TOWARDS A SUSTAINABLE

Paper Cycle

Sub-Study Series

4 Sustainable Forest Management: An Analysis of Principles, Criteria and Standards

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SUSTAINABLE FOREST MANAGEMENT: AN ANAYLSIS OF PRINCIPLES, CRITERIA AND STANDARDS

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ACRONYMS

BS	British Standard
CIFOR	Center for International Forestry Research (headquarters in Indonesia)
CITES	Convention on International Trade in Endangered Species
CSA	Canadian Standards Association
CSD	UN Commission on Sustainable Development
EMS	Environmental Management System
FSC	Forest Stewardship Council
GATT	General Agreement on Tariffs and Trade
ISO	International Organisation for Standardisation
ITTO	International Tropical Timber Organization
ITW	Initiative Tropenwald
LFMU	Local forest management unit (an area under the control of the forest manager)
NAFTA	North American Free Trade Agreement
P&C	Principles and criteria
PC|&S	Principles, criteria, indicators and standards
SFM	Sustainable forest management
UNCED	UN Conference on Environment and Development
UNCTAD	UN Conference on Trade and Development
WBCSD	World Business Council for Sustainable Development
WCMC	World Conservation Monitoring Centre
WWF	World Wide Fund for Nature
WRI	World Resources Institute
WTO	World Trade Organisation

EXECUTIVE SUMMARY

1 The different purposes of principles, criteria, indicators and standards (PCI&S):

There is general agreement between industry, governments, social and environmental NGOs, and much of the informed public, that forests should be managed "sustainably". However, there is less consensus about what this means in practice - or how it should be achieved.

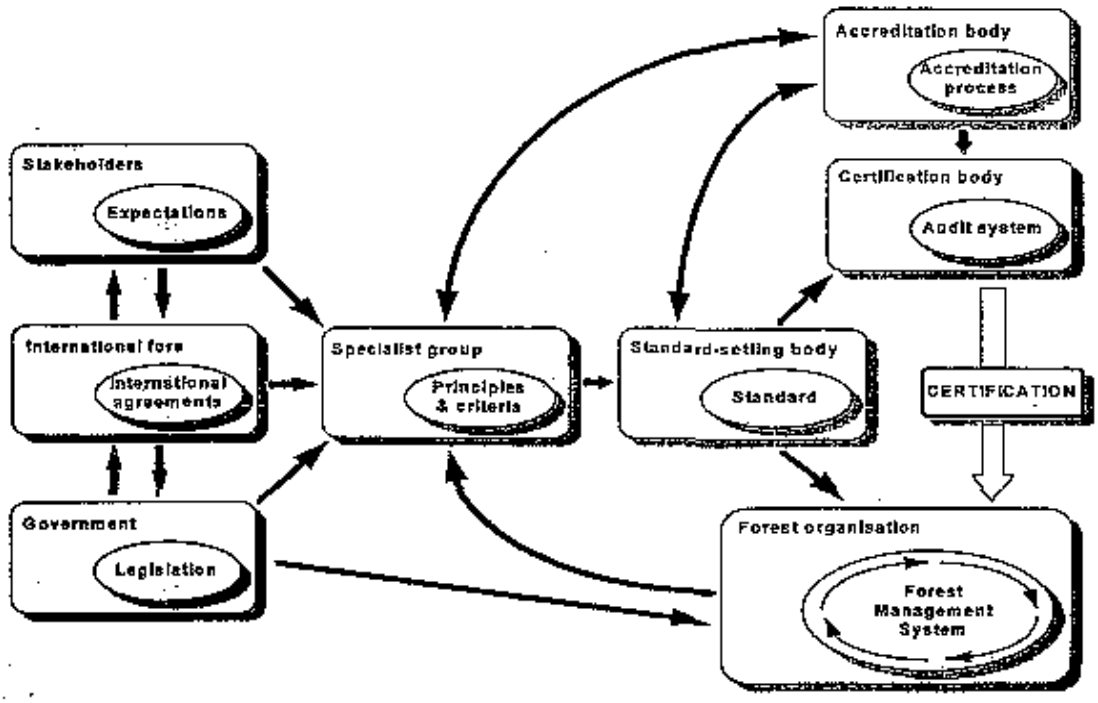
Consequently, there are now many initiatives which aim to describe or prescribe the essential elements of *sustainable forest management* (SFM). Initiatives focusing on forestry principles, criteria, indicators and standards (PCI&S) all have a common aim - improving forest management and increasing accountability for it.

The main groups of PCI&S have different purposes:

- The first group is principles and criteria (P&C) for *national policy, planning, monitoring and/or reporting* on the state of forests by e.g. national forest authorities. They include the Helsinki, Montreal and Tarapoto processes. They are not designed to be implemented in individual forest operations, but are likely to influence the development of national legislation and guidelines. Hence, at national level, they could be of benefit in improving the reiterative processes necessary to make the transition to SFM. At international level, they may become of special use when and if intergovernmental payments are made to countries for providing global benefits.

- The second group comprises regional, national or local standards for *implementing forest management and for assessing it in individual forests.* They are driven by market demands, or perceived demands, for the products of good forest management. They include several voluntary certification initiatives.

A third group of "internal" standards has been developed by many forest owners and companies. These are local responses to the above "external" standards, as well as to legislation and corporate aims. The way that PCI&S evolve and relate to forest organisations can be illustrated as follows:



The search for accountability through PCI&S is fraught with difficulty. Every PCI&S initiative is dominated by a certain type of stakeholder - government, trade, environment NGO, etc - with different national balances. The groups which the initiatives most wish to hold accountable also differ. They lay varying emphasis on the different benefits of forests, and the different levels at which these benefits are realised - global, national or local. And their understanding of what constitutes good, or (more problematic), sustainable forest management differs. Indeed, the often striking contrasts in language, emphasis, style, promotional tactics and agendas make the differences between the initiatives more apparent than their similarities.

2 Common elements covered by PCI&S:

Although there are differences in priority and approach, a comparison of the content of some of the main initiatives shows that there is much commonality in the broad areas covered by each. These are:

- *Maintaining sustained yields of goods and services,* including:

  sustained yield of timber and non-timber products,
  protection of soil and water resources,
  maintenance of forest health and vitality and ecosystem functions,

operational management for sustained yields.

- *Maintaining biodiversity* at the ecosystem, species and genetic level

- *Optimising the socio-economic impacts of forestry*, including:

  the impact on indigenous people,
  the impact on local communities,
  the impact on employees,
  economic and financial impacts.

Although each of these areas is covered to some extent by all PCI&S initiatives, some initiatives merely state what factors should be *measured*; others stipulate *performance requirements*, sometimes with benchmark levels; others stipulate *policy requirements*; and some cover all three.

The main text of this Study includes a detailed comparison of how the main initiatives treat these broad areas, as we believe this will help the necessary first steps in seeking convergence - mutual understanding between the initiatives. Once done, this will ease the work of addressing the differences in definition and priority.

However, there is still disagreement on:

- the relative importance or weighting of the broad principles, especially at different levels (global, national or local);
- their interpretation into criteria and indicators;
- the development of corresponding standards;
- means for implementing such standards by specific forest organisations;
- the impacts and implications of implementation;
- means for assessing and monitoring forest organisations to ensure their compliance with the standard;
- monitoring the standard's total application and its impact on SFM;
- timing constraints;
- how far compatibility is required between initiatives.

3 Major dilemmas to be addressed:

Social issues:
Social issues, including the rights of forest-dwelling peoples and local communities, are a source of conflict. There are two sets of issues: who are the legitimate stakeholders, and what are their rights, interests and interactions; and what relative roles and forms of participation are required for SFM? Addressing these is key to resolving the conflicts. It is not a question of "maximising" participation but ensuring relevant and appropriate participation. Local involvement in standards processes, interpretation and monitoring is the best way to ensure constructive dialogue and co-operative development - but this should also be based on informed professional insight into areas such as human rights. Such co-operation is often unprecedented, and

provides new challenges. The Forest Stewardship Council (FSC) sets up national stakeholder working groups, as a first step - a promising approach. The Centre for International Forestry Research (CIFOR) is also examining possible social and participation indicators which should provide good insight in the near future.

A social issue which is not fully resolved in standards is that of *equity*. While most PCI&S initiatives call for the respect of different groups' rights, including tenure, the notion of improving these rights is not included - in spite of its inclusion, both explicit and implicit, in the UNCED agreements.

Land use issues:
Sustainability needs to be achieved not only within the forest stand but also within the wider land use context. Where natural forests and plantations are part of a planned land use pattern that sustains a mix of economic, social and environmental benefits (and where stakeholders have been properly represented in this planning), the argument can be made that it is legitimate for forests to concentrate on certain goods and services, and for other parts of the land use system to concentrate on others. Within the spread of different forest types, it can be similarly argued that it is more efficient to concentrate certain demands (such as high fibre production) on intensively-managed plantations, and concentrate other services such as environmental protection and biodiversity on natural forests. This will often be more efficient, and produce *higher total benefits; than trying to obtain all types of benefit out of each forest.*

However, the management of individual forests, plantations and other land types cannot proceed in isolation - for there are ways of organising land use to gain complementary benefits, for example the precise placement of plantations with natural forests can allow wildlife corridors and better water management.

Where the forest landscape is more uniform, and particularly where there are very few areas of old growth, a zonation approach is less appropriate. A multi-use approach, as in Sweden for example, is desirable; production forests should also be managed for biodiversity and other forest values.

Whilst plantation forests are accepted as a legitimate part of land use by most initiatives, the idea of converting forests from natural growth to plantations is very contentious. The FSC is now considering allowing such conversion in the context of a participatory land use plan. The dilemmas here are many, including how far back in time previous land use should be considered significant. No initiative is currently approving certification of forests converted to non-forest use i.e. salvage timber is disallowed.

When the dilemmas over forest conversion begin to be faced squarely, broader sets of standards may arise that deal with land use and landscape issues, as opposed to just forestry. While more challenging, this may help ultimately to tackle both the cross-sectoral root causes of forest problems and the problems of forests (especially plantations) fitting into the wider landscape. There are some precedents in agricultural standards e.g. UK LEAF.

General versus detailed standards:
Detailed standards are expensive to assess in the field; they do not have wide applicability; and objections can be made on national sovereignty grounds. On the other hand, general standards can too easily be inadequately applied - leading to no improvements in forest management. However, we suggest that, following precedents in other sectors, the way to start is with generalised standards. These would cover the main dimensions of SFM. They would be interpreted both by local forest managers (who create internal forest operation standards to meet the external standards under local conditions) and (where needed) by assessors. This would require good accreditation of assessors to attest to their professionalism and independence. FSC is a pioneer example.

Performance-based standards complementing management system standards:

Performance-based standards specify what a forest organisation must achieve, but do not dictate how this should be done. They tend to be favoured by environmental NGOs seeking guarantees of specific environmental performance. However, there is a difficulty in identifying, in advance, what performance issues are the most important. In addition, for certification of sustainability - as opposed merely to certifying good practice - lengthy time series of data need to be available, which is rarely the case.

Environmental Management System (EMS)-based standards detail the processes which the forest organisation must adopt to improve its environmental management, but do not prescribe any minimum level of performance apart from conformance with laws or codes of practice. However, they also include requirements for 'continuous improvement'. When a good EMS exists, much of the monitoring and assessment can be done from offices, with field visits - the most costly element - restricted to confirmation that documented EMS procedures are being followed. This lowers the costs e.g. of certification. It is not, therefore, surprising that EMS standards tend to be favoured by industries who seek practical, adaptive management to improve performance.

