved livelihoods, food security, etc 	<ul style="list-style-type: none"> Social conflict between large- and small-scale farmers in accessing government incentives (tariff reductions, tax exemptions/variations -eg based on land holding size- subsidies) Potential that women and socially excluded groups do not get adequate and timely information about subsidies etc.
<p>7e Promote multi-purpose fodder management, stall feeding and scaling up of fodder reserve systems, especially silage and hay, for use during slack periods</p>	
<ul style="list-style-type: none"> New knowledge regarding fodder preservation if adapted to local context Increased livestock production – thus more products, health benefits, income, etc Women's time saved from fodder collection 	<ul style="list-style-type: none"> Increased labour requirements to manage feedstock production & livestock Elite & big farmers benefit
<p>7f Promote access to crop & livestock breeding improvement programs</p>	
<ul style="list-style-type: none"> Increased production, improved food 	<ul style="list-style-type: none"> Rich farmers benefit directly

Positive	Negative
<p>security/nutrition, health</p> <ul style="list-style-type: none">• Increase in dairy production – better livelihoods• New knowledge	<ul style="list-style-type: none">• Women and socially excluded groups not able to access information about improved breeds

9.8: Social impacts of Option8: Energy access and efficiency: *Ensuring access to affordable, reliable and sustainable sources of energy to all*

Positive	Negative
8a: Sustainable management of natural wood fuel resources	
<ul style="list-style-type: none"> • Reduction in women’s workload (time for collecting etc) and drudgery (women would have to walk less to collect) • Positive impact on family’s nutrition due to adequately cooked food • Reduction of temptation to harvest fuelwood from neighbouring communities’ forests (reducing potential for conflict).[= leakage issue] 	<ul style="list-style-type: none"> • [speculative] Decreased dependency on cooking gas and increase use of fuelwood would affect health (more smoke) and increase kitchen chores (chopping wood, blowing fires)
8b: Active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber	
<ul style="list-style-type: none"> • Reduction in women’s workload and drudgery [<i>but can also increase workload for planting and tending</i>] – so clarify • Easy access to cooking and fodder trees • Home garden established • Income generation – from forest products • Positive impact on family’s nutrition due to adequately cooked food • Increased income by selling timber and/or expenditure saving from the use of timber for household purposes [<i>but inconsistent supply & insignificant amounts</i>] 	<ul style="list-style-type: none"> • Large costs • Small-scale farmers do not benefit directly
8c: Increase investment and access to fuel wood efficient and alternative energy technologies (including improved cooking stoves), for forest-dependent poor and marginalised people, and to reduce urban demand for fuelwood.	
<ul style="list-style-type: none"> • Access to cleaner energy – leading to: improvement in health of the family members in general and women’s health in particular due to: <ul style="list-style-type: none"> (a) Less smoke, and (b) Access to improved cooking stoves • Improved health (women and children) and reduced ARI problems • Reduction in women’s workload and drudgery 	<ul style="list-style-type: none"> • If briquette ‘industry expands, then could generate conflict between those involved in this collecting/charring (poor) and other members of CFUGs (richer) [Dolakha & Sindupolchak] • Increased costs of production • Poor people cannot afford
8d: Promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro) linking the energy end-use to enterprise development/income generation	
ALL	ALL
<ul style="list-style-type: none"> • Greater access to clean /alternative energy • Improvement in livelihoods and health of the family members in general and women’s health in particular due to access to clean energy 	<ul style="list-style-type: none"> • Not using fuelwood means no burning in fireplace – traditionally the cultural focus in the home – and colder houses [particularly in high mountains] • Marginalised have less access to credit

Positive	Negative
<ul style="list-style-type: none"> Reduction in women’s workload and drudgery Availability of electric lights for school children and women to study at home Less time of fuelwood collection – more time for other activities 	<p>schemes; not able to repay loans</p>
<p><u>Hydro-schemes</u></p> <ul style="list-style-type: none"> Legal requirement that affected families must have allocation of shares in hydro schemes 	<p><u>Hydro-schemes</u></p> <ul style="list-style-type: none"> Loss of property (land & buildings) – diminished farmland, loss of agricultural productivity Hydro scheme electricity feeds into national grid, but local communities may not have access [need rural electrification to mitigate] When water diverted, existing water use/rights can be compromised (eg access to drinking water, small water mills, irrigation)
<p><u>Biogas</u></p> <ul style="list-style-type: none"> Opportunity for entrepreneurship and income generation, improved livelihoods Opportunity for powered milling and grinding leading to reduction in women’s workload and drudgery Electricity powered community Mills Overcomes the problems of elite capture Reduced dependence of forests for fuelwood 	<p><u>Biogas</u></p> <ul style="list-style-type: none"> Not accessible to the poorest without land and animals Potentially disrespects some peoples’ traditional forms of energy (woodfuel)
<p><u>Solar panels</u></p> <ul style="list-style-type: none"> Particularly beneficial to those with no grid connection (get subsidised equipment from suppliers) 	

9.9: Social impacts of Option 9: Environmentally-friendly infrastructure construction and maintenance

Positive	Negative
9a: Ensuring sustainability of rural road construction and maintenance by considering environmental, social and economic aspects	
9a.1: Ensure integrated local-level road route planning, implementing, monitoring and evaluation of road projects through democratic and inclusive decisions, decentralised and participatory planning	
(i) Planning	
<ul style="list-style-type: none"> • Feeling of ownership and sustainability of development projects 	
(ii) Construction	
<ul style="list-style-type: none"> • Employment opportunity to local women, poor, IPs and Dalits in road construction and maintenance 	
(iii) Operations	
<ul style="list-style-type: none"> • Better road access & improved livelihoods • Improved access to markets, and ability to sell products at higher prices • Access to service deliveries • Reduced market price of basic needs commodities • All weather access to school for children 	<ul style="list-style-type: none"> • Exposure to unhealthy fast/fad-foods (now transported in) • Village goods become expensive to local consumers
9a.2: Provide for compulsory tree planting to substitute forest cleared for roads	
Depends on how planting implemented:	
<ul style="list-style-type: none"> • Possible employment in tree-planting • Possible supply of saplings to communities for planting (and future income generation) 	
9A.3: Use of sustainable technologies, and inbuilt maintenance and repair arrangements	
<ul style="list-style-type: none"> • Capacity development of local communities in road building and maintenance • Local skills developed • Local employment increased 	<ul style="list-style-type: none"> • Elite get more contracts
9A.4: Ensure effective IEE and EIA for all forest land use conversion for road construction	
<i>Comment: Focussing too much on environment sometimes causes lapses in rights, so need to strike balance between both ecological and rights based approaches while thriving for sustainability)</i>	
<ul style="list-style-type: none"> • A major safeguard if social issues addressed in IEE/EIA • Effective EIA will identify compensation due to affected groups 	
9b: Other infrastructure ensuring sustainability of rural infrastructure development and maintenance by considering environmental, social and economic aspects	
9b.1: Ensure integrated local-level planning, monitoring and evaluation of infrastructure development projects (implementing, monitoring and evaluation of construction projects through democratic and inclusive decisions, decentralised and participatory planning) (need also to	

Positive	Negative
<p><i>address infrastructure development planning for major/mega projects (eg hydropower and industrial facilities),</i></p> <ul style="list-style-type: none"> Public awareness of infrastructure development plans Implementation of plans can provide employment to local communities 	
<p>9b.2: Provide for compulsory tree planting to substitute forest cleared for infrastructure development</p> <ul style="list-style-type: none"> Generation of rural employment and income (in tree planting, maintenance and subsequent primary and secondary processing industries) Availability of timber for sustainable enterprises 	
<p>9b.3: Ensure effective IEE and EIA for all forest land use conversion for other infrastructure development (including tourism ventures, expansion of settlements – e.g. green urbanization) (impacts dependent on types of infrastructure)</p>	
<ul style="list-style-type: none"> Promotes use of indigenous knowledge on low impact construction Local people informed about the impacts of infrastructure and potential mitigation measures 	<ul style="list-style-type: none"> Poor/inadequate IIE/EIA can overlook/ignore the need for compensation where forests land will be lost for infrastructure development, and might impoverish local communities

9.10: Social impacts of Option 10: Forest and non-forest enterprises: Promoting diversified and sustainable forestry and non-forestry enterprise development and employment generation for forest dependent poor and marginalised people

Positive	Negative
<p>10a Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector (for both timber and NTFPs, including ecotourism)</p>	
<ul style="list-style-type: none"> Improved livelihoods and alternative income sources Community value added products have access to markets Biological resources converted into marketable products Opportunity for women’s cooperative enterprises Women’s access to and control over their income leads to household poverty reduction Mitigates conflict between state and people Added value to forest products Increased forest revenue from taxation (royalties and value added) 	<ul style="list-style-type: none"> Elite groups more active If no dedicated financial & organisational support, then marginalized groups may not benefit Potential for not promoting gender friendly forest based enterprises Potential for not providing decent jobs and working conditions.
<p>10b Scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural areas to reduce forest dependency</p>	