The two types of standard are not substitutes, but are necessary complements. The attainment of SFM - nationally or in an individual forest - involves a cyclical approach to the tasks of knowledge generation, goal-setting, forest management, monitoring, and improvement based on multi-stakeholder assessment. This process requires a *management system* to enable a forest manager to meet, over time, agreed levels of *environmental, social and economic performance*. Hence both performance and management system standards are required. They both have their pros and cons and the participation of national stakeholder groups will be critical for deciding which type, or what combination of the two types, is the most useful vehicle for encouraging SFM in the local context. Convergence between the two can be achieved in part by a focus on the preventative and precautionary principles.

In general, it can be seen that a workable standard:

- must be practicable, cost-effective to implement, and acceptable to the forest industry or it will not be adopted (suggesting the EMS approach);
- must be acceptable to environmental and social pressure groups or it is unlikely to be trusted by the public at large (suggesting generally a performance-based approach and wide stakeholder participation in defining criteria and indicators);
- must be consistent with evolving local and national legislation (suggesting the need for government involvement).

We suggest that an EMS approach will best encourage widespread adoption of SFM in practice, especially where forestry is dominated by larger operations. Once acceptance of EMS-based standards becomes widespread, however, national stakeholder groups also need to determine those key areas of environmental and social performance that they consider essential for local circumstances. *Possibilities should be explored for merging an EMS-based approach with a performance approach.* "Graded" e.g. one- to three-star certification, as opposed to all-or-nothing, is one possible approach.

Information to help start this process is available from CIFOR, which is studying the practical implementation of criteria from current forest certification programmes (Prabhu et al, 1996).

The costs of certification:
These remain substantial. There are threats of certification becoming a *de facto* "rich man's club", excluding small or poor groups. Ways forward which are being explored include: wood buyers paying the costs; certifying small producers as associations; not-for-profit certification bodies subsidising smaller producers; certifying foresters rather than forest owners; and ensuring that certification standards do not favour just a high-technology, corporate approach to SFM.

Improved training for forest managers:
PCI&S provide a challenge to foresters to update their professional approach to account for SFM. Training is needed to help foresters to understand and implement the greatly increased range of demands now placed on forest management. This is especially the case if - as we suggest above - accepted PCI&S tend to become general rather than detailed, relying on expert interpretation in the field.

Potential problems with trade barriers:
Such problems are possible if certification is made compulsory (*de facto* or *de jure*) or its standards are operated in a discriminatory way. Because many trade/environment issues are in flux, being considered by many sectors beyond forestry alone, and it is important to avoid discrimination, an internationally-agreed approach is desirable. Parties need to agree on what the trade problem is. They need to monitor current certification schemes as they progress towards mutual recognition or harmonisation. But they should also examine those aspects of GATT and the WTO

Agreement which are obstacles both to SFM, and to certification as an instrument of SFM, and seek to improve them.

Global benefits of forests:
PCI&S are far more advanced for field-level certification and for national planning/reporting than they are for global issues, notably: the conservation of ecosystem diversity at global level; carbon storage and sequestration to buffer climate change; and the status of forest-dependent peoples. Much international discussion is required here, but this has been largely avoided, because the various possible ultimate uses of global PCI&S are contentious (notably payment transfers for "global services" and a global forest convention to secure certain forms of national behaviour).

4 Standards need to be considered alongside practical assessment systems, accreditation and review mechanisms

The development of PCI&S is of little more than exhortatory value if it is done only through listing the ideal components of SFM. Striving for what is practicable is an essential complement to the current work, which has tended to aim overmuch on idealised definitions of perfection. PCI&S need to be developed while at the same time considering:

- other SFM initiatives
- awareness and education on the purpose and operation of the PCI&S
- practical assessment systems for examining forest management systems and their impacts in the forest
- rigorous assessment procedures
- the appropriateness, and requirements, of independent certification
- accreditation mechanisms for independent certifiers
- mechanisms to revise the standard

The arguments for and against *certification* are many, but we conclude that certification has a useful role as a voluntary, market incentive for SFM. There are several circumstances where independent assessment of conformity with a standard are required. Certification assesses trade/market needs for good forest management. We have said that a general, international standard combined with detailed local interpretation is the best way forward. In this case, the capability of the certification body in assessing conformance with the standard is critical, since independent, professional judgement will be needed. A very high degree of conformity both within and between the certification bodies accredited to carry out certification activities also becomes essential. Therefore, whatever type of standard is adopted for sustainable forest management, it must include a credible and open procedure of checking the

ability of each certification body to assess the activities of a forest organisation. ISO offers tested accreditation procedures. FSC offers the most forest certification experience from which to learn, and should be supported as a front-runner.

Much more investment is required in developing practical and cost-effective assessment systems. At forest level, priority needs are for assessing primary and secondary social impacts, and biodiversity factors. The EMS approach can help to focus attention on the information that is most relevant, thereby reducing the cost of potentially over-comprehensive information collection; it can also ensure this information leads to improve management. At national level, a priority is to develop and bring together different spatial databases in a way which is useful for policy and planning; Forest Resource Accounting offers a useful way forward.

5 The need to seek compatibility and an international agreement:

Compatibility between PCI&S initiatives has yet to be achieved. Progress will best be made when a very basic set of P&C is agreed internationally, and all other PCI&S can demonstrate both compatibility with it in their content, and rigorous procedures for interpretation in field conditions. This is especially important if SFM standards are to play a part in restoring the credibility of forestry practices internationally.

There are two basic ways to achieve compatibility.

- *Convergence*. This takes time - but depends, usefully, upon experience in the field and in the market place.
- *Harmonisation.* This has no strict legal meaning. It has variously covered standards which are identical, or similar, or above a minimum, or around an average, or mutually recognised. It depends upon negotiation.

Convergence and harmonisation are not entirely exclusive.

The current discussions on PCI&S may not reach resolution unless they have an international agreement, or some kind of legal framework, to underpin them. However, tacit or explicit recognition of this worries some groups, who see PCI&S initiatives leading to a global forests convention. While such a convention may ultimately come about, and would need some kind of P&C for reporting, this is not the only possible form of framework.

The Intergovernmental Panel on Forests (IPF) is the most promising initiative for both harmonising international P&C for national and international reporting, and for considering appropriate international agreements within which P&C may take effect. It has a balanced mandate to sort out, over a set time, many of the underlying problems behind the standards debate, notably: sharing all nations' understandings of good and sustainable forest management; looking at the various transitions required for achieving sustainable forest management; examining the range of instruments and processes for making these transitions (including PCI&S); sharing experience on PCI&S-setting methodologies; and addressing the global benefits from forests. Within

the IPF-led deliberations, *ITTO* and *FAO* are useful fora for policy and technical discussions.

The Forest Stewardship Council and the *International Organisation for Standardisation* are the most promising bodies to assist with forest management standards for certification. This is because they have made most progress in six key tasks for setting standards:

a defining the globally common elements of minimum field level performance required for sustaining social, economic and environmental benefits (FSC's P&C);

b encouraging regional, national or local interpretation of these P&C, and adaptation of both local standard and P&C in light of experience (FSC);

c putting together stakeholder groups at national and international level to agree standards (FSC and ISO);

d defining EMS processes required to improve performance (ISO);

e defining and testing processes of expert review and stakeholder participation required to generate any standard (ISO); and

f ensuring harmonised standards do not result in a lowest common denominator, but in standards at just below industry best practice (ISO).

There is currently much confusion and some mistrust about the potential roles of both FSC and ISO. Much revolves around the perceived merits of performance-based standards *versus* EMS-based standards.

Although, inevitably, attempts at harmonisation will soon increase, much will also be learned through experience of all PCI&S. The continued monitoring of PCI&S, their impacts, and their convergence will therefore also be important.

6 Improving participation in standard-setting:

The elaboration of standards must take place at the national, or local, level to allow for geographical, biological, social and economic differences between forests. At the national level, stakeholder groups representing everyone with an interest in forest management can then devise standards of forest management which are acceptable and appropriate for the country. However, it is also essential that these are based on a broad international consensus on the main dimensions of SFM, if widespread recognition is to be achieved for trade, payments for global services, monitoring, and political purposes.

The definition of SFM and of different groups' roles in it, and obtaining mutual accountability in achieving SFM, are therefore key activities that cannot be achieved

without wide stakeholder participation. Indeed, SFM itself is a construct resulting from many stakeholders' perceptions of, and needs from, forests. The key issue is: who defines and implements criteria and indicators? Only when all interested groups are represented and feel that their views are respected, and when groups have been able to prove that they are making genuine improvements, will an SFM standard be fully trusted. This is especially the case for performance standards, where agreement on critical (threshold) forest values is needed.

It is understandable that current PCI&S initiatives have evolved through limited participation. However, their future development and convergence requires:

- better stakeholder analysis;
- *broader* participation of stakeholders (more disciplines, sectors - notably forest industry, and different types of groups); and
- *deeper* participation ("down" to local forest peoples, including normally marginalised groups).

Promising mechanisms to take this forward are:

- *The Intergovernmental Panel*, because it is an international forum open to all groups - provided NGO and industry inputs can be made in good time

- *FSC's* national working groups are promising vehicles at national level, provided *local* working groups are also set up within them. Successful participatory methodologies and systems used in e.g. TFAPs, and national conservation strategies, should be explored and included

- *ISO's* participatory procedures for standard-setting (tried and tested for any type of standard) form a good basis. Their principles include: consensus building, globally-interpretable solutions, a voluntary approach, and periodic revision. However, at the national level, participation should be even wider than is normal for ISO.

- *The World Business Council for Sustainable Development (WBCSD)* could lead the way in re-establishing trust and a co-operative working relationship within industry, and between industry and NGOs. It should provide a continuing forum for the discussion of difficulties and suggestions for how to overcome them.

1. Processes for achieving Sustainable Forest Management

The last decade has seen perceptions of what constitutes good forest management broaden considerably. In addition to timber supplies, forests are now expected to provide an array of other products and services, ranging from biological diversity to social welfare. As a result, concepts such as "multi-purpose forest management", "sustainable forest management", "ecosystem management" and "good forest stewardship" have been put forward. However, while there is now agreement in principle that forests should be managed 'sustainably', it is much less clear what this means in practice. The protagonists of some approaches are not always willing to see the merits of other approaches.

Since the 1992 United Nations Conference on Environment and Development (UNCED), there have been many initiatives which attempt to define, describe or prescribe practices for sustainable forest management (SFM). These have come from a wide array of stakeholders, each with their own priorities and agenda. They have aimed at a range of situations, from very specific to very general, and from global to local.

Some initiatives are inter-related, while others are quite separate. Although comparable in some ways, the initiatives relate to different purposes - both overt and covert agendas - and stem from different fields of interest and value systems. Purposes include:

- defining criteria for *national monitoring* of the status of forestry particularly for international reporting of progress towards sustainability,
- ensuring the *accountability* of different groups,
- *certification* of individual forest operations to defined international standards to meet market requirements.

As a result, much confusion still remains, both about what constitutes SFM and about which of the many initiatives are relevant to a particular situation. However, whatever their motivation, most groups seem to agree that SFM entails a transition to different patterns of behaviour by those involved in forestry, and requires more attention to social and environmental goods and services.

Two clarifications need to be made concerning SFM. Firstly, *SFM entails a certain type and level of performance in the forest* - specifically, the need to consider certain environmental, social and economic matters, the most important of which are:

1. *Maintaining sustained yields of goods and services including ecological functions. This covers:*
   - *sustained yield of timber and non-timber products,*
   - *protection of soil and water resources,*
   - *maintaining health and vitality of forests,*

- *operational management for sustained yield.*

2. *Maintaining biodiversity at the ecosystem (or landscape), species and genetic level.*

3. *Optimising the socio-economic impacts of forestry. This includes:*
   - *the impact on indigenous people,*
   - *the impact on local communities,*
   - *the impact on employees,*
   - *economic and financial impacts.*

Secondly, *SFM usually entails new management processes*, to help plan the integration of the above objectives where possible, or make trade-offs between them where integration is impossible, and then to get them achieved on the ground. New and integrated objectives will not be achieved overnight. The management process element of SFM is essential in order to chart the transition between the current situation and the sustainable ideal, and to keep a forest operation on track for an efficient and fast transition. This means that SFM also needs to consider a fourth issue:

4. *A supportive institutional framework for SFM, including policies, skills and research.*

In some countries and circumstances, the first stage in the transition to SFM will be a basic one e.g. from no management to informed management. In others, some of these basic requirements will be in place and the transition will be more ambitious, e.g. from single-use, single-user management towards management for multiple purposes to meet the needs of more stakeholders.

SFM is hence a continual process of defining achievable targets and standards, towards an agreed goal. As we shall see, SFM logically should entail *both* process standards for adaptive management, fostering continual improvement, *and* standards of minimum acceptable practice in terms of environmental, social and economic outcomes. Many groups and their initiatives tend to emphasise either process standards or minimum performance standards, rather than a balance between them. Many initiatives also tend to neglect the all-important factors of *who defines* standards (stakeholder participation), and *when and how they should be defined* (review and revision depending on how far the transition to SFM has progressed).

A little more discussion is warranted on the processes for achieving SFM, for it is within these processes that principles, criteria, indicators and standards (PCI&S) will play their roles. Transitions tend to be thought of in linear terms i.e. the gap between "now" and some future "goal". Indeed, this makes sense in terms of the *time* taken for a transition (which is linear) and the qualitative and quantitative *improvements* which are being aimed at (many of which could be put on some sort of linear scale).

However, research in environment and development issues (e.g. Carew-Reid *et al* 1994, Bass *et al* 1995) shows that effective *processes* for achieving transitions towards sustainability include a strong reiterative element, and are not entirely linear [1].

A cyclical process of agreeing the agenda and basic goals, knowledge generation, practice, monitoring and continuous improvement is illustrated in Figure 1 (adapted from Upton and Bass 1995). Elements of this cyclical approach can be traced in nations, and analogous approaches can be seen in progressive corporations (particularly those with environmental management systems).

Figure 1 outlines the basic process required for SFM at a national level. Most countries will have some of the required elements in place, but often some elements will be missing, or poorly linked to one another.

At the goal-setting stage, general *principles* of SFM need to be agreed amongst the various actors. Here, the issue is – who leads the vision for SFM, amongst international, national and local stakeholders? At the national level, different stakeholders may be variously dominant, and some will be more active than others because they see e.g. current policies and legislation as not upholding the demands they place on forests; and there is also a role for international bodies, given that SFM is required to produce global benefits such as climatic stabilisation and conservation of biodiversity.

At the planning and institutional stage, more precise performance *standards* for SFM are needed, to help the various actors set internal targets which are consistent with the principles. Management system/process standards can apply to the process of going through the cycle itself.

At the monitoring stage, *indicators* are needed to help measure progress, and assessment systems must be in place to measure such progress. The process is cyclical, so the principles, standards and indicators can and should be reviewed. Current PCI&S initiatives tend to fit in different parts of this cycle, but are not fully coordinated. Hence, at present, there are many international initiatives pushing principles and criteria for consideration in setting national policy goals. But there are also private sector initiatives for SFM standards which, in practice, may be constrained by these same national goals and goal-setting processes.

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[1] In this report , we consider *"sustainability"* to entail the balanced achievement of:

- *Environmental sustainability*: ecosystems support healthy organsims, while mainatinaing productivity, adapatabiliyt and capability for renewal
- Social sustainability: activities conform with social norms, or do not stretch them beyond society's tolerance for change
- Economic sustainability: benefits to society exceed costs incurred; and equivalent capital is handed down to the next generation.

Figure 1 Sustainable Forest Management (SFM): processes for its achievement

Clearly, some form of coordination, and harmonisation where necessary, should be sought between the different PCI&S initiatives, recognising that

(a) they should play different roles in transitions to sustainability - not all aiming at the same level and purpose;

(b) countries and groups have different transitions to make;

(c) there needs to be some consistency in order that conflicting directions signalled by the different PCI&S initiatives do not halt progress or result in discrimination in matters e.g. of trade; and

(d) stakeholders need to be involved in initiatives relevant to them, and to know what's going on.

It is in recognition of these needs that this sub-study was commissioned for the Sustainable Paper Cycle Project of the World Business Council for Sustainable Development.

Prepared by the International Institute for Environment and Development (IIED) and SGS Forestry, this report aims to clarify the issues and recommend future steps. It describes the processes involved in developing principles and standards of sustainable forest management and certifying forest operations. It summarises the most important international initiatives, discusses the main issues they raise, analyses how the different initiatives are related and how they influence the setting of standards, and finally discusses the implications for making the transition to SFM. Preliminary recommendations relevant to the forestry/paper industries, and specifically the WBCSD, are suggested for further discussion.

2. Principles, Criteria, Indicators and Standards: What they are and how they work

This section describes the various stakeholders and processes involved in developing PCI&S for sustainable forest management. This is because there is confusion, not only about the aims and scope of specific initiatives, but also about the basic definitions and purposes of PCI&S. We propose definitions of the key terms, based on accepted practice and mostly following the style of the International Organisation for Standardisation (ISO). We also outline the way in which standards can be implemented, monitored and - where necessary - certified at the forest management unit level. This is shown schematically in Figure 2 and described in detail below.

- 2.1 Development of principles, criteria and indicators
- 2.2 Forest management standards and their implementation
- 2.3 The role of national government
- 2.4 Conformance with standards - the role of certification

2.1 Development of principles, criteria and indicators

Stakeholders: The formulation of concepts and standards of forest management begins with stakeholders. In the case of forestry, stakeholders comprise all individuals or organisations with an interest in forests, forest land or forest products and services. This includes forest owners, concessionaires, the timber industry, timber buyers, environmental groups, forest-dwelling people, local communities, social and economic NGOs, governments, consumer groups and the general public. All have requirements regarding the quality and quantity of products and services they expect a particular forest area, or forests in general, to supply. Such expectations contribute to defining principles and standards.

International agreements:

There is a growing number of international agreements which are relevant to forestry and should be taken into account. International agreements may or may not be legally binding on signatory countries. Legally binding international agreements relevant to forestry include the Convention on Biological Diversity and the Framework Convention on Climate Change agreed at UNCED, and the Convention on International Trade in Endangered Species (CITES) which has been in existence for nearly twenty years. Non-legally binding advisory agreements include the Forest Principles agreed at UNCED in 1992[2].

[2] Full title: non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests.

Figure 2

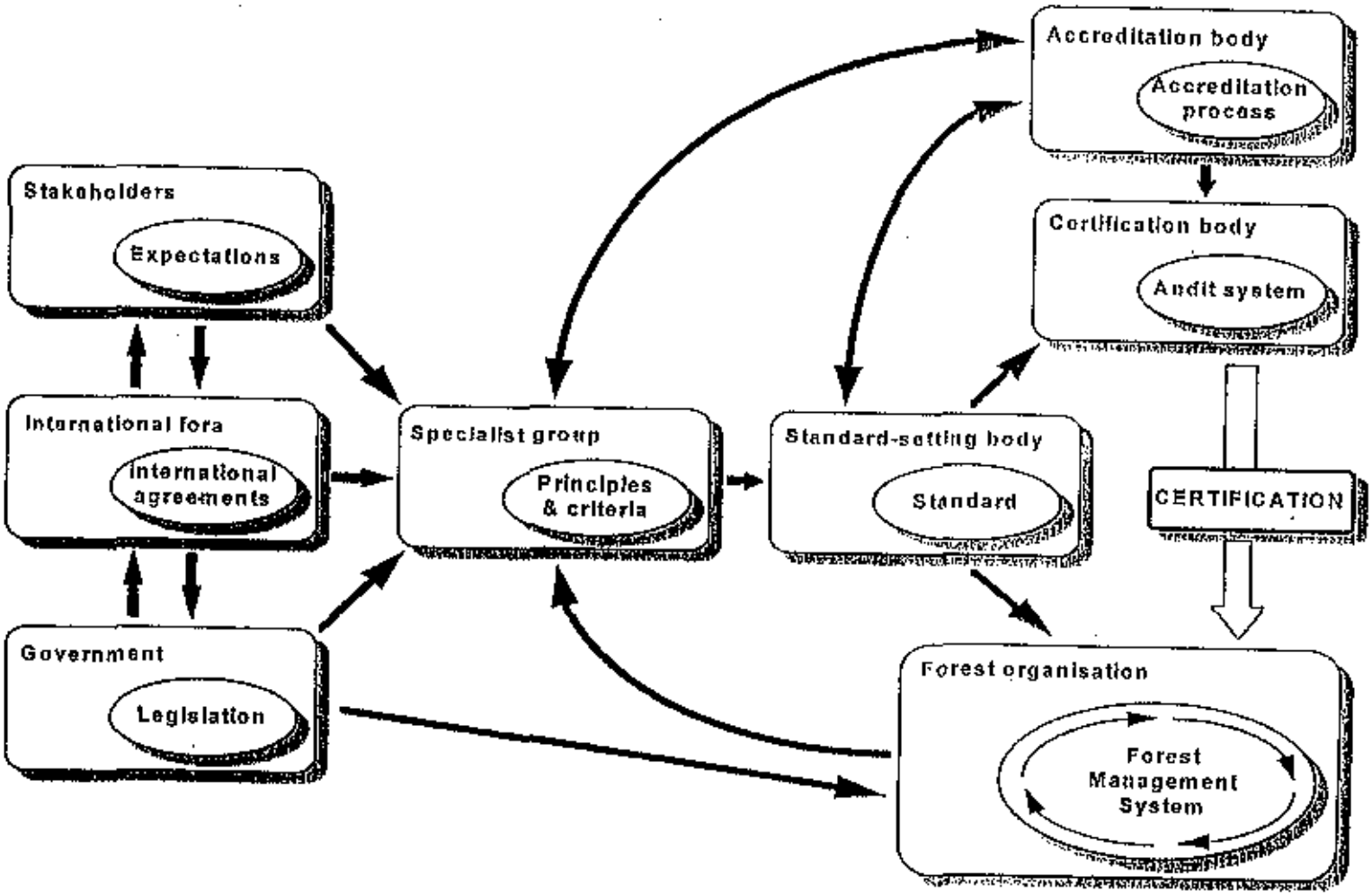

Figure 2: A schematic representation of the stages involved in the formulation of principles, criteria and standards of forest mangement and implementation through certification. People and organisations are represented by boxes, while the initiatives they produce are shown by shaded ovals within the boxes. The links between the initiatives are shown with arrows. As the processes involved are complex, there may be circumstances where links exist which are not shown and other circumstances where the links indicated here do not exist in practice.