Positive	Negative
<ul style="list-style-type: none"> Increased household income, improved forest-based and off-farm livelihoods <p>Employment opportunities:</p> <ul style="list-style-type: none"> Shift from unpaid to paid work; Reducing youth unemployment at community level (<i>youth are a significant proportion of the population</i>) 	<ul style="list-style-type: none"> The poor & marginalised (more likely to be un-informed) may not get access to new employment opportunities. Access to credit is key to establishment of businesses, if not widely accessible to all groups might exclude women and vulnerable groups
<p>10c Promote vocational education and skill-based training opportunities for both forest and non-forest enterprise development for economically poor and marginalized</p>	
<ul style="list-style-type: none"> Improved capacity of local stakeholders for implementing sustainable enterprises Human resources development of women, poor and marginalized people; Improved livelihoods and employment and income generation opportunities at the community level Poverty reduction for dalits and IPs and the poor (if access to finance available to the poor – see 10g) 	<p><i>COMMENTS</i></p> <p>(a) Risk that the poor, women & marginalised may not actually get access to education/training – the elite are more active</p> <p>(b) Need to convey technical information simply, otherwise uneducated (poor, women, etc)</p> <p><i>Cannot benefit from training</i></p> <ul style="list-style-type: none"> Potential of women and excluded groups to be excluded from inputs and resources (due to lack of adequate, timely information; training design; timing etc.)
<p>10d Improve access by poor to alternative technologies (eg small sawmills carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc)</p>	
<ul style="list-style-type: none"> Reduction in Women’s workload and drudgery resulting in improved health Potential for promoting gender friendly technologies (eg improved looms) Access to clean energy leads to improvement in overall family health Improved livelihoods & enterprise development and income generation opportunity for the poor 	<ul style="list-style-type: none"> Technology may displace indigenous knowledge, skills & practices
<p>10e Promote of underdeveloped markets (e.g. NTFP, ecotourism) and pilot alternative and more efficient distribution and marketing mechanisms for forest- and non-forest based enterprises (e.g., community-based, private, local-government-based)</p>	
<ul style="list-style-type: none"> Income generation & employment opportunities at the community level, improving livelihoods, reducing poverty Increased revenue for the state If law/regulations changed, then will legitimise offtake of certain previously prohibited NTFPs (eg bamboo & fern shoots, wild yams). 	<ul style="list-style-type: none"> Women and marginalised may lose free access to NTFPs due to elite capture of the market (free because when no market, elites not interested) <p><i>Comment: Government needs to ensure that women & marginalised can benefit directly from</i></p>

Positive	Negative
<ul style="list-style-type: none"> • NTFP enterprises • supported to access niche markets including fair trade • Active identification and support of NTFP where women can generate more value 	<p><i>new markets</i></p>
<p>10f Strengthen the organisation of enterprises through the development of associations, cooperatives, federations, etc. as appropriate</p>	
<ul style="list-style-type: none"> • Capacity development of local level associations, etc. (including women, marginalised) and special women’s cooperative enterprises). • Improved role of communities in enterprise decision-making. 	<ul style="list-style-type: none"> • Token participation of women, dalits, janajatis and others • Associations formed to focus on a particular (narrow) issue tend to lose sight of broader concerns, and when they gain strength can become radicalised
<p>10g Develop financing schemes accessible to poorer land users and women who lack collateral</p>	
<ul style="list-style-type: none"> • Access to credit by women and the poor – enabling enterprise development and income generation, poverty reduction, improved health, etc 	<ul style="list-style-type: none"> • Conflicts over who is judged to be eligible for finance
<p>10h Develop policies that encourage private investment in efficient and alternative timber technologies (e.g. bamboo housing, timber drying, timber treatment, timber processing)</p>	
<ul style="list-style-type: none"> • Value addition to existing forest products and opportunity for marketing • Employment opportunities 	<ul style="list-style-type: none"> • Risk of poor and marginalized people losing access to and control over local forest products
	<ul style="list-style-type: none"> • Local enterprises can be displaced/out-competed by larger-scale businesses – loss of livelihoods, possible conflicts
<p>10i Establish a mechanism for periodic analysis of demand and supply of forest products by geographic region, and develop distribution programmed to address demand-supply gaps</p>	
<ul style="list-style-type: none"> • Access made easier • Easier to identify markets for, and to sell, surplus products 	<ul style="list-style-type: none"> • Loss of livelihoods for those prevented from extracting resources in degraded areas.
<p>10j Develop a mechanism to engage the private sector in forestry for the entire value chain of forest products, from planting to end-product development</p>	
<ul style="list-style-type: none"> • Improved employment, increased incomes and state revenues 	<ul style="list-style-type: none"> • Local enterprises can be displaced/out-competed by larger-scale businesses – loss of livelihoods, possible conflicts

9.11: Social impacts of Option 11: Law enforcement: *Strengthening the capacity and independence of the forest agency (personnel, systems, legal provisions, etc.) and trial and justice system, and improve functional collaboration and cooperation among government agencies, CSOs, media and private sector*

Positive	Negative
<p>11a Undertake institutional reform to increase accountability and transparency of all concerned agencies</p>	
<ul style="list-style-type: none"> • Illegal activities reduced, • Decisions more transparent and equitable 	
<p>11b Strengthen the incentive (to address illegal harvesting activities) and punishment system for both government officials and community-based forest management groups</p>	
<ul style="list-style-type: none"> • The poor are uneducated and not likely to be aware of changes in laws regarding access & use of forest resources, and thus may be unreasonably targeted for punishment, and their livelihoods will be affected (<i>Their illegal activity may not be the result of intent, but because they are economically deprived and have no other options</i>) 	
<p>11c Restructure and reorient/sensitize Government staff and HRD systems to reduce corruption (including Department of Forests) to ensure offenders are sacked</p>	
<p>11d Work with media to ‘name and shame’ individuals and organizations involved in illegal forest products trade</p>	
<ul style="list-style-type: none"> • Wider public awareness of illegal forest-related activities • Increased understanding of mechanisms for redress 	
<p>11e Create better awareness (of forest-related laws) and capacity (for enforcement) amongst all law enforcement agencies e.g. police, armed police, army, border police, on forest law enforcement issues</p>	
<p><i>Comment: Sensitisation of agencies should address gender issues</i></p>	
<p>11f Expand participatory forest management systems to forest areas where law enforcement is difficult</p>	
<ul style="list-style-type: none"> • Increased capacity of local communities in forest management • With expanding community-based management, this could make it less easy for private sector entrepreneurs to operate their forest businesses (ie harder to acquire timber by bribing officials – communities likely to be less easy to bribe) • Improvement on and scaling up of existing traditional practices (eg individual trees) 	<ul style="list-style-type: none"> • Women may be excluded from - capacity building for REDD implementation (experience from the pilot projects)

Positive	Negative
<p>given to daughters as dowry – so conserved for products)</p> <ul style="list-style-type: none"> • Revitalisation of traditional practices in valuing forests • Increased community participation in forest management & conservation 	
11g Introduce pilot participatory M&E mechanisms of law enforcement at different levels	
<ul style="list-style-type: none"> • Empowerment of, and capacity development, local communities 	
11h Sensitize border authorities and explore cross-border law enforcement collaboration with Indian and Chinese (Tibetan) authorities	
<ul style="list-style-type: none"> • Increased legal harvesting & marketing – leading to increased employment, incomes, government revenue, etc 	<ul style="list-style-type: none"> • Poor peoples (albeit illegal) livelihoods lost

9.12: Social impacts of Option 12: Good governance and anti-corruption: *Increasing accountability and transparency including meaningful and effective engagement of all relevant stakeholders and contributing to preventing and punishing corruption*

Positive	Negative
12a Facilitate open and constructive debate on key forest governance issues, management modalities, ways to resolving existing contestations and conflicts	
<ul style="list-style-type: none"> • Social audit and public hearing process strengthened 	<p><i>COMMENT: Debate needs to be genuinely inclusive, gender sensitive, not overly technical – otherwise marginalized groups will not heard & women may be excluded.</i></p>
12b Support decentralized, participatory and community based governance models (particularly as regards overseeing distribution & management of REDD+ benefits)	
<ul style="list-style-type: none"> • Community participation (including women & disadvantaged groups) in decision-making on benefit-sharing increased • Rights, livelihoods of IPs and local communities secured 	
12c Adopt REDD+ international standards on participation, inclusion and informed decisions	
<ul style="list-style-type: none"> • Avoided negative impacts on poor and marginalised people • Community empowerment and inclusion of women and marginalised people in decision making • Increased awareness of rights and protective safeguards 	
12d Support capacity building (for forest governance) of local communities, excluded groups, IP organisations, Dalits, and women’s organizations/mothers’ groups	
<ul style="list-style-type: none"> • Capacity development (and increased technical knowledge) of community level organizations of women and other 	<ul style="list-style-type: none"> • See 12a

Positive	Negative
<ul style="list-style-type: none"> marginalized groups Improved livelihoods 	
12e Sensitize various actors on issues of forest sector governance and politically-induced encroachment, including political parties through parliamentary committees	
<i>Comment: Sensitisation of agencies should address gender and social exclusion issues</i>	

9.13: Social impacts of Option 13: Land use planning for each of the physiographic regions: Determining the optimal land uses across the physiographic regions (Terai, Siwalik, Mid-Hills and Mountains) according to potential and in support of decision-making

Positive	Negative
13a Establish spatially explicit information systems on land use potential, allocations and potential conflicts/complementarity with REDD+ strategic options	
<ul style="list-style-type: none"> Increased access to information and better decision making about land allocation and use 	
13b Conduct multi-stakeholder, integrated planning processes at regional/landscape and national levels, in order to seek consensus building, validation and clarify sector and extra-sector commitments to land use recommendations	
<ul style="list-style-type: none"> Improved supply of forest products (enhanced livelihoods, improved health, etc) Enhanced stakeholder voices (local, regional, national) in planning process 	
13c Establish mechanisms for monitoring, reporting and verification of land use changes (and their impacts on commitments to achieving emissions reduction and enhancement at sub-regional/jurisdictional and national level)	
<ul style="list-style-type: none"> Participation in MRV will raise stakeholders' awareness of impacts of land use change on carbon stock & co-benefits; rights, etc 	<i>Comment: MRV needs to include indicators covering gender & social inclusion issues</i>

9.14: Social impacts of Option 14: Institutional architecture Building REDD+ institutional architecture and processes that enable equity (as well as efficiency and effectiveness)

Positive	Negative
14a Ensure development of national REDD+ financing mechanism (including benefit sharing process), and MRV systems	
<ul style="list-style-type: none"> Good land use practices are rewarded, generating non-carbon benefits (employment, income, food security, etc) 	<ul style="list-style-type: none"> If benefits flow to landowners, then likely to exclude landless and women
14b Ensure adequate representation of women, poor and socially marginalized land users on key local decision-making bodies and processes	

Positive	Negative
<ul style="list-style-type: none"> Enhanced gender balance in decision making bodies and processes Sense of ownership achieved, issues and concerns of IPs more accurately reflected and redressed 	
<p>14c Promote and establish decentralized and accountable multi-stakeholder forest governance structures and support multi-stakeholder district forest sector planning</p>	
<ul style="list-style-type: none"> Economic development proceeds more quickly because of consensus decisions 	<ul style="list-style-type: none"> Exclusion of women, IPs, Dalits, poor and other marginalized groups
<p>14d Strengthen coordination mechanisms for promoting policy and planning linkages among the MoFSC, National Planning Commission, Finance, Land Reform and Agriculture Ministries</p>	
	<ul style="list-style-type: none"> Lack of sensitivity and responsiveness on gender and social exclusion issues
<p>14e Analyse fiscal policies and opportunities for raising national funds to support climate change mitigation including performance-based payment mechanisms.</p>	
<p><i>Comment: National climate funds can provide benefits to local communities and economies for sustainable investments that promote added benefits from performance-based payments</i></p>	<p><i>Comment: Risk of the exclusion of women, IPs, Dalits, poor and other marginalized people from payment mechanisms</i></p>

APPENDIX 10. INSTITUTIONAL ISSUES FOR OPTIONS

10.1: Institutional issues for SO1: *Land tenure, carbon rights and benefit-sharing*

Positive	Negative
1a: Define, clarify and accommodate carbon rights in relation to land and forests within existing policies or legislation	
<ul style="list-style-type: none"> Strengthen local level institutions involved in implementation of REDD+ initiatives The need to compensate people and communities implementing REDD+ initiatives is likely to promote mapping of land rights at national and subnational level Long term commitment and investment in sustainable use and management of NR 	<ul style="list-style-type: none"> Elite capture In Nepal there is a lack of data on land ownership and use, access, and control of forest resources by women Women not recognized as right holders. <p><i>Comment: Organizational Capacity to implement modified laws is lacking</i></p>
1b: Increase and ensure access to forests by women, IPs, vulnerable groups, FDP, and other marginalised people, including reform at national and local levels to address (fragmentation) an inequity	
<ul style="list-style-type: none"> Opportunity to improve governance (ie promote more equitable local norms and laws) Security of tenure promotes commitment and long term investment in sustainable use and management of resources Excluded groups get space in decision making 	<ul style="list-style-type: none"> Politicisation of community decisions Elite capture and poor governance
1c: Establish clear and legally defined benefit sharing mechanisms that can deliver to grassroots levels	
<ul style="list-style-type: none"> Institutions will be more compliance oriented/ monitored/ responsible Monitoring body will be necessary Opportunity to be inclusive (include women and socially excluded groups in the planning cycle (design, implementation and in monitoring teams). Opportunity to focus on capacity-building of organisations on social inclusion & gender mainstreaming. 	<ul style="list-style-type: none"> Profit institutions dominates the social motives Politicisation of benefit sharing (elite capture of decisions, financial resources and information)
1d Establish and strengthen (gender-sensitive) grievance-addressing mechanisms	
<ul style="list-style-type: none"> Strengthening existing grievance mechanism Filling local gap Include women and marginalized groups in local institutions for conflict resolution 	<ul style="list-style-type: none"> Misuse of the grievance mechanism – politicizing, local decision-making. No/Under representation of marginalised and excluded groups Displacement of existing customary practices
1e Enhancing local (forest related) voices to influence decision making at all levels	

Positive	Negative
<ul style="list-style-type: none"> • Empowerment of local institutions: more democratic & inclusive 	<ul style="list-style-type: none"> • Risk of tokenism in participation of excluded communities – so they are unable to effectively influence decisions • Risk of decisions taking longer, or getting stuck by stalemate if participants cannot agree – due to many diverse & divergent interests

10.2: Institutional issues for SO2: Community-based forest management (formal and informal)

Positive	Negative
<p>2 a: Implement sustainable management of forests (practices, technical skills and technologies) that enhances forest productivity under community based forest management regimes (including forest fire management)</p>	
<ul style="list-style-type: none"> • Support/strengthening of existing (and promoting new) local institutions for sustainable forest management 	<ul style="list-style-type: none"> • Poor would want to use forest for subsistence but rich would want to preserve forest and thus result in conflict (elite capture). • Risk that the state may try to acquire part of raised revenue from CBFM (eg through undue regulation) • Increased regulation & bureaucracy (including frequent /ad hoc changes in regulations) as trade in products grows (eg 3rd generation community forestry issue)
<p>2b: Build public (local communities, wider civil society, govt. private sector) awareness (sense of responsibility) and promote attitude change towards understanding the real value of forest products and services in the context of CC and REDD+</p>	
<ul style="list-style-type: none"> • Local institutions have more knowledge to guide decisions about forest use and management. • Increased awareness of impacts of policy decisions, resources allocation and investment priorities • Potential to inform improvements to policies, regulations and statutes (through increased awareness) • Understanding the links between use and management of resources and climate change mitigation and adaptation measures <p>Potential for enhanced:</p> <ul style="list-style-type: none"> • cross-sector coordination and harmonisation of policies & practices; • design of environmentally sensitive investments; • recognition of forests in national accounting (eg GDP) and allocation of budget for forest 	<ul style="list-style-type: none"> • Elite capture of opportunities for awareness training, etc • If training centralised in districts, then those in real need (women, IPS, poor, marginalised) may be left out.

Positive	Negative
management	

Note: A clearer definition of sustainable forest management is needed)

10.3: Institutional issues for SO3: Private forestry - promotion of plantations of faster growing species (particularly native) creating mosaic landscapes.

Positive	Negative
<ul style="list-style-type: none"> • Opportunity for development of local timber-based industry (eg furniture, construction materials – windows/doors, etc) – import substitution (also possible increased exports) value addition & improving production efficiency • Contribution to national economy (see above) • Potential for Improved organisation of private sector; or possibly large scale operators could overshadow small players 	<ul style="list-style-type: none"> • How to monitor that plantation owners maintain them (policy issues): should large scale benefit from carbon revenues; or just incentives to help reduce drivers) • Increased likelihood of corruption (because large scale private sector involves bigger companies – more prone) & smuggling (to avoid paying government taxes

Comment: Need for stronger regulations to capture full due taxes on increased exports

10.4: Institutional issues for SO4: Government managed forests

Positive	Negative
4a: Establish and strengthen protected areas and Integrated Conservation and Development Projects, and promote participatory models for protected area management and ecotourism	
<ul style="list-style-type: none"> • Improved forest governance • Participatory community-based institutions become well-established - increasing local voices & capacity 	<ul style="list-style-type: none"> • Requires coordination between REDD & DNPWC (which ‘owns’ policy for PAs)
4b Prepare national forestry strategy through multi-stakeholder process, incorporating specific strategies for the Mountains, Terai and Middle Hills regions	
<ul style="list-style-type: none"> • Current administration of MOFSC structured along administrative lines, but potential to adjust to take account of physio-ecological zones; and linked trade and migration dynamics – would be more logical • Potential to strengthen forest governance 	<ul style="list-style-type: none"> • Consultation in planning and strategy preparation not done in participatory way • [Potential for domination of debate by particular interest groups] • Not all the relevant stakeholders agree to the plan if they have not effectively participated in strategy development
<p><i>Comment: Potential conflicts with other sector strategies/policies (eg water promotes catchment approach). Forest administration alone may not function properly without a built up overall governance system suitable to</i></p>	

Positive	Negative
	<i>the physio-ecological zones</i>

4c Improve and execute existing district forest management plans and fire management plans