Principles and criteria:

Each of the different priorities and expectations of the stakeholders, together with the content of international agreements, are considered by a **'specialist group'** made up of experts or interested parties. These specialist groups formulate a set of **principles, criteria** or **indicators** (see below) of sustainable forest management. Some groups have produced sets of principles, criteria and indicators at the international level to help lead general policy change, define the important elements of forest sustainability globally and provide a framework for measuring and comparing relative performance in forest management in different countries (See Box 1). Such initiatives are not usually meant for direct implementation at the forest management unit level, although they may be used as a basis for producing national or local initiatives. Other specialist groups have produced sets of principles, criteria and indicators meant to provide the basis for the development of **standards** of forest management for implementation at the forest management unit level (see Box 1).

Principles: Principles are the key elements of a standard which define its scope and serve as a functional guide to action. They are usually general and outline the philosophy on which the standard is based.[3] An example of a principle is *'Forest management shall conserve water resources and soils'*. The principles are broken down into **criteria.**

Criteria Criteria set out the key elements or dimensions that define and clarify each principle, for example, relating the principle to actual forest practices. They are more specific than principles which they break down into sections. Criteria for sustainable forest management correspond to identified elements of good practice, or sustainability, against which forest management may be assessed. An example of one of the criteria which clarify the principle above is *'Erosion during harvesting shall be minimised'*. Criteria are assessed using **indicators.**

Indicators Indicators are quantitative or qualitative variables which can be measured or described and which can be used to report on the status or trend of a criterion over time. For each criterion, there should be one or more indicators. Indicators may need to be much more region- and forest-specific than principles and criteria. An example of an indicator which measures the above criterion is 'The area of skid trails must be less than.....'.

[3] Principles provide a philosophical framework. This framework may also have been negotiated in legal terms between parties. Because they usually are, in fact, negotiated agreements, principles appear to have an absolute authority. In paractice, however, they mask conflict. Their open-ended nature can allow for a huge range of meanings to be ascribed to individual principles. Hence they are often accompanied by criteria, for clarification.

Box 1: Examples of sets of principles, criteria and indicators for sustainable forest management; and the specialist groups who developed them.

Initiatives developed at an international level

Predominantly to define SFM for national monitoring:

- The Helsinki Process *'European Criteria and Indicators for Sustainable Forest Management'*, the Ministerial Conference on the Protection of Forests in Europe.
- The Montreal Process *'Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests'*, the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests.

For interpretation and use at the forest management unit level:

- *'Criteria for the Measurement of Sustainable Tropical Forest Management'*, the International Tropical Timber Organisation International Panel.
- *'Principles and Criteria for Natural Forest Management'*, Forest Stewardship Council

Initiatives developed at a national level:

- *'Preliminary Criteria for Environmental Certification of Swedish Forestry'* produced jointly by WWF-Sweden and the Swedish Society for Nature Conservation
- *'Criteria and Indicators of Sustainable Forest Management, The Canadian Approach'*, the Canadian Council of Forest Ministers

2.2 Forest management standards and their implementation

2.2.1 Standards

A standard is defined by the International Organisation for Standardisation (ISO) as *'a documented agreement containing technical specifications or other precise criteria to be used consistently as rules, guidelines or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose'*.

Two possible types of standard may be applied to forest management: **performance standards** and **environmental management system (EMS) standards** (Groves and Lambert, 1995; Speechly, 1994; Upton and Bass, 1995).

Performance standards

These comprise a range of **prescriptive performance requirements**. The way in which the forest is managed is evaluated against the given specifications on a pass or fail basis. The standards developed under the Forest Stewardship Council's Principles and Criteria such as Smartwood, Qualifor, Woodmark and SCS Forest Conservation Programme, as well as the German Initiative Tropenwald, are examples of performance standards (Rainforest Alliance, 1993; SGS Forestry, 1994; The Soil Association, 1994; Scientific Certification Systems, 1994; Heuveldop, 1994).

EMS standards Environmental management system (EMS) standards are invariably based on ISO 9000, the well-known Quality Management standard which has been implemented by companies world-wide. EMS standards are process-based and include 'that part of the overall management system which includes the organizational structure, responsibilities, practices, procedures, processes and resources for determining and implementing the environmental policy' (Official Journal of the European Communities, 1993). No minimum level of performance is required except compliance with regulation, but the organisation must make a commitment to a process of **continuous improvement** and set itself a number of objectives and targets. ISO 14001, BS 7750, the European Union Environmental Management and Auditing Scheme (EMAS) and the Canadian Standards Association Sustainable Forestry Standard, are all environmental management system standards (ISO, 1994a; BSI, 1994; CSA, 1995).

These two basic types of standard are not mutually exclusive. In fact, an environmental management system can form an excellent framework for implementation of a performance standard. This is discussed in more detail in later sections. An example of a performance standard which uses elements of the EMS framework is SGS Forestry's Qualifor standard (SGS Forestry, 1994).

2.2.2 Implementation of standards by the forest organisation

The way in which standards are implemented by a forest organisation will vary, depending on both the type of organisation and the standard being implemented. In some cases it may be possible for forest organisations to implement performance requirements directly, without changing management systems. However, in many cases it is useful to use the elements of an environmental management system to ensure that required performance levels are attained, maintained and exceeded - the cyclical approach outlined in section 1 (Groves and Lambert, 1995). Suggested effective elements, based on current practice, are:

Forest organisation A standard is implemented by a forest organisation. This may be the owner of a small private forest, a company managing large areas of forest, a forest concessionaire, a government agency, or any other organisation which is responsible for managing a forest.

Environmental Review EMS standards require that a forest organisation first carries out an environmental review to assess the environmental impacts of all its operations, together with an analysis of which are most serious.

Policy The first step in implementing the standard is to develop a policy, or to publicly adopt a documented government or trade association policy if a relevant one exists. In the case of a forest organisation the policy might be a 'sustainable forest charter', a 'forest environmental policy' or a 'code of practice'. The policy must state the organisation's commitment to compliance with the relevant external standard. The policy must be endorsed by a senior executive or the forest owner and understood by everyone in the organisation. Using the policy as a basis, the organisation can then develop its **objectives and targets.**

Objectives These are the broad goals the organisation sets itself to achieve. They reflect the demands of the *principles* contained in the relevant external standard or the organisation's policy.

Targets These are specific performance requirements, set in order to ensure that documented objectives are met, and should be quantifiable and time-based where possible. Targets reflect the *criteria* found in the external standard or environmental policy.

Documentation One of the most important features of implementing both performance and management system standards is to ensure that there is clear documentation of policy, the organisation's management plan, and procedures for all working practices. In some cases it may be possible to adopt existing documents such as a forest department or trade association Code of Practice, but it is important that such documentation reflects what actually occurs in practice.

Monitoring Having defined and documented objectives, targets and indicators, the organisation begins implementation. Measurement of the defined indicators allows constant monitoring of the performance of the organisation in trying to

meet its targets and objectives.

Internal review

One of the most important elements of a good management system is the internal review. It is essential that the organisation reviews its own performance regularly to assess how well it is doing in meeting its objectives and targets, to identify areas where there are difficulties, to maintain momentum among management and staff, and to provide information to constantly improve and refine the system. The results of these reviews should be communicated to all affected members of staff, and remedial action taken where necessary. Based on these reviews, the policy, objectives, targets and indicators should be refined in a process of **continual improvement.**

2.3 The role of national government

All forestry organisations are subject to national **legislation and regulations** developed by government departments. Most international standards, both performance- and EMS-based, require compliance with all national legislation and regulations as one of their essential conditions. Generally, therefore, an international standard confirms the authority of national regulatory bodies. For some standards such as ISO 9000, national governments have provided active support for the standard by developing guidelines to help companies to interpret the international standard at the national and local level.

However, conflicts are possible between government policy and the requirements of standards, particularly when standards have been developed by non-governmental organisations - or where current legislation is clearly inconsistent with good forest management to stakeholders' satisfaction. Issues raised by this potential conflict are discussed further in later sections.

2.4 Conformance with standards - the role of certification

Independent auditing is not essential to the implementation of an external standard, but it is necessary if the organisation wishes to have its compliance with the standard **certified** or verified. Suggested effective elements in the process of certification, based on current practice, are:

Certification body

Auditing of an organisation's conformance with the external standard is carried out by a certification body. This is an impartial body possessing the necessary competence and reliability to determine whether a candidate organization has fully complied with the standard, on the basis of the management system and/or forestry

performance against indicators. The certification body is charged with auditing forest organisations and with issuing certificates. Because its role in interpreting criteria is critical, a certification body must engage well-qualified auditors and use rigorous procedures. The qualifications of the certifier's staff and the soundness and independence of its assessment procedures are subject to evaluation and surveillance by an accreditation organisation (see below). Procedures for the certification body's auditing (or assessment) system are fundamental to the rigour and reliability of certification. Operational certification bodies which were awarded accreditation in 1995 by the Forest Stewardship Council's initiative currently include SGS Forestry, the Rainforest Alliance, the Soil Association and Scientific Certification Systems, and many others are in the process of being set up. Many more certification bodies have been accredited to certify against EMS standards such as BS 7750, the European Union EMAS and other national EMS standards, none of which are specific to forestry.

Accreditation

To ensure that the auditing system is fair, objective and consistent, and that the certification body is competent, the certification body and its auditing system must be assessed and accredited by an Accreditation Authority (or National Competent Body). These are recognised organisations having a broad understanding of the scope and coverage of the standard, and a clearly defined mandate (nationally- or internationally- conferred) to assess the competence, reliability and experience of an organisation wishing to be accredited, in accordance with established accreditation criteria. Accreditation of certification bodies provides assurance to the forest organisation and other stakeholders that certification bodies are both properly qualified and maintain the highest standards in assessment. Most countries have National Accreditation Authorities, such as the National Accreditation Council for Certification Bodies in the UK or the Standards Council of Canada in Canada. Accreditation bodies are usually independent of the standard-setting organisations. However, the first organisation to accredit certification bodies to audit sustainable forest management standards was the Forest Stewardship Council (FSC), which also developed the FSC Principles and Criteria on which the standards are based.

Certification

An accredited certification body is qualified to audit and certify a forest organisation. A typical certification assessment for both EMS and the FSC performance standard involves most of the following stages:

Application: The forest organisation makes a decision that it wishes to pursue

certification and contacts a certification body. The certification body provides further information on the certification procedure, and normally gives the organisation a questionnaire to fill out to collect preliminary information.

Pre-assessment visit: An assessor from the certification body visits the forest organisation to meet with management, discuss the certification process in detail, examine relevant documentation and collect more information about the organisation's forest management. This enables the certification body to highlight areas of concern and determine whether the organisation is ready to proceed with certification assessment.

Document review: When the forest organisation has had sufficient time to address the areas of concern identified during the pre-assessment visit, an audit team is assembled to carry out the full assessment. A document review is undertaken first in which the organisation's policy, management plan and operating procedures are all carefully checked for conformance with the standard.