- | | |
|--|---|
| <ul style="list-style-type: none"> • Potential to involve IPOs (a departure from the past) • Potential better coordination with other agencies (eg with police, VDC & district court) to effectively enforce implementation of sustainability requirements in forest management. • Potential to generate positive changes friendly to IPs, forest dependent communities, acknowledging their indigenous knowledge and long-practised skills in forest management, | <ul style="list-style-type: none"> • Potential that powerless and poorest are punished whilst the powerful are not (ie due to Forest Dept jurisdiction restricted to Forest areas only – where the above are involved in extraction and are easy to find; whilst middle men and exporters are beyond their capacity to reach |
|--|---|

10.5: Institutional issues for SO5: Biodiversity and ecosystem services

Positive	Negative
5a: Biodiversity conservation in managed ecosystems for sustaining livelihoods (including through local land use planning; and complementary implementation of CBD and UNFCCC (REDD+ co-benefits))	
<ul style="list-style-type: none"> • Community based institutions strengthened and established • Strengthen participatory planning and zoning at local level as well as monitoring • Development of capacity for participatory monitoring of biodiversity 	0

10.6: Institutional issues for SO6: Payment for ecosystem services

Positive	Negative
6a. Develop & promote PES for sustainable agriculture interventions	
<ul style="list-style-type: none"> • Enhances internalisation (eg in government & corporate accounting) of costs & benefits (and their distribution) of forest ecosystem services • Promote transparency on benefit eligibility and distribution 	<ul style="list-style-type: none"> • Need enhanced capacity to develop and monitor PES • Large transaction costs (time) to government & corporates, eg water bottling and drinks companies))
6b. Develop and promote PES for reduced emissions, watershed management and biodiversity conservation)	
<ul style="list-style-type: none"> • Enhances internalisation (eg in government & corporate accounting) of costs & benefits (and their distribution) of forest ecosystem services • Promote transparency on benefit eligibility and distribution 	<ul style="list-style-type: none"> • Need enhanced capacity to develop and monitor PES • Large transaction costs (time) (to government & corporates, eg water bottling and drinks companies)

10.7: Institutional issues for SO7: Agricultural productivity and food security for small and marginal farmers

Positive	Negative
7a Agro-ecological zoning (maximising production potentials for each land category) at national and local levels	
<ul style="list-style-type: none"> • Process of defining agro-ecological potential likely to foster cross sector interactions which are key to subsequent harmonised policies • Might promote farmers associations to enhance production, strengthen organizational skills and improve price negotiation power along the supply chain • Strengthen Government 's capacity to make decisions about land allocation according to land use potential 	<ul style="list-style-type: none"> • Potential for conflicts and misinterpretation and misuse of land use policies by both elites and excluded groups • Accountability of leadership of farmers associations to its members might be weak. • Capacity of government at all levels might be a challenge in enforcing the use according to potential
7b Agricultural intensification (increasing productivity through climate smart agriculture, including agroforestry)	
<ul style="list-style-type: none"> • Number of players increases in every level creating jobs but...increase cost of products • Can further promote extension services from government and private sector designed to transfer knowledge and improved production technologies, practices and markets • Likely emergence & strengthening of cooperatives, farmer organisations, agricultural service delivery. • Farmers network formed • Inter-sectoral coordination (forestry & agriculture) • Increased number & capacity of local-level agricultural service centres <p><i>[Need to strengthen institutions that address input market issues (information, links on the supply chains)]</i></p>	<ul style="list-style-type: none"> • Profit making institutions capture the agri-sector • Potential for private sector conflict if households set as target beneficiaries of subsidy mechanism. • Nepal does not have strong scientific research on climate smart agro-technology • Limited extension coverage may hinder the rolling out of good practices • Lack of link of technology deployment with market information and processing might lead to post harvest losses that can harm the farming communities and local economies • Potential increased conflict (between large- & small-scale) over access to high productivity land and irrigation water • Extension services not sensitive to gender and social inclusion • Unregulated marketing of chemical fertilizers • Inadequate government policy to manage availability and safe use of fertilizer
7c Promote the application of Sloping Land Agriculture Technologies[contours with fodder trees/grasses in bari lands]	
<ul style="list-style-type: none"> • New knowledge and new practice 	0
7d. Promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies)	
	<ul style="list-style-type: none"> • Need for increased capacity to management/collection (tax offices, sectoral agencies).

Positive	Negative
	<ul style="list-style-type: none"> Conflict with existing agriculture policy (current favours commercial farming investment, not subsidies) <p><i>COMMENT: Need system to monitor tariffs & subsidies, - should be rigorous, gender friendly and sensitive to social inclusion</i></p>
7e Promote multi-purpose fodder management, stall feeding and scaling up of fodder reserve systems, especially silage and hay, for use during slack periods	
[Extension services might be required to transfer technologies to land users]	<ul style="list-style-type: none"> Limited coverage of extension services can affect level of adoption and transformation to sustainable and low GHG livestock production
7f Promote access to crop & livestock breeding improvement programs	
	<ul style="list-style-type: none"> Extension services are limited and thus will limit reaching this objective Extension personnel not sensitive to gender and social inclusion

10.8: Institutional issues for SO8: Energy access and efficiency

Positive	Negative
8a: Sustainable management of natural wood fuel resources	
<ul style="list-style-type: none"> Strengthened capacity of CBFM actors to manage fuelwood resources sustainably Depot for fuelwood established for better distribution Strengthened capacity of local institutions to enforce sustainable forest management practices for long term supply of biomass energy 	<p><i>Comment: Weak institutions at different levels (government and community) might affect enforcement of sustainable harvesting methods</i></p>
8b: Active forest management including small-scale plantations and on-farm, multipurpose tree planting for fuel wood and timber	
<ul style="list-style-type: none"> Community forest and women's groups established 	<p><i>Comments Need to increase competence and capacity of agricultural service provides (eg for fruit trees). Latter will need to coordinate with the Forest Office</i></p> <p><i>Need to expand nurseries to supply fruit & timber saplings</i></p>
8c: Increase investment and access to fuel wood efficient and alternative energy technologies (including improved cooking stoves), for forest-dependent poor and marginalised people, and to reduce urban demand for fuelwood.	
<ul style="list-style-type: none"> Stakeholders (District Forest Officers, FECOFUN, etc) will need to increase capacity to work together and to manage production, market issues, conflicts, etc associated with an expanding briquette 'industry' 	<ul style="list-style-type: none"> Charring within community forests is illegal (cannot be done within 3 km of boundary). Nevertheless, Dolakha & Sindhupalchok Forestry officers have given permission because people are poor

Positive	Negative
<ul style="list-style-type: none"> • AEPC (Alternative Energy Promotion Centre) can support stakeholder capacity in dealing with briquette production issues (technology, funds, seed money, subsidies, loans, etc). [provide subsidies for biogas use in houses] • Loan policy developed • Cooperatives strengthened 	
<p>8d: Promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. support to biogas, increasing access to electricity primarily through small and micro hydro) linking the energy end-use to enterprise development/income generation</p>	
<ul style="list-style-type: none"> • Bigger role for AEPC • Cooperatives established & strengthened – for better access to credit • Promotes enterprise development <p><i>Comment: Need coordination between ministries dealing with forestry, energy and infrastructure to harmonize policies and development programs that will enhance access to alternative and efficient sources of energy policies and development programs that will enhance access to alternative and efficient sources of energy.</i></p> <ul style="list-style-type: none"> • Opportunity for cooperative enterprise development by women’s groups, IPs, Dalits and other forest dependent people 	<ul style="list-style-type: none"> • No local authorities responsible for hydro-power. Licences must be sought at national level. Revenues controlled at national level, Low-level of sharing of revenues with local affected communities • Subsidy schemes may not be sustainable over the long-term • Rich may capture the entrepreneurial opportunities

10.9: Institutional issues for SO9: Environmentally-friendly infrastructure construction and maintenance

Positive	Negative
<p>9a: Ensuring sustainability of rural road construction and maintenance by considering environmental, social and economic aspects</p>	
<p>9a.1: Ensure integrated local-level road route planning, implementing, monitoring and evaluation of road projects through democratic and inclusive decisions, decentralised and participatory planning</p>	
<p>(i) Planning</p>	
<ul style="list-style-type: none"> • Coordination mechanism strengthened between road and other development agencies • Enhanced, more transparent, accountable decision making process. • Analysis of trade-offs between suitability and potential land uses assessed and understood across sectors 	<ul style="list-style-type: none"> • Diversion of social/women’s local funds for infrastructure • Conflicts over priorities between development institutions (different sectors, private sector, donors, etc) and local communities <p><i>Comment: Institutional reforms a challenge</i></p>