Field visit: The document review is followed by a field visit which allows the auditors to assess whether actual practice reflects documented procedures and planning. The assessment also checks that the internal objectives and targets are achieved or, where they are not, why, and what is being done about it. Where problems with respect to either failure of the system or failure to achieve standards and targets are identified, a Corrective Action Request (CAR) is generated. This explains the problem and requires the forest organisation to carry out corrective action within a specified time frame.

Reporting: the audit team prepares a draft report presenting its findings and giving a recommendation on whether a certificate should be issued.

Peer review: The assessors' report is sent out to independent experts to review.

Certification: If the peer review is successful and all CARs have been addressed, a certificate will be awarded.

Routine surveillance: A certificate is usually awarded for a set length of time, but during this time, many certification bodies carry out routine surveillance audits including both announced and random visits to ensure that performance is being maintained at the required level.

3. A Review of Sustainable Forest Management Initiatives

3.1 A summary of current initiatives

In the previous section, a variety of the initiatives relating to forestry were mentioned. Although some of these initiatives have been established since the 1980s, there has been a considerable increase in their number since UNCED. In UNCED's Action Plan, Agenda 21, governments agree to pursue, in full co-operation with special interest groups and international organisations, 'the formulation of scientifically sound criteria and guidelines for the management, conservation and sustainable development of all types of forests' (Agenda 21 Chapter 11 *Combating Deforestation*, Section 11.32b). Other UNCED agreements, and subsequent developments, relevant to forests are summarised in Box 2. Of particular note is the *Intergovernmental Panel on Forests*, which is charged with, *inter alia*, looking at the roles and convergence of criteria and indicators, and ways of bringing countries not yet involved into PCI&S processes.

Some of the most significant SFM initiatives have proposed principles, criteria, indicators and/or standards. These are summarised below. A more detailed description of their purposes, contents, and background is given in Appendix 1. Sections 3.2-3.4 discussion the links, the commonalities and the differences between the initiatives.

Intergovernmental initiatives

3.1.1 The European Criteria and Indicators for Sustainable Forest Management: The Helsinki Process. This began as a response to growing concern in Europe about the effects of acid rain, and increased sensitivity over the environmental aspects of forestry. It was developed by the Ministerial Conference on the Protection of Forests in Europe, building on the various principles contained in agreements made at UNCED (Box 2). The Helsinki Process focuses on forestry issues at a *national* level. It has been designed to provide the framework for the collection of information on forestry issues in Europe, to facilitate *national and international level reporting* on progress in implementing forest management practices. It has been kept general to allow country-specific interpretation. There is a low degree of detail: six criteria, each with three or four indicators designed to be quantifiable. The Helsinki Process applies to both natural forests and plantations (Anon, 1994a). European countries have made a commitment to using the criteria and indicators, and are beginning to use them in planning, monitoring and reporting. Some countries have concerns regarding the inclusion of privately-owned forests; the current consensus in the Process is that private owners should be encouraged to follow the Principles with different types of incentives. The desirability of merging the Helsinki and Montreal (below)

processes has been discussed and dismissed by the participants.

3.1.2 **The Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests: The Montreal Process**, was developed by the governments of ten countries (Australia, Canada, Chile, China, Japan, Republic of Korea, Mexico, New Zealand, Russian Federation, USA) for the same reasons as the Helsinki Process, and has a similar purpose, but for non-European forests (note that Russia is party to both). It is slightly more detailed than the Helsinki Process and contains seven criteria, each with associated indicators. The Montreal Process applies to both natural forests and plantations (Anon, 1995a). In late 1995, the initiative will move to its country-level implementation phase, where a key issue will be ways of measuring indicators for which no measurement technique has yet been developed, and ways of reporting on the legal/institutional/economic framework criterion.

Box 2: United Nations Conference on Environment & Development (UNCED) Agreements Relevant to Forestry

In addition to the Rio Declaration on Environment and Development, UNCED led to the development of five agreements relevant to forests:

- **'The Forest Principles'** - The full name is the "Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests". This document contains the general *principles* upon which more detailed approaches to sustainable forest management should be based.

- **Agenda 21** – An outline for sustainable development to the year 2000 and beyond containing 40 chapters. Chapter 11 'Combating Deforestation' addresses forestry directly, while other chapters refer to forestry in relation to issues such as climate change, land resource planning, sustainable agriculture and rural development, conserving biological diversity and biotechnology. This comprises a comprehensive - but not particularly strategic - list of desirable actions for SFM.

- **Convention on Biological Diversity** - This convention contains 42 Articles on conservation of biodiversity, many of which are relevant to forests. However, principles, criteria or indicators for SFM are not included.

- **Framework Convention on Climate Change** - This convention contains 26 Articles with the objective of achieving 'stabilisation of greenhouse gas concentrations in the atmosphere at a level which would prevent dangerous anthropogenic interference with the climate system'. Forests are affected as both a source of, and a sink for, the greenhouse gas carbon dioxide. One potentially positive scheme for forests arising from the climate change convention has been Joint Implementation projects where polluters (in developed countries) invest in forestry (in developing countries) to offset carbon emissions.

- **Convention to Combat Desertification** - This convention of 40 Articles has some relevance for forest management in arid and semi-arid and dry sub-humid areas where deforestation can be a major cause of desertification.

At the recommendation of UNCED, the **United Nations Commission on Sustainable Development** (CSD) was set up to monitor progress and identify problems in the implementation of Agenda 21. The CSD has now set up an **Intergovernmental Panel on Forests** to report to it in 1997; the agenda items include certification and "criteria and indicators" for SFM. For the latter, particular concerns include the "feasibility of further developing internationally-agreed upon criteria and indicators against which [SFM] of all types of forest could be measured, taking into account the specific regional and sub-regional conditions of forests and the diversity of economic, social and cultural environments". (Note that the more value-laden words "principles and standards" are not included.)

3.1.3 **The ITTO documents.** The International Tropical Timber Organisation has produced four documents related to sustainable management of tropical forests. Each was developed by an international panel convened by ITTO, mainly in response to international pressure to improve the management of tropical forests. The panels included variously representatives of tropical timber consumer and producer countries, NGOs, FAO, consultants and academics. The documents refer to operational forest management as well as national policy, monitoring and

reporting. They are general in nature to allow country- and forest-specific interpretation throughout the tropical forest zone:

- **ITTO Guidelines for the Sustainable Management of Natural Tropical Forests.** This document was the first of the series to be produced. It addresses natural forest management at both the national and the local forest management level. It is detailed, containing 41 principles (or guidelines), each combined with one or more 'Recommended Actions'. There is a strong emphasis on practical forest management with half the principles referring to sustained yield of timber. The guidelines are general to allow for country- and forest-specific interpretation (ITTO, 1990).

- **ITTO Guidelines for the Establishment and Sustainable Management of Planted Tropical Forests.** This document addresses the establishment and management of tropical plantation forests at both the national and forest management level. It is very detailed, containing 66 principles (or guidelines) each with one or more 'Recommended Actions'. As with the guidelines for natural forest management, there is a strong emphasis on practical forest management, but biodiversity and socio-economic factors are addressed in more detail, accounting for more than a third of the Principles. The greater level of detail may reflect the fact that this document was produced after the natural forest guidelines, which had been criticized for leaving out certain details. Again, the guidelines are general to allow for country- and forest-specific interpretation (ITTO, 1991).

- **ITTO Criteria for the Measurement of Sustainable Tropical Forest Management** (ITTO Criteria). This document consists of two sections, one addressing forestry at the *national* level, the other at the *local forest management* level. This is the least detailed of the ITTO documents, consisting of eleven criteria, each with two or three associated indicators (ITTO, 1992).

- **ITTO Guidelines on the Conservation of Biological Diversity in Tropical Production Forests.** This is the latest of the four ITTO documents. It was published after the UNCED, and is consistent with both the Forest Principles and the Convention on Biological Diversity (see Box 2). It discusses conservation of biodiversity both at the landscape level and in operational production forests. The document contains fourteen principles (or guidelines) and twenty Recommended Actions (ITTO, 1993).

The various ITTO Guidelines were not designed to constitute a standard in themselves, but are quite detailed. They could be turned into a standard fairly easily. An advantage of the ITTO guidelines is that they were developed by a specialist group representing a very wide range of stakeholders.

Therefore, they have reasonably wide acceptance with government, industry and NGOs world-wide as the basis for sustainable management of tropical forests, although some NGOs feel that they are not strong enough. The ITTO guidelines have not yet been developed into a (national or regional) standard and implemented rigorously in the tropics, although there is talk of this in some countries. Indeed the Netherlands' move to apply ITTO criteria to its own forests can be seen as a political gesture to encourage increased interpretation in tropical countries (Busink *et al.*, 1994). However, ITTO's guidelines are currently being used as the basis of the African Timber Organisation's standard for sustainable management in Africa, while adaptation for national use is being considered in countries such as Papua New Guinea, Ghana and Ecuador.

It is likely that any standards produced will have a similar focus to the ITTO guidelines documents which have a strong emphasis on operational procedures, although the plantation standard covers the importance of social issues, while biodiversity is covered by a complete set of guidelines.

3.1.4 The African Timber Organisation (ATO) Standard is currently being developed for sustainable management of tropical forests in Africa. Standards will be based on the ITTO guidelines with interpretation for local conditions (ATO, 1995). Both the natural forest and the plantation guidelines are being used, and standards developed for each.

3.1.5 Amazonian Criteria and Indicators. Eight states party to the Amazon Cooperation Treaty met in February 1995 to discuss C&I for sustainability of forests, to help the countries meet commitments made at UNCED. The workshop produced 12 criteria and 77 associated indicators; these are classified variously as applying to management unit, national or global levels. The final "Tarapoto" proposal has been accepted by all ACT states; and a GEF project "Action for a Sustainable Amazonia" may provide funding for practical follow-up. (Meanwhile, Bolivia is also pressing ahead with developing national certification standards.)

National governmental initiatives

3.1.6 Criteria and Indicators of Sustainable Forest Management: The Canadian Approach. This document, still in draft form, is the Canadian interpretation of the Montreal Process. It is currently being developed by the Canadian Council of Forest Ministers. It follows the Montreal Process closely but with slightly more detail, addressing national and regional forestry issues and providing a framework for development of more specific guidelines for local forest management CCFM, 1995). This is being used as guidance for government planning and monitoring.

3.1.7 **The Forest Stewardship Council's Forest Stewardship Principles and Criteria for Forest Management** (FSC P&C) were developed by non-government organisations in response to growing concern about global forest depletion, and for the purpose of developing forest certification as an incentive to reduce such depletion. The FSC P&C focus on *local forest management*, but are sufficiently general in nature to allow both country- and forest-specific interpretation. They provide a description of 'good forest stewardship' as defined by environmental and social groups, in consultation with the industry and academic bodies. There is an emphasis on minimising the impact of all forestry operations on the forest, and on maintaining areas in a state as close as possible to a natural ecosystem. One aspect of this is a strong bias against conversion of primary or well-developed secondary forest into plantations. This issue is discussed further in section 4.4. The P&C contain a fairly low degree of detail: ten principles each with five to ten criteria. Indicators are not included in the FSC Principles and Criteria as it is intended that these should be developed at regional or national level, to be used thereafter by all certifiers in that country. Eight of the principles refer to all types of forest, while Principle 9 covers conversion of natural forest and Principle 10 is specific to plantations (FSC, 1994).

The FSC P&C were developed by a group consisting mainly of NGOs with little representation from industry or government, and there has been uncertainty and antagonism in some forest industry sectors. However, the FSC standards are widely accepted by environmental groups and consumers and therefore they have been adopted by various industry groups concerned about their environmental performance, in particular, groups of retailers concerned at the poor environmental image of timber products. For example:

- the UK 1995 Group
- the Belgian 1997 Group
- Environmental Advantage in the US

FSC is also an accreditation organisation, and is helping to organise, often with the local office of WWF, national working groups to develop local standards and certification programmes. By April 1995, over thirty organisations had expressed interest in FSC accreditation. The following four, active certification programmes aim to certify forest operations in accordance with FSC's P&C.

3.1.8 **The Soil Association's "Woodmark"** standard is a performance type of standard, containing environmental performance criteria developed from the FSC P&C as well as details of monitoring, assessment and third-party auditing. It is based around six principles divided into 15 sections. The standard is fairly detailed, but general enough to allow interpretation in different forest types. It applies to both natural and plantation forests, with some sections referring specifically to plantation forests. The standard has been used operationally in the UK (The Soil Association, 1994). As of May 1996, three British forests had been certified.

3.1.9 **Scientific Certification Systems' "Forest Conservation Programme"** standard is a performance type of standard, based around defined performance criteria combined with details of monitoring, assessment and third-party auditing. It is structured around three Programme Elements: Timber Resource Sustainability, Forest Ecosystem Maintenance and Financial and Socio-economic Considerations. This standard uses scoring to assess forest organisations, and the resulting certificate is graded for each programme element based on this score. Plus there are separate standards for natural and plantation forests. (Scientific Certification Systems, 1994.) As of May 1996, several large forests in the USA, one in Mexico and one in Costa Rica had been certified.

3.1.10 **Rainforest Alliance's "Smart Wood"** is one of the older sustainable forestry standards that were designed for certification. It is a performance type of standard containing performance criteria together with details of monitoring, assessment and third-party auditing. The standard is general to allow country- and forest-specific interpretation. There are separate standards for natural and plantation forests. The "Smart Wood" standard uses a two-tier certification system: 'well managed' and 'sustainably managed'. It has been used to certify forests in both temperate and tropical countries, and is now being extended to cover boreal forests in North America. (Rainforest Alliance, 1993.) As of May 1996, one forest in each of Honduras, Brazil, Indonesia, Mexico, Costa Rica and several forests in the USA had been certified. The Smart Wood Network includes other non-profit certifiers in the Americas, each of which develop region-specific standards. One of these, IMAFLORA in Brazil, is also the first to develop certification standards for non-timber products (Brazil nuts and rubber).

3.1.11 **SGS Forestry's "Qualifor"** is a systems-based performance standard. It requires forest organisations to meet performance levels consistent with the requirements of the FSC principles and criteria. It also requires that the organisation has a management system in place which ensures that these performance levels are maintained or improved over time. The standard is general to allow country- and site-specific interpretation. The same standard is used for natural and plantation forests. As of May 1996, forests had been certified in Papua New Guinea, Malaysia, Solomon Islands, Poland and Zimbabwe.

National non-governmental initiatives

3.1.12 The Canadian Standards Association Sustainable Forestry Management System, which is still in draft form, follows a conventional ISO-style approach. It comprises three standards: Z 808 describing the sustainable forest management system, Z 809 giving the specification of the system and Z 809A providing details of monitoring, assessment, third-party auditing and accreditation of auditing bodies. It is an environmental management system type of standard, but it also includes defined criteria and indicators based on the Canadian Council of Forest Ministers' interpretation of the Montreal Process (above), with the exception of the criteria relating to the rights of indigenous people which are somewhat weaker in the standard. The criteria are supposed to be monitored and eventually addressed through the process of continual improvement, but there are no threshold performance levels apart from those relating to management systems and observing government regulations.

The standard is being developed with support and financial assistance from the Canadian Pulp and Paper Association. Environmental groups such as WWF were invited to participate in the process of formulating the standard, but ended their involvement early on, complaining that their views were not taken seriously and that they had only been asked to participate to 'legitimise' what was basically an industry initiative. One of the main objections of the NGOs involved was the lack of threshold performance levels in the standard. Development of the standard is continuing, but it is not yet clear what credibility it will have outside Canada.

The system is being developed specifically for use with individual forest operations and covers both natural and plantation forests. The standard is still in draft form, so has not yet been used to certify any forest operations (CSA, 1995).

3.1.13 The Indonesian Ecolabelling Institute (Lembaga Ekolabel Indonesi) is currently developing a standard for forest management in Indonesia. The standard has drawn from several sources including the ITTO guidelines and the FSC Principles and Criteria. It is currently undergoing initial field trials.

3.1.14 Initiative Tropenwald is a joint German initiative of industry, NGOs, academics and unions. It is an extremely detailed standard, designed for use in tropical forests, with defined performance criteria and detailed guidelines for monitoring, assessment and third-party auditing. It addresses forestry at the national, regional and local levels. The high degree of detail in the standard has led to some problems of logisics and interpretation during early field trials in different forest types.

3.1.15 Preliminary Criteria for Environmental Certification of Swedish Forestry were developed jointly by WWF-Sweden and the Swedish Society for Nature Conservation. While spearheaded by NGOs, industry and government were involved, and will become more central as the initiative becomes operational. WWF-Sweden hopes soon to set up an FSC national working group, with some of the larger companies already expressing interest in membership. Meanwhile, the preliminary Swedish certification criteria are being evaluated by Norway and Finland, as the forest industry in the Nordic countries has agreed to take a regional approach, both to forest management standards and to certification.

Corporate initiatives

3.1.16 The Shell - WWF Tree Plantation Guidelines are the result of a wide-ranging review, carried out collaboratively by Shell International Petroleum Company with WWF, of environmental, social and economic issues and best practice. The review is in eleven volumes. The guidelines developed from the review are detailed with 27 sections, each with several suggestions for actions, but are not too prescriptive to allow for site-specific interpretation. (Shell International, 1993). Several organisations are using these guidelines as a source-book for internal policies, and it is understood that they are being used to forge industry standards in Chile (Richardson, pers comm, September 1995).

3.1.17 American Forest and Paper Association's Sustainable Forestry Initiative and Implementation Guidelines (AFPA SFI). This document address some of the main environmental issues of importance in the USA, including water quality, biodiversity, ecosystem management and the visual impacts of forestry. Although general in nature, the fact that conformance will be made a prerequisite of membership of the Association from January 1996 makes this initiative of considerable importance in the USA. There are no apparent requirements for third-party auditing and no details for how monitoring or assessment should be carried out; determination of compliance is left largely to internal self-regulation (AFPA, 1995). Hence this is more akin to an industry code of practice, promoting an EMS approach. However, the EMS focus is supplemented by some highly performance-oriented erosion control "best management practices" (BMPs).

3.1.18 Other advocacy-oriented Forestry PCI&S initiatives. Many other activities are currently proceeding, but have yet to establish agreed sets of PCI&S:

The Greenpeace Principles and Guidelines for Ecologically Responsible Forest Use are unilaterally-promoted, rather than being agreed amongst a group of stakeholders. Some of the key aspects are: the establishment of fully and permanently protected ecosystem networks prior to

any forest use; forest use (including logging) mimicking natural disturbance; indigenous people's rights to control activities on their customary territories; and continuous assessment and inventories of forest resources and dynamics.

The World Wide Fund for Nature has an initiative to promote a set of criteria of **Forest Quality**. These aim to provide an assessment of the condition of forests, and so to help improve planning and management. The criteria, which so far have been applied in tests to the UK only, cover: authenticity (trueness to natural forest type), forest health, environmental benefits, and social/economic values. Each criterion is broken down into a number of elements - the elements having to be locally agreed. "Quality" has at least three meanings here: as a characteristic, as a standard, and as a measure of excellence.

3.1.19 **Environmental Management System Standards (not specific to forestry)** The first Environmental Management System (EMS) standard to be completed was the British Standard (BS 7750). Since its launch in 1992, standards have also been produced by the relevant bodies in countries such as France, the Republic of Ireland, USA and South Africa, while in 1993 the European Council issued a regulation defining a European Union-wide eco-management and audit scheme (EMAS). These environmental management system specifications are general, so the standard can be applied to any sector of business or industry, potentially including forestry.

In response to the national EMS activity, the International Organisation for Standardisation (ISO) began development of an international EMS specification: ISO 14000 (ISO, 1994a and 1994b; Groves and Lambert, 1995). The specification for ISO 14000 will be less prescriptive than BS 7750 and EMAS, mainly due to fears of litigation in countries such as the USA. The standard contains a main 'umbrella' document, **ISO 14000: Environmental Management Systems - General Guidelines on Principles, Systems and Supporting Techniques**. The core elements, which are to be used for certification and registration to the standard are contained in the document **ISO 14001: Environmental Management Systems -Specification with Guidance for Use.** Details of the development of the standard, and its component parts, are given in Box 3. ISO 14000 is expected to be released before the end of 1996 and will supersede BS 7750 and the other national standards. The EC EMAS will be maintained, but will have to be updated to include details of how to bridge the shortfalls for companies which chose the ISO 14000 route to EMAS registration (ENDS, 1995a).

At the request of the forest industry, the Canadian Standards Association, together with the Australian standards authority, submitted a request to the committee developing ISO 14001 to include sector-specific guidelines for forest management within ISO 14001. However, this proposal was opposed both by environmental groups and by most other national standards bodies.

Environmental groups perceived it as an attempt by industry to control standard-setting and create an 'easy option' for certification by creating an alternative to performance standards. Other national standards bodies were unwilling to create such an early precedent for having a sector-specific section in a standard which will cover all types of business and industry. At the meeting of the ISO 14000 committee in Oslo in June 1995, the proposal to develop specific forestry guidelines for ISO 14001 was withdrawn. A decision was then made not to allow any sector-specific guidelines within ISO 14001 until the first generic version has been published and implemented so that any initial problems with the standard can be rectified.

However, interest remains in using the ISO 14000 framework to produce a standard for sustainable forest management. Following the Oslo meeting, the New Zealand Standards organisation has convened three meetings (in Auckland, London and Paris) of an 'informal working group' to discuss the possible future development of sector specific guidelines for forestry within ISO 14000. It has been suggested that this take the form of a 'bridging document' which would provide guidelines on performance levels for forest companies implementing the ISO 14000 standard. Although some environmental and social groups have been involved in these three meetings, there remains a strong feeling within the NGO community that it is industry-dominated and will not produce a standard which gives assurance of acceptable levels of performance in the forest. Those involved in the informal meetings, particularly representatives of the Australian, Canadian and New Zealand standards authorities feel that they can produce an acceptable standard. This discussion is likely to continue for some time as it will be at least 1998 before any sector-specific guidelines can be released for ISO 14000.

An EMS can form a good framework on which to build internal improvements in environmental performance, or to secure conformance with an external standard. In addition, in a climate where companies are increasingly penalised for poor environmental performance, it appears that implementation of an EMS has positive implications for both insurance and financial ratings. However, there remain many concerns about EMS standards; these are discussed further at 4.1.