Positive	Negative
(ii) Construction	
<ul style="list-style-type: none"> • Involvement of local level institutions (eg local road building groups, RGBs) in road construction & maintenance with enhanced local level ownership • Promotes implementation of environmental impact mitigation measures (following EIAs) and promotes more strategic infrastructure development 	<ul style="list-style-type: none"> • Green roads are slow to develop
9a.2: Provide for compulsory tree planting to substitute forest cleared for roads	
<ul style="list-style-type: none"> • Government policy revised 	
9A.3: Use of sustainable technologies, and inbuilt maintenance and repair arrangements	
<ul style="list-style-type: none"> • Evolvement of local level institutions for road building and maintenance • Evolution of markets for locally produced equipment and techniques for road construction and repair. 	
9A.4: Ensure effective IEE and EIA for all forest land use conversion for road construction	
<i>Comment: focusing too much on environment sometimes causes lapses in rights, so need to strike balance between both ecological and rights based approaches while thriving for sustainability)</i>	
<ul style="list-style-type: none"> • Strengthened cross sector coordination at national, district and community level in planning infrastructure development priorities • Stimulated harmonization of policy implementation across forestry, public works, housing & development sectors 	<p><i>Comment: Current compensation policies are weak</i></p> <p>Weak institutions and governance might affect enforcement of environmental standards</p>
9b.2: Provide for compulsory tree planting to substitute forest cleared for infrastructure development	
<i>(Comment: there is a government policy to this effect.</i>	
<ul style="list-style-type: none"> • Stimulated research on native species regeneration (if aim is to promote mosaic plantations) and nurseries • Strengthen extension centres to provide technical support to tree planting and maintenance • Strengthened capacity of DFOs to support establishing plantations 	
9b.3: Ensure effective IEE and EIA for all forest land use conversion for other infrastructure development (including tourism ventures, expansion of settlements – e.g. green urbanization) (impacts dependent on types of infrastructure)	
<ul style="list-style-type: none"> • Strengthen capacity of local institutions to monitor impact of infrastructure development 	<ul style="list-style-type: none"> • Weak institutional capacity may limit ability to enforce and monitor the execution of mitigation measures • Slow EIA system delays project approval (and system needs to be strengthened).
<i>Comment: SEA for sectoral infrastructure</i>	

Positive	Negative
	<i>plans would streamline and speed up the process</i>

10.10: Institutional issues for SO10: Forest and no-forest enterprises

Positive	Negative
10a Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector (for both timber and NTFPs, including ecotourism)	
<i>COMMENT: Promote farm-based forestry - to reduce pressure on national forest for timber & non-timber forest products [Arun Rai]</i>	
<ul style="list-style-type: none"> • Strengthen private sector institutions and their competitive capacity • Community networks, women’s groups & cooperatives created or strengthened • Coordination between MoFSC and institutions promoting small and medium scale investment (including microfinance agencies) • Promoting locally controlled forestry (strong rights, business capacity, organization and access to finance) • Technology enhancement 	<ul style="list-style-type: none"> • Investment may be impeded due to poor governance & lack of government coordination in allocating resources to support development of small and medium enterprises
10b Scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural areas to reduce forest dependency	
<ul style="list-style-type: none"> • May stimulate research on user-friendly technologies • Stronger commitment of other sectors to support establishment of enterprises; and their introduction of fiscal & non-fiscal mechanisms to stimulate markets 	<i>COMMENT: Good governance of financing institutions is particularly key to defining eligibility criteria and clear access to financial resources by prospective investors</i>
10c Promote vocational education and skill-based training opportunities for both forest and non-forest enterprise development for economically poor and marginalized	
<ul style="list-style-type: none"> • Stimulates increased, decentralised, community-based and targeted training programmes offered by existing institutions <p><i>Comments:</i></p> <p><i>(a) Potential for wasting technical and financial resources due to limited analysis and low quality of training and inputs.</i></p> <p><i>(b) Training needs assessment of key institutions is necessary to target training to areas that can have highest impact (Haryoban has conducted some assessment).</i></p>	
10d Improve access by poor to alternative technologies (eg small sawmills carpentry, food processing, efficient stoves, kilns, briquettes, power looms, etc)	
<ul style="list-style-type: none"> • Loan and credit schemes made easy 	
10e Promote of underdeveloped markets (e.g. NTFP, ecotourism) and pilot alternative and more	

Positive	Negative
efficient distribution and marketing mechanisms for forest- and non-forest based enterprises (e.g., community-based, private, local-government-based)	
<ul style="list-style-type: none"> • Access improved for local communities to markets for forest & non-forest. • New cooperatives emerge (including women's cooperatives), and existing ones embrace new market opportunities • Local level market established 	<ul style="list-style-type: none"> • Elite capture of NTFP market (as market intermediaries) such that NTFP collectors and growers do not receiving a fair price • Requires facilitation institutions (government or CSO) which might increase transaction costs <p><i>Comments:</i> <i>Transparency is needed in promoting markets, because Nepal acts as a transit country for some NTFPs: eg</i></p> <ul style="list-style-type: none"> • <i>betel nut) importing from other countries, branding and re-exporting - generating conflict with India</i> • <i>Red sandalwood smuggled in from India and sent on to China (overharvesting in India here it is protected)</i> <p><i>Transparency in decision-making is needed within institutions that support those with comparative advantage to access markets for particular NTFPs, eg in providing relevant information, technology, marketing, licensing...</i></p>
10f Strengthen the organisation of enterprises through the development of associations, cooperatives, federations, etc. as appropriate	
<ul style="list-style-type: none"> • Emergence and strengthening of cooperatives for women, IPs' and other excluded groups • Associations, cooperatives, federations established and community network strengthened 	<p><i>Comment: Ineffective management of associations, cooperatives & federations can lead to internal tensions, unhealthy competition amongst members, corruption, etc.</i></p>
10g Develop financing schemes accessible to poorer land users and women who lack collateral	
<ul style="list-style-type: none"> • Formal financial institutions established & strengthened at the decentralised level for promotion of sustainable enterprises 	
10h Develop policies that encourage private investment in efficient and alternative timber technologies (e.g. bamboo housing, timber drying, timber treatment, timber processing)	
<ul style="list-style-type: none"> • Local level industry development 	
10i Establish a mechanism for periodic analysis of demand and supply of forest products by geographic region, and develop distribution programmed to address demand-supply gaps	
<ul style="list-style-type: none"> • Government documentation strengthened • Enables monitoring & enforcement of harvesting of 'allowable cut'. 	<ul style="list-style-type: none"> • Cost - need for more institutions to 'police' the generation of artificial scarcities of timber [but that generates jobs]
10j Develop a mechanism to engage the private sector in forestry for the entire value chain of forest products, from planting to end-product development	

Positive	Negative
<ul style="list-style-type: none"> Opportunity for local level cooperatives of women, poor and IPs <p><i>Comments</i> Market regulation needed to meet REDD+ objectives. Internal demand for certified products, or those from sustainably managed forests, is critical to developing responsible businesses.</p>	

10.11: Institutional issues for SO11: Law enforcement

Positive	Negative-
11a Undertake institutional reform to increase accountability and transparency of all concerned agencies	
<ul style="list-style-type: none"> Forestry sector personnel values enhanced (honesty and commitment towards sectoral goal) Institutional & forest governance strengthened Increased government revenue (through more transparent licensing, more transparent payment of royalties and taxes, etc) 	
11b Strengthen the incentive (to address illegal harvesting activities) and punishment system for both government officials and community-based forest management groups	
<ul style="list-style-type: none"> It will enhance forests administration. 	
11c Restructure and reorient/sensitize Government staff and HRD systems to reduce corruption (including Department of Forests) to ensure offenders are sacked	
<ul style="list-style-type: none"> Local communities & private sector benefit from improved, more efficient, less corrupt forestry sector performance; 	
11d Work with media to 'name and shame' individuals and organizations involved in illegal forest products trade	
<ul style="list-style-type: none"> Communication strategy developed and strongly implemented - raising awareness of illegal activities – indirectly it may raise awareness of REDD+ objectives 	
11e Create better awareness (of forest-related laws) and capacity (for enforcement) amongst all law enforcement agencies e.g. police, armed police, army, border police, on forest law enforcement issues	
<ul style="list-style-type: none"> Enhanced institutional capacity of law enforcement agencies 	
11f Expand participatory forest management systems to forest areas where law enforcement is difficult	
<ul style="list-style-type: none"> By-laws may be established at community level 	
11g Introduce pilot participatory M&E mechanisms of law enforcement at different levels	
<ul style="list-style-type: none"> Local institutions established for M&E 	
11h Sensitize border authorities and explore cross-border law enforcement collaboration with	

Positive	Negative-
Indian and Chinese (Tibetan) authorities	
<ul style="list-style-type: none"> • Transboundary coordination & relations strengthened 	

10.12: Institutional issues for SO12: Good governance and anti-corruption

Positive	Negative
12a Facilitate open and constructive debate on key forest governance issues, management modalities, ways to resolving existing contestations and conflicts	
<ul style="list-style-type: none"> • Local level institutions for debate will be developed • Opportunity to refresh and enhance capacities of staffs and stakeholders on forest governance and technical aspects. 	
12b Support decentralized, participatory and community based governance models (particularly as regards overseeing distribution & management of REDD+ benefits)	
<ul style="list-style-type: none"> • More participatory, transparent & accountable VDC decision-making on allocation of REDD+ payments • Improved coordination between local government and community institutions – reduced potential for conflict 	
12c Adopt REDD+ international standards on participation, inclusion and informed decisions	
<ul style="list-style-type: none"> • Community level institutions developed 	
12d Support capacity building (for forest governance) of local communities, excluded groups, IP organisations, Dalits, and women’s organizations/mothers’ groups	
<ul style="list-style-type: none"> • Local level institutional capacity strengthened 	
12e Sensitize various actors on issues of forest sector governance and politically-induced encroachment, including political parties through parliamentary committees	
<ul style="list-style-type: none"> • Improved forest-related laws & policies 	