Box 3: The ISO 14000 Environmental Management System Standard

The ISO 14000 Environmental Management System standard series is being developed in a series of 14XXX sub-groups. The standards are being developed through ISO Technical Committee 207 (ISO/TC207) via various sub-committees (SC) and working groups (WG). Each sub-committee has a secretariat provided by one of the national standards bodies involved. The main TC207 sub-committees and secretariats are:

- SC 1 Environmental Management, BSI (United Kingdom)
- SC 2 Environmental Auditing, NNI (Netherlands)
- SC 3 Environmental Labelling, SAA (Australia)
- SC 4 Environmental Performance Evaluation, ANSI (USA)
- SC 5 Life Cycle Analysis, ANFOR (France)
- SC 6 Terms and Definitions, NSF (Norway)

The key elements of an Environmental Management System are efficient documentation of all processes and policies, similar to the requirements for the Quality Standard ISO 9000, together with:

- Commitment to the EMS
- Initial environmental review to assess all environmental impacts of the company
- Development of an Environmental Policy
- Planning to fulfil the Environmental Policy through Objectives and Targets
- Implementation, achieved through development of capabilities and support mechanisms
- Measure, monitor and evaluate environmental performance
- Review
- Corrective action and improvement

Environmental Management System standards are based on the concept of **continual improvement**. A company implementing the standard is expected to continually monitor and assess its environmental performance and seek to improve it.

3.2 Links Between the Sustainable Forest Management Initiatives

In the previous section we listed the initiatives according to their international/national or governmental/non-governmental provenance. However, in order to understand them better, they can be placed into three broad frameworks, in terms of how they evolved:

- The Helsinki Process, the Montreal Process, the Tarapoto Agreement and the African Timber Organisation initiative are for international and national purposes, and *derive in essence from UNCED.*
- The ITTO Criteria and Guidelines, which refer to tropical forests, are for international, national and forest-level purposes, and help to relate to the broader *objectives and concerns of ITTO.*
- The FSC Principles and Criteria, which refer to all forest types, are for trade and forest-level purposes, and result principally from early *NGO concern about the state of forests.*

Each framework includes initiatives on the formulation of principles, criteria and indicators. Some of the initiatives in each group have led to specific standards, or are seeking to develop standards or form a convergence with existing standards. The three frameworks are illustrated schematically in Figure 3. The three are not entirely separate as there is a considerable degree of interaction between many of the initiatives.

Initiatives to formulate sets of principles, criteria and/or indicators: current emphases on harmonisation

Each of the frameworks in Figure 3 has had its own means of trying to ensure coordination and harmonisation amongst the evolving initiatives. The Canada-Malaysia Intergovernmental Working Group on Forests laid much emphasis on this, and helped to provide some coherence amongst the post-UNCED group of initiatives. FSC has played a similar role amongst the NGO initiatives. With the three "families" becoming mature in their approach, some actors are almost reaching fever pitch in efforts to bring conformity between the initiatives.

The Food and Agriculture Organisation of the United Nations (FAO) was asked by the Commission on Sustainable Development (CSD) to begin a process of investigating the harmonisation of criteria and indicators of sustainable forest management. The FAO's role was confirmed in the Rome Statement on Forestry, produced by the Ministerial Meeting on Forestry in March 1995 comprising 55 ministers (Wardle, 1995). The aim of this process is to 'provide an opportunity for the participation of countries not yet involved in on-going [criteria and indicators] processes; offer a pathway for convergence among the various processes; and, by so doing, reach a global consensus on the criteria and indicators of sustainable forest management, applicable to all types of forest' (FAO, 1995a and 1995b).

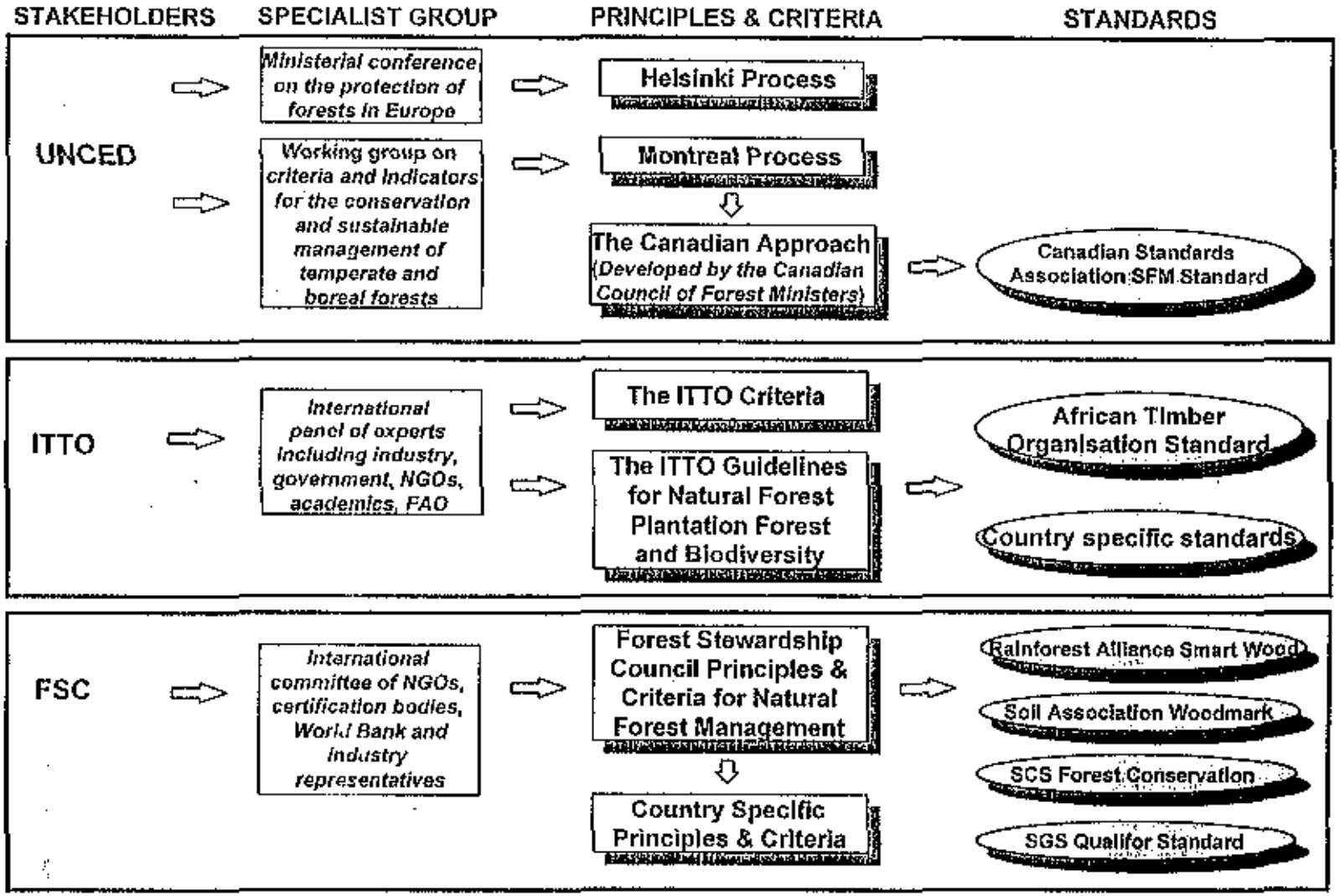

Figure 3: A schematic representation of three of the main groups of standards initiatives relavent to forestry showing the origin of the initiative, the stakeholders involved, the sets of principles and criteria produced and the related standards.

An expert meeting was held in Rome in February 1995 in preparation for the third meeting of the CSD in April. It was concluded at the meeting that *'the role of guidelines and criteria is to define a set of standards by which forest management may be evaluated at the appropriate level'*. The four initiatives examined by FAO were the Helsinki Process, the Montreal Process, the ITTO Criteria and a set of "forest quality" criteria produced by WWF (WWF, 1994b). The WWF criteria are more general than the FSC Principles and Criteria, but are based on a similar philosophy. In the following discussion, the FSC Principles and Criteria will be covered instead, since these form the basis of the first operational standards of sustainable forest management.

More recently, the CSD's Intergovernmental Panel on Forests has been charged with examining the "feasibility of further developing internationally-agreed upon criteria and indicators". The FAO meeting on harmonisation of criteria and indicators has contributed to this process, as have other initiatives set up to develop dialogues. Sorting out the international, national and local purposes of PCI&S, and their contents, is therefore very topical. It is at the heart of the current renegotiation of roles amongst global, national and local actors - who should be responsible for what aspects of SFM, and how should they be held accountable?

Initiatives to formulate sets of standards; and certification initiatives

Initiatives aimed at certification are clear about their purposes, although some groups remain concerned about possible 'hidden' agendas. Standards have been designed to assess the performance of individual forest operations according to the priorities of the groups involved in the standards' formulation. Standards relate specifically to operational forest management. Although there is still a great deal of discussion about who should be involved in certification and how it should be carried out, there is widespread acceptance that it could be a significant incentive for SFM (Wardle, 1995). With a couple of exceptions, the principal organisations which have already produced standards, or are in the process of producing standards, are based in Europe and North America.

- the Canadian Standards Association
- the Soil Association (UK)
- Rainforest Alliance (USA)
- Scientific Certification Systems (USA)
- SGS Forestry (UK)
- Initiative Tropenwald (Germany)
- the American Forest and Paper Association (USA)
- the African Timber Organisation
- the Indonesian Ecolabelling Institute

In addition, environmental management system standards such as BS 7750 and ISO 14000, though not specific to forestry, are relevant to forest operations.

3.2.1 Ways to compare the content of principles, criteria, indicators and standards:

As discussed above, links exist between some of the initiatives contained in the different 'frameworks'. However, there are often such differences of approach, emphasis, language, promotional tactics and agenda between various initiatives that they are sometimes perceived as incompatible. Indeed, the great number of PCI&S initiatives is surely at least in part a function of some groups' worries about certain initiatives, and hence their desire to start new ones. In fact there is a substantial degree of overlap in the areas covered by the principles and criteria contained in many of the initiatives, if not in their purpose and political agenda.

In this section, we examine the *content* of these initiatives, as opposed to their purposes, overt or covert, or their means of operation (which are described in Appendix 1). Initiatives are compared in terms of how they cover the elements of SFM (postulated in section 1):

1. *Maintaining sustained yields of goods and services including ecological functions:*
   - *sustained yield of timber and non-timber products,*
   - *protection of soil and water resources,*
   - *maintaining health and vitality of forests,*
   - *operational management for sustained yield.*
2. *Maintaining biodiversity at the ecosystem, species and genetic level.*
3. *Optimizing the socio-economic impacts of forestry:*
   - *the impact on indigenous people,*
   - *the impact on local communities,*
   - *the impact on employees,*
   - *economic and financial impacts.*
4. *A supportive institutional framework for SFM including policies, skills and research.*

Each of the initiatives addresses the above four main SFM topics in different ways. SFM topics can be addressed in an *advisory or a prescriptive* manner. We have therefore classified the SFM topics into three different types:

- *Performance criteria which set benchmark levels*

  e.g. Sufficient areas containing representative biodiversity **must be set aside** and given complete protection.

- *Monitoring criteria which define information to be recorded*
  e.g. The extent of areas set aside for conservation of representative biodiversity and the measures taken to protect such areas **should be recorded**.
- *Policy criteria* which are included as a desirable component of policy rather than referring directly to forest operations
  e.g. **regulations should** ensure that sufficient areas are set to maintain representative biodiversity.