10.13: Institutional issues for SO13: Land use planning for each of the physiographic regions

Positive	Negative
13a Establish spatially explicit information systems on land use potential, allocations and potential conflicts/complementarity with REDD+ strategic options	
<ul style="list-style-type: none"> • Improved decision making • Improved transparency when RDD+ registry is established and publicly accessible <p><i>Comment: Visual representation of land use and land use planning can be a powerful tool for cross sectoral analysis of trade-offs and decision making</i></p>	
13b Conduct multi-stakeholder, integrated planning processes at regional/landscape and national levels, in order to seek consensus building, validation and clarify sector and extra-sector commitments to land use recommendations	
<ul style="list-style-type: none"> • Improved governance • Government landscape level policy implemented 	<ul style="list-style-type: none"> • High transaction costs <p><i>Comments:</i></p>

Positive	Negative
<ul style="list-style-type: none"> Local level institution to be established for engagement in planning and implementation Cross sector coordination and harmonization of policy implementation Awareness of trade-offs between different land uses and definition of low carbon development priorities 	<p><i>If dominated by government only, stakeholder perspectives will not be adequately addressed - side-lining some groups might impact the validation process and subsequently implementation</i></p>
<p>13c Establish mechanisms for monitoring, reporting and verification of land use changes (and their impacts on commitments to achieving emissions reduction and enhancement at sub-regional/jurisdictional and national level)</p>	
<ul style="list-style-type: none"> MRV will strengthen effectiveness of implementing REDD+ programmes <p><i>Comment: Need to build capacity for MRV at national and local levels including participatory MRV</i></p> <p><i>Need to build capacity to use simple monitoring equipment</i></p>	<ul style="list-style-type: none"> High transaction costs might limit the scope and scale of MRVs

10.14: Institutional issues for SO14: Institutional architecture

Positive	Negative-
<p>14a Ensure development of national REDD+ financing mechanism (including benefit sharing process), and MRV systems</p>	
<ul style="list-style-type: none"> Strengthen community forest user groups in providing/managing mechanisms for equitable sharing of benefits 	<ul style="list-style-type: none"> Difficulty getting national consensus on benefit sharing mechanism Bureaucratic complexities & inefficiencies might mean that REDD+ funding doesn't reach (or on time) to users
<p>14b Ensure adequate representation of women, poor and socially marginalized land users on key local decision-making bodies and processes</p>	
<ul style="list-style-type: none"> More informed, inclusive, equitable & effective decisions 	
<p>14c Promote and establish decentralized and accountable multi-stakeholder forest governance structures and support multi-stakeholder district forest sector planning</p>	
<ul style="list-style-type: none"> Consensus building for integrated development planning enhanced 	<p><i>Comment: Non-government actors need to be consulted through activities like public hearings and meetings</i></p>
<p>14d Strengthen coordination mechanisms for promoting policy and planning linkages among the MoFSC, National Planning Commission, Finance, Land Reform and Agriculture Ministries</p>	
<ul style="list-style-type: none"> Coordination will enhance more informed planning an policy-making 	<p><i>Comments:</i></p> <p><i>Coordination should not result in over-lengthy planning an policy-making procedures</i></p> <p><i>Non- government actors need to be consulted through activities like public hearings and meetings</i></p>
<p>14e Analyse fiscal policies and opportunities for raising national funds to support climate change mitigation including performance-based payment mechanisms.</p>	

Positive	Negative-
<i>Comment: Strengthened coordination of investment and land use policies - opportunity to ensure finance and planning ministries talk to agriculture and forest as well as other sectors that contribute to driving deforestation and forest degradation.</i>	<i>Comment: Need to involve institutions at national and local level to ensure compliance and monitoring of impacts of investments</i>

APPENDIX 11. REFERENCES

- Abdourahman, O.I. (2010). "Time Poverty: A Contributor to Women's Poverty?" Journal statistique africain, nu méro 11, novembre 2010. Source: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Time%20Poverty%20A%20Contributor%20to%20Womens%20Poverty.pdf>
- Acharya, M. & Bennett L. (1981). The rural women of Nepal: an aggregate analysis and summary of 8 village studies: the status of women. Kathmandu: Centre for Economic Development and Administration.
- Acharya K.P., Adhikari J. and Khanal D. (2008): Forest Tenure Regimes and Their Impact on Livelihoods in Nepal; *Journal of Forest and Livelihood* 7(1)
- Adhikari, U. (2011). Status of Community Forest and Women. The dissertation submitted to: School of Development and Social Engineering, Faculty of Humanities and Social Sciences, Pokhara University. *For the Partial fulfilment of the requirement for the Degree of Masters in Population, Gender and Development*
- Adhikari, B. R. (2002). Forest Encroachment: Problem and Solution Measures (in Nepali). *Hamro Ban*, 103 – 112
- Acharya, K.P., Dangi, R.B., Tripathi, D.M., Bushley, B.R., Bhandary, R.R and Bhatteari, B. (eds.). (2009). Ready for REDD? Taking Stock of Experience, Opportunities and Challenges in Nepal. Nepal Foresters' Association: Kathmandu, Nepal.
- Baidya, S.K., Shrestha, M.L. and Sheikh, M.M. (2008). Trends in Daily Climatic Extremes of Temperature and Precipitation in Nepal. *Journal of Hydrology and Meteorology* 5(1):38-51.
- Baral, N.R. (2013). *Getting planned adaptation right – a case study of Nepal's Local Adaptation Plan for Action (LAPA)*. Submitted in partial fulfilment of the requirements for the degree of Master of Science in Environmental Change and Management, University of Oxford.
- Baral, N.R., Acharya, D.P. and Rana, C.J. (2012). **Study on Drivers of Deforestation and Degradation of Forests in High Mountain Regions of Nepal. Volume I: Main Report**. Community Forestry Research and Training Centre (COMFORTC), Kathmandu, Nepal.
- Bhadra, C. (1997). "The Land Forestry and Women's Work in Nepal". Chapter 3 (pp. 74-88), in Wickramasinghe, A. (Ed.) (1997). Land and Forestry: Women's Local Resource-Based Occupations for N Survival in South Asia. Colombo: CORRENSA (Collaboration of Regional Research Network in South Asia).
- Bhadra, C. (2006). "Rural Women and Environmental Issues in Nepal: A Feminist Discourse", *Hamro Sansar (A World of Our Own)*, Journal of Women's Studies, Issue 5, March 2006. Kathmandu: Women's Studies Programme, Tribhuvan University, Nepal.
- Bhatteari B. and Dgungana S.P. (2005) *How Can Forests Better Serve the Poor? A Review of Documented Knowledge on Leasehold and Community Forestry in Nepal*. ForestAction Nepal, Kathmandu
- Bhujju, D.R., Shrestha, B.B. and Niraula, R.B. (2013). Study on Invasive Alien Species (IAS) as Drivers to Deforestation and Degradation of Forests in different physiographic regions of Nepal. BS JV API.
- Bhusley, B.R., and Khatri, D.B. (2011). REDD+: Reversing, Reinforcing or Reconfiguring Decentralized Forest Governance in Nepal?. *Discussion paper 11.3*. Kathmandu: Forest Action.
- Bolch, T., Kulkarni, A., Kääb, A., Huggel, C., Paul, F., Cogley, J.G., Frey, H., Kargel, J.S., Fujita, K., Scheel, M., Bajracharya, S., and Stoffel, M. (2012). The State and Fate of Himalayan Glaciers. *Science* 336:310-314.

- CBS. (2006). *Agricultural Census Nepal 2001/2002*. Kathmandu, Nepal: National Planning Commission Secretariate Central Bureau of Statistics
- Chhetry, D. B., Upreti, S. R., Dangal, G., Subedi, P.K. and Khanal, M. N. (2012). "Impact Evaluation of Uterine Prolapse Surgery in Nepalese Women". Journal of Nepal Health Research Council, Vol.10, No.2, Issue 21, May 2012.
- Chhetri, R. B. (2004). "Conservation and Development in Nepal: Examining the Linkage of Forests with Population Growth and Poverty", Pp. 218-228 in Keshav R. Kanel et al. (eds), Twenty Five Years of Community Forestry: Proceedings of the fourth national workshop on community forestry. Kathmandu: Department of Forests.
- Chhetri, R. and Pandey, T. (1992). User Group Forestry in the Far-Western Region of Nepal (Case Studies from Baitadi and Achham). Kathmandu: ICIMOD.
- Christensen, J.H., Hewitson, B., Busuioc, A., Chen, A., Gao, X., Held, I., Jones, R., Kolli, R.K., Kwon, W.T., Laprise, R., Magaña Rueda, V., Mearns, L., Menéndez, C.G., Räisänen, J., Rinke, A., Sarr, A., Whetton, P., 2007. Regional climate projections. In: Solomon, S., Qin, D., Manning, M., Chen, Z.,
- CPEIR. (2011). *Nepal Climate Public Expenditure and Institutional Review (CPEIR)*. Published by Government of Nepal. National Planning Commission with support from UNDP/UNEP/CDDE in Kathmandu, Nepal.
- DFRS. (1999). *Forest Resources of Nepal*. Kathmandu: Department of Forest Research and Survey, Ministry of Forests and Soil Conservation, Government of Nepal
- Dhungana, S. P.; Pokharel, B. K.; Bhattarai, B. and Ojha, H. (2007). "Discourses on Poverty Reduction from Forestry in Nepal: A Shift from Community to Household Approach?" In Proceedings: International Conference on Poverty Reduction and Forests, Bangkok, September 2007.
- Dobremez, J. F. (1976). *Le Nepal Ecologie et Biogeography*. Paris, France: Editions du Centre National de la Recherche Scientifique
- FAO. (2005). *Global Forest Resources Assessment 2005 - Nepal*. Forestry Department. Food and Agriculture Organization of the United Nations.
- Forrest, J.L., Wikramanayake, E., Shrestha, R., Arendran, G., Gyeltshen, K., Maheshwari, A., Mazumdar, S., Naidoo, R., Thapa, G.J. and Thapa, K. (2012). Conservation and climate change: Assessing the vulnerability of snow leopard habitat to treeline shift in the Himalaya. *Biological Conservation* **150**:129–135.
- Fortier, J. (2011). Kings of the Forest: The cultural resilience of Himalayan hunter-gatherers. Kathmandu: Mandala Book Point.
- Gautam, A. P., Karmacharya, M. B. and Karna, B. K. (2008). 'Community Forestry, Equity and Sustainable Livelihoods in Nepal'. In Proceedings of the 12th Biennial Conference of the International Association for the Study of the Commons (IASC) held during 14-18 July 2008 in Uni. of Gloucestershire, Cheltenham, England.
- Gautam K.H. (1991) *Indigenous forest management systems in the hills of Nepal*, MSc thesis, Australian National University, Australia
- Ghiri N (2010) *Pesticide Use and Food Safety in Kathmandu valley/Nepal*. MSc thesis.
- Institute of Soil Research University of Natural Resources and Life Sciences (BOKU), Vienna (file:///C:/Users/Barry/Downloads/fulltext_8110.pdf)
- GON. (1993). *Forest Act 1993*. Kathmandu: Law Book Management Committee, Government of Nepal.

- Hill, I. (1999). *Forest Management in Nepal*. The World Bank
- IIED. (2013). Gender and REDD+. Availed by Barry Dalal-Clayton, IIED.
- Intergovernmental Panel on Climate Change [IPCC]. (2007). *Fifth Assessment Report on Climate Change*. Geneva:
- IPPAN. (undated). *Hydropower in Nepal*. Retrieved Feb 2, 2014, from <http://www.ippan.org.np/HPinNepal.html>
- Jha, S. G. (2007). A brief appraisal of existing main environmental issues in Nepal and potential intervention to solve the perceived problems. *Banko Jankari*, 17(1), 39 - 45
- Joshi, L., Sharma, N., Ojha, P., Khatri, D.B., Pradhan, R., Karky, B., Pradhan, U. and Karki, S. (2010). *Moving beyond REDD: reducing emissions from all land uses in Nepal*. Final national report. Nairobi: ASB Partnership for the Tropical Forest Margins.
- Joshi, S. "Solid biomass fuel: Indoor air pollution and health effects" (Editorial). Kathmandu University Medical Journal (2006), Vol. 4, No. 2, Issue 14, 141-142.
- Journal of Forest and Livelihood*, Volume 8 (2), August 2009 (Special Issue) presents articles (total of 8) highlighting Lessons from Livelihoods and Forestry Program.
- Iversen, V., Chhetry, B., Francis, P., Gurung, M., Kafle, G., Pain, A., and Seeley, J. (2006). "High value forests, hidden economies and elite capture: Evidence from forest user groups in Nepal's Terai". *Ecological Economics* 58 (2006) 93– 107.
- Khadka R.B., Dalal-Clayton D.B., Mathema A. and Shrestha P. (2012) Safeguarding the Future, Securing Shangri-La: Integrating Environment and Development in Nepal – Achievements, Challenges and Next Steps. Environmental Governance Series No. 6, International Institute for Environment and Development
- Khanal S.C. () *Ecosystem Services of Forests in Nepal and Uttarakhand Himalayas*. Presentation. Asia Network for Sustainable Agriculture and Bioresources (ANSAB) (accessed on 5 March 2014 at <http://www.ansab.org/wp-content/uploads/2010/11/Ecosystem-Services-of-Forests-in-Nepal-and-Uttarakhand1.pdf>)
- Kanel, K., Shrestha, K., Tuladhar, A., & Regmi, M. (2012). *A Study on The Demand and Supply of Wood Products in Different Regions of Nepal*. Kathmandu: Nepal Foresters' Association/ REDD Forest Climate Change Cell.
- Khatri D., Paudel. N., Bista R. and Bhandari K. (2011), *REDD+ Financing*. Nepal: Forest Action Nepal
- Khatri, D.B. and Paudel, N.S. (2013). Is Nepal getting ready for REDD+? An assessment of REDD + Readiness process in Nepal. *Discussion Paper 12.2*. Kathmandu: Forest Action.
- Körner, C., 1998. A re-assessment of high elevation treeline positions and their
- Körner, C. (1998). A re-assessment of high elevation treeline positions and their explanation. *Oecologia* **115** (445–459).
- Körner, C. and Paulsen, J. (2004). A world-wide study of high altitude treeline temperatures. *Journal of Biogeography* **31**, 713–732.
- Lamsal, P., & Bhandary, R. R. (2009). Preparing institutions for REDD. In K. P. Acharya, R. B. Dangi, D. M. Tripathi, B. R. Bushley, R. R. Bhandary, & B. Bhattarai, *Ready for REDD? Taking stock of experience, opportunities and challenges in Nepal* (pp. 75 - 84). Nepal Forester's Association.
- Lean, G. (1986, June 11). Himalayas are being washed away. *The times of India*

- LFP. (2008). Seven years of the Livelihoods and Forestry Programme: Enhancing rural livelihoods through forestry in Nepal: Contributions and Achievements. Kathmandu: Livelihood and Forestry Programme.
- LFP. (2009). Community forestry for poverty alleviation: How UK aid has increased household incomes in Nepal's middle hills: Household economic impact study - 2003 to 2008. Kathmandu: Livelihood and Forestry Programme
- Lohani, S. P. (2011). Biomass as a source of household energy and indoor air pollution in Nepal. *Iranica Journal of Energy and Environment*, 1(2), 74-78
- Luintel, H. and Timsina, N. P. (2008). How effective is the community forestry in Recognizing women empowered agencies? Pp. 26-53 in Ram B. Chhetri et al., Decentralization and Promotion of Women's Rights in Nepal: Exploring Constraints, Opportunities and Intervention Avenues. Report Submitted to IDRC, Canada.
- Luintel, H. and Timsina, N.P. (2008). Policy Brief: Making Forestry Decentralization Effective in Empowering Women Agencies. Kathmandu: Forest Action and HIMAWANTI.
- Luintel, H., Silori, C.S., Frick, S. and Poudyal, B.H. (2013). "Grassroots Capacity Building for REDD+: Lessons from Nepal", *Journal of Forest and Livelihood*, 11(2), July 2013.
- Mahat. I. (2003). "Gender dimensions in household energy". Boiling Point No. 49, U.K.: ITDG TECHNICAL INFORMATION SERVICE.
- Mainlay, J. and Tan, S.F. (2012). Mainstreaming gender and climate change in Nepal. IIED Climate Change Working Paper No. 2, November 2012.
- Maraseni T.H., Neupane F., Lopez-Casero F. and Cadman T. (in press) An assessment of the impacts of the REDD+ pilot project on community forests user groups (CFUGs) and their community forests in Nepal, *Journal of Environmental Management*
- Marquis, M., Avery, K.B., Tignor, M., Miller, H.L. (Eds.), *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 847–940.
- Miller, G. T. (2004). *Sustaining the Earth (6th Edition)*. Thompson Learning Inc., Pacific Grove, California, USA
- Ministry of Environment, Science and Technology. (2008). *Draft report prepared for the Second National Communication*. Kathmandu, Nepal.
- Ministry of Environment. (2010). *National Adaptation Programme of Action to Climate Change*. Kathmandu, Nepal.
- Ministry of Environment. (2011). *Climate Change Policy, 2011*. Kathmandu. Nepal
- Ministry of Environment. (2012). *Mountain Environment and Climate Change in Nepal*. National Report prepared for the International Conference of Mountain Countries on Climate Change, 5-6 April 2012, Kathmandu, Nepal. Ministry of Environment, Government of Nepal.
- Ministry of Forests and Soil Conservation (2010). ***Nepal's REDD Readiness Preparation Proposal (R-PP), 2010-2013***. Revised report addressing issues from PC6 resolution, submitted October 2010. Government of Nepal.
- Ministry of Forests and Soil Conservation. (2011). *Role of Forests in Climate Change Adaptation*. REDD – Forestry and Climate Change Cell, Ministry of Forests and Soil Conservation, Government of Nepal.

Ministry of Population and Environment. (2004). *Initial National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change*. Kathmandu, Nepal.

MoAD (2012) *Preparation of the Agricultural Development Strategy – Assessment Report, 2*. TA 7762-NEP, Ministry of Agriculture Development

MoFSC. (2002). *Nepal Biodiversity Strategy*. Kathmandu: Ministry of Forests and Soil Conservation, Government of Nepal.

MOFSC. (2009). *Nepal Forestry Outlook Study*. Bangkok: Ministry of Forests and Soil Conservation/ Food and Agriculture Organization of the United Nations.

MoFSC (2009) *Community Forestry Development Programme Guidelines*, Ministry of Forests and Soil Conservation, Kathmandu; available at: www.mofsc.gov.np

MOFSC. (2010). *Nepal's Readiness Preparation Proposal REDD 2010-2013*. Kathmandu: REDD Cell, Ministry of Forests and Soil Conservation, GON/ World Bank.

MOFSC. (2013). *National Biodiversity Strategy and Action Plan - Nepal [DRAFT]*. Kathmandu: Ministry of Forests and Soil Conservation.

MoFSC. (undated). *The Future of Nepal's Forests Outlook for 2020*. Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific, Bangkok, Thailand. Asia Forestry Outlook Study 2020: Country Report Nepal.

MoFSC (date not specified). The Future of Nepal's Forests Outlook for 2020. Asia Forestry Outlook Study 2020: Country Report NEPAL. Submitted by: Ministry of Forests and Soil Conservation (MOFSC), Singh Durbar, Kathmandu. Submitted to: Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific, Bangkok, Thailand. Source: <http://www.forestrynepal.org/images/publications/Forestry%20Outlook%20study%20Country%20aper%20Nepal%202008.pdf>

MoFSC/GoN. (2007). Forest Sector Gender and Social Inclusion Strategy. Kathmandu: Ministry of Forests and Social Conservation, Government of Nepal.

MoFSC/GoN. (2011). Study on REDD Plus Piloting in Nepal. Kathmandu: REDD – Forestry and Climate Change Cell, Ministry of Forests and Social Conservation, Government of Nepal.

MoHP/Nepal, New ERA, and ICF International Inc. (2012). Nepal Demographic and Health Survey 2011. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and ICF International, Calverton, Maryland.

MoWCSW. (2004). National Plan of Action on Gender Equality and Women Empowerment. Kathmandu: Ministry of Women, Children and Social Welfare, Government of Nepal

Nagendra, N., Karna, B. and Karmacharya, M. (2005). "Examining Institutional Change: Social Conflict in Nepal's Leasehold Forestry Programme", Conservation and Society, Volume 3, No. 1, June 2005.

NCVST. (2009). *Vulnerability Through the Eyes of Vulnerable: Climate Change Induced Uncertainties and Nepal's Development Predicaments*. Institute for Social and Environmental Transition-Nepal (ISET-N, Kathmandu) and Institute for Social and Environmental Transition (ISET, Boulder, Colorado) for Nepal Climate Vulnerability Study Team (NCVST) Kathmandu.

NEFIN. (2010). hnjfo' kl/jt{g tyf /}8 ;DaGwdf jg. e"ld / cflbjf;Lhghfltsf] clwsf/ . Kathmandu: Nepal Federation of Indigenous Nationalities (NEFIN) in partnership with TEBTEBBA, AIPP and IWGIA.

Pariyar, S. (2013). "Position Paper of the Dalit Community on Climate Change and REDD+ Mechanism". Reference from CBFM Workshop DANAR, May 22-25, 2011. Source: <http://sunilpariyar.blogspot.com/2013/03/position-of-dalit-community-on-climate.html>

- Paudel S (2002) Community Forestry in Nepal, Himalayan Journal of Science Vol.1, No. 1
- Paudel, N.S. Budhathoki, P., and Sharma, U.R. (2007). Buffer Zones: New Frontiers for Participatory Conservation? *Journal of Forest and Livelihood*, 6(2): 44-53.
- Paudel, N., Khatri, N., Karki, R. and Paudel, G. (2013). Drivers of Deforestation and Forest Degradation and responses to address them in Nepal. Report submitted by ForestAction to UN-REDD Programme in October 2013.
- Paudel, N S.; Khatri, D. B.; Khanal, D. R. and Karki, R. (2013). The context of REDD+ in Nepal: Challenges and opportunities. Kathmandu: CIFOR and Forest Action, Occasional Paper 81.
- Paudel N.S. et. al. (2013), The context of REDD+ in Nepal: Drivers, Agents and Institutions; Occasional Paper, CIFOR
- Pokharel, B. K. (2002). "Livelihoods, Economic Opportunities and Equity: Community Forestry and People's Livelihoods": *Journal of Forestry and Livelihood*. Kathmandu: Forest Action.
- Pokharel, B., Byrne, S. 2009. Climate Change Mitigation and Adaptation Strategies in Nepal's Forest Sector: Can Rural Communities Benefit? NSCFP Discussion Paper No. 7. Nepal- Swiss Community Forestry Project: Kathmandu
- Rana, R. S. (1976). Notes for a design: Environment and Development Planning. *Mountain Environment and Development*, 111 - 121.
- Rana, P., Shivakoti, G.K., and Kachhyapati, S. (Eds). (2009). "Women and Poverty", *Keeping the Beijing Commitment Alive...Nepal NGO Report on Beijing+ 15*. Kathmandu: National Network for Beijing Review Nepal (NNBN) and SAATHI (First edition).
- Raut N., Sitaula B.K. and Bajracharya R.M. (2011) A discourse on Agricultural Intensification in the Mid-Hills of Nepal, *Asian Journal of Agriculture and Development*, Vol 8, No. 1
- REDD Cell. (2010). *Nepal's REDD Readiness Preparation Proposal (R-PP)*. REDD Cell, Ministry of Forests and Soil Conservation.
- REDD Cell. (2011). Study on REDD Plus Piloting in Nepal. Kathmandu
- REDD Cell. (2013). Mid Term Report: World Bank FCPF Grant on REDD Readiness. Kathmandu: Author
- REDD Cell (2014) Forest Carbon Partnership Facility (FCPF) Carbon Fund Emission Reductions Program Idea Note (ER-PIN) - Nepal, 7 March 2014
- Samir K.C. (2013). Community Vulnerability to Floods and Landslides in Nepal. *Ecology and Society* **18**(1): 8.
- Sangroula, D. P. (NA). Hydropower development and its sustainability with respect to sedimentation in Nepal. *Journal of the Institute of Engineering*
- Sharma, B. (2011). *The Welfare Impacts of Leasehold Forestry in Nepal*. Kathmandu: (SANDEE Working Papers, ISSN 1893-1891; WP 61–11).
- Sharma D.R., Thapa R.B., Manandhar H.K., Shrestha S.M. and Pradhan S.B. (2012) Use of Pesticides in Nepal and Impacts on Human Health and Environment. *Journal of Agriculture and Environment* Vol: 13
- Shrestha, A.B., Devkota, L.P., 2010. *Climate Change in the Eastern Himalayas: Observed Trends and Model Predictions: Climate Change Impact and Vulnerability in the Eastern Himalayas – Technical Report 1*. <<http://www.icimod.org/?opg=949&document=1811>> (accessed June 2011).
- Shrestha, V. (1999). *Forest Resources of Nepal: Destruction and Environmental Implications* (Vol. 26). Contributions to Nepalese Studies, CNAS/ Tribhuwan University.

- Subba, S. and Babar, A. Z. (2001). Strengthening Gender Initiatives in IFAD Projects: Case Study of Hills Leasehold Forest and Forage Development Project in Nepal. Rome: IFAD.
- Suzuki, R. (2012). "Mainstreaming Gender in REDD: Beyond Livelihoods to Identity". Source: <http://recoftc.wordpress.com/2012/01/13/mainstreaming-gender-in-redd-beyond-livelihoods-to-identity/>
- UNDP/UN REDD Programme, WOCAN and LEAF/USAID. (2013). Scoping Study of Good Practices for Strengthening Women's Inclusion in Forest and other Natural Resource Management Sectors.
- United Nations Environmental Program [UNEP]. (2013). *Report on REDD+*. Geneva:
- Upreti, B. R. (2000). Social transformation through community forestry: Experiences and lessons from Nepal. Nepal Swiss Community Forest Project/SDC Nepal. bupreti@unlimit.com
- Wickramasinghe, A. (Ed.). (1997). Land and Forestry: Women's Local Resource-Based Occupations for Sustainable Survival in South Asia. Colombo: CORRENSA (Collaboration of Regional Research Network in South Asia).
- Stainton, J. D. (1972). *Forests of Nepal*. London: John Murray.
- van der Werf G.R. D. C. (2009, November). CO2 emission from forest loss. *Nature Geoscience*, 2, 737 - 738. Retrieved from www.nature.com/naturegeoscience
- von Westarp S., Schreier H., Brown S. and Shah P.B. (2004) Agricultural intensification and the impacts on soil fertility in the Middle Mountains of Nepal, *Canadian Journal of Soil Science*, 84(3): 323-332
- WECS. (2010). *Energy Sector Synopsis Re **To be completed***
- WOCAN and HIMAWANTI. (2012). An Assessment of Gender and Women's Exclusion in REDD+ in Nepal. Bangkok: WOCAN.
- Xu, J., Grumbine, R.E., Shrestha, A., Eriksson, M., Yang, X., Wang, Y., Wilkes, A., 2009. The melting Himalayas: cascading effects of climate change on water, biodiversity, and livelihoods. *Conservation Biology* **23**, 520–530.