As we shall see, the various PCI&S initiatives often differ little in terms of which SFM topics are covered. They differ more in terms of whether the SFM elements are included as policy, performance, or merely measurement requirements. In general, principles and criteria and performance standards developed by NGOs contain performance requirements. In contrast, principles, criteria and standards developed by governments or industry, and EMS standards, contain both monitoring and policy requirements. Much of the disagreement between environmental groups, consumers, industry and government arises from this difference, rather than from differences in what SFM elements are perceived to be important. The following two sections compare the ways that these four groups of SFM elements are addressed in the various initiatives which have been discussed. Section 3.3 examines principles, criteria and indicators, while section 3.4 addresses the various standards. In these sections the three types of criteria defined above are shown as:

- Monitoring criteria = ○
- Performance criteria = ●
- Policy criteria = □

3.3 Comparing the content of initiatives for SFM principles, criteria and indicators

In this section, we compare the *content* of four of the main initiatives: the Helsinki Process, the Montreal Process, the FSC Principles and Criteria, and the ITTO Criteria. The first two of these have been developed for national monitoring of forests, while the latter two were designed for implementation at the forest management unit level. However, as we will show, there is a considerable degree of overlap in all the initiatives so that they can easily be seen as mutually supportive.

3.3.1 Maintaining sustained yields of goods and services including ecological functions

The term 'sustainable forest management' has in the past been used to refer to sustainable timber production, but it is now generally accepted to have a much broader meaning, encompassing sustainable production of the entire range of goods and services provided by the forest. Thus, in addition to the *productive functions* of the forest in terms of both timber and non-timber products, it covers the protective

functions of the forest, long-term ecological productivity, and forest health and vitality. The contributions which forests make to local and global climate, especially the global carbon cycle, is also increasingly recognised.

Productive functions of forests

Productive functions of forests	Helsinki	Montreal	ITTO	FSC
Extent, age and successional state of forest	o	o	o	
Stocking and growth rates	o	o	o	●
Sustainable yield of wood products	o	o	o	●
Sustainable yield of non-wood products	o	o		●
Carbon content and sequestration	o	o		

There is general agreement between all four initiatives on the significance of the forest base, and the rates of growth relative to harvest. All four documents cover the sustainable yield of both wood and non-wood products, except the ITTO criteria which do not include the latter. Neither the ITTO nor the FSC criteria refer to the carbon-sequestration function of forests, since this is rarely a local management objective.

Protective functions of forests

Protective functions of forests:	Helsinki	Montreal	ITTO	FSC
Management for soil protection	o	o	o	●
Management for protection of watercourses		o	o	●
Watershed management	o	o	o	●

There is agreement between all the initiatives on the importance of protecting soil and water resources including maintenance of soil physical and chemical properties, minimising soil erosion, protection of watercourses and other bodies of water by using riparian strips, and protecting watersheds.

Health and vitality of forests

Health and vitality of forests:	Helsinki	Montreal	ITTO	FSC
Long-term ecological productivity		o		●
External factors (air pollutants and climate)	o	o		
Insect and diseases	o	o		
Fire and storm damage	o	o		
Damage by animals	o	o		
Pesticide use				●

This topic is considered in most detail by the Montreal and Helsinki Processes which both refer to several potential agents of forest damage. The ITTO criteria do not cover this topic at all, although it is covered to some degree in the ITTO guidelines, while the FSC P&C cover the maintenance of long-term ecological productivity and place restrictions on the use of pesticides. The differences between the initiatives are due mainly to the different focuses: the Montreal and Helsinki Processes were developed to collect information on the national forest base and need to differentiate between healthy and unhealthy forest, particularly in areas subject to much pollution from other sectors' activities. The ITTO criteria and the FSC P&C were developed for use mainly at the operational level where it is normal for the forest manager to maintain the health of their forest.

Operational management for sustained yield

Operational management for sustained yields	Helsinki	Montreal	ITTO	FSC
Written management plan			o	●
Operational procedures to minimise damage		□	o	●
Protection from encroachment			o	●
Optimal and efficient use of forest				●
Multiple use of forest				●

This is covered in detail only by the ITTO criteria and FSC P&C, since the purpose of the Montreal and Helsinki Processes is not geared to operational forest management. There is considerable overlap between the ITTO Criteria and the FSC P&C, but the FSC P&C has a stronger focus on efficient and multiple use of the forest resource.

3.3.2 Maintaining biodiversity

Maintaining biological diversity	Helsinki	Montreal	ITTO	FSC
Environmental Impact Assessment			o	●
Maintenance of ecosystem diversity				
Conservation areas and ecosystem reserves	o	o	o	●
Forest fragmentation		o	o	●
Protection of ancient natural forests				●
Maintenance of species diversity				
Changes in flora and fauna	o	o		●
Management of rare and threatened species		o		●
Maintenance of genetic diversity				
Conservation of genetic resources	o			●
Prohibit use of genetically engineered organisms				●

Environmental Impact Assessment

This is only referred to specifically in the ITTO Criteria and FSC P&C, again reflecting the fact that these two initiatives have a stronger operational bias. Note that here, EIA covers environmental functions (soil and watershed services) as well as biodiversity.

Maintenance of biodiversity

There is broad agreement on the need to conserve representative areas of forest, and on the need to avoid fragmentation of forests which isolates animal and plant populations. The FSC P&C include the preservation of ancient forests as a requirement, unlike the other three initiatives.

The protection of both species and genetic diversity is covered by the Montreal and Helsinki Processes and by the FSC P&C, but not by the ITTO Criteria. However, the ITTO guidelines on conservation of biodiversity consider these issues in more detail.

The FSC P&C specifically prohibit the use of genetically-engineered organisms. These are not mentioned in any of the other initiatives.

3.2.3 Optimising the socio-economic impacts of forestry

Impact on indigenous people

Impact on indigenous people	Helsinki	Montreal	ITTO	FSC
Protection of traditional land rights				●
Maintenance of customary rights		□	○	●
Compensation for traditional knowledge				●

The criterion refers to the rights of indigenous people to their ancestral lands and customary use, and the obligations of forestry operations to respect both the codified (legal) and traditional rights of indigenous people. This criterion is covered in considerable detail in the FSC P&C, while it is barely touched upon in the other initiatives. The Montreal Process and ITTO Criteria do refer to the need for legislation on land rights, but the topic does not have the prominence given to it by the FSC P&C. There is more detail on the needs and rights of indigenous peoples in the ITTO guidelines on natural and planted forest management, especially the latter.

Impact on local communities

Impact on local communities	Helsinki	Montreal	ITTO	FSC
Community consultation and involvement		□	□	●
Compensation for grievances				●
Recreational opportunities	○	○		
Subsistence use opportunities		○		●
Sites of special significance respected (historic, cultural, aesthetic, spiritual)		○		●
Employment provided	○	○	○	●

These criteria cover the rights of local communities to be consulted about forestry operations likely to affect them, respect for traditional rights to use the forest and contribution to the welfare of local populations by the forest organisation. There is a certain ambiguity about local and indigenous people. However, the criteria on indigenous people and those on local communities should be complementary, in the sense that local indigenous communities would be covered by both sets of criteria.

The importance of community consent and involvement in forestry operations is covered by the Montreal Process and the ITTO Criteria in the context of the necessary institutional framework for forestry, while it is a central feature of the FSC P&C. It is not covered at all by the Helsinki Process.

Note that *broader* social concerns, i.e. those affecting people beyond the forest vicinity, are not directly covered by social criteria, except through e.g. recreation and sites of special significance. However, since the integration/trade-off of objectives for SFM is a value judgement, reflecting as far as possible society's needs as a whole, it could be seen that all four groups of SFM elements, together, indirectly cover the concerns of society as a whole.

The need to provide employment is covered by all four documents. The Montreal Process and FSC P&C also cover the protection of sites of special cultural, aesthetic, spiritual, historical or other significance. This is not covered in the ITTO Criteria, but is referred to in the ITTO guidelines.

Impact on employees

Impact on employees	Helsinki	Montreal	ITTO	FSC
Health and safety protected		○		●
Wages fair		○		●
Right to organise respected				●

The obligations of the forestry organisation to its employees are covered by the Montreal Process and the FSC P&C, both of which include the need for provision of fair wages and health and safety at work.

The FSC P&C also covers the right to organise.

In summary, the FSC P&C focus very strongly on the social impacts of forestry operations. There is also a fairly strong focus in the Montreal Process, partly as part of the discussion of the necessary institutional framework. The ITTO Criteria has less reference to social issues, but these are covered to some extent in the ITTO guidelines, particularly the guidelines for plantations. The Helsinki Process contains very little on social issues.

Economic and financial issues

Economic and financial	Helsinki	Montreal	ITTO	FSC
Generation of revenue		○	○	●
Contribution to GNP	○	○		
Investment in forestry operations		○	○	●
Investment in local economy				●

These criteria cover the financial profitability of the forest (since a loss-making organisation is unlikely to invest in good management), together with the levels of investment made by the forest organisation in both the forest and the local economy.

The need to generate revenue is recognised by all four documents, as is the need for investment in the forestry sector. The Helsinki and Montreal Processes refer to the contribution of forestry to the GNP, while the FSC P&C refers to the contribution to the *local* economy. Again, this reflects the fact that the Montreal and Helsinki Processes were developed by government with forestry at the national level in mind, while the FSC P&C were developed for use at the local operational forestry level.

3.3.4 The institutional framework for forestry

The institutional framework for forests	Helsinki	Montreal	ITTO	FSC
Forest policy, legislation and regulations	□	□	□	●
Research and development capacity		□		
Ability to monitor and implement forestry	□	□		
Property rights clear		□	□	●
Appropriate secure land tenure		□	○	●
Means to resolve tenure disputes		□		●

These criteria cover the institutional framework felt to be necessary to support sustainable forest management, including forest policy and regulation, research and development, inventory, land rights and concession tenure. These areas are perhaps more contentious than the other topics, which to an extent can be more rigorously analysed through scientific methods.

These topics are covered most thoroughly by the Montreal Process, which devotes an entire section to the subject, particularly as it is focused on national-level progress towards SFM. Even so, this is recognised as one of the most difficult aspects in the Montreal process, and meetings from November 1995 onwards are attempting to deal with this. There is no corresponding criterion in the Helsinki Process, which refers only to national policy and legislation and the need to implement forestry guidelines. The ITTO Criteria give some coverage to the institutional framework, supported by considerable additional coverage in the guideline documents. The FSC P&C refer to the institutional framework in terms of pre-requisites for good management of the forest operation.

3.4 Comparing the content of standard-setting initiatives

A summary of the areas covered by each of the standards is shown in Table 1. Again, while the SFM elements covered vary somewhat between the initiatives, the principal differences more often revolve around whether the standards call for performance criteria, as opposed to policy criteria or merely measurement criteria. This stems in part from whether the standards are performance-based standards, or EMS-based standards, or advisory guidelines.

The Center for International Forestry Research (CIFOR) based in Bogor, Indonesia, has just completed a series of field-trial comparisons of some of the standards initiatives. The first trial was carried out in Germany in late 1994 (Palmer, 1995), followed by an Indonesian trial in early 1995, a trial in Cote d'Ivoire in mid-1995 and a Brazilian trial in late 1995. Based on these trials, CIFOR has published a summary of the different initiatives tested and their appropriateness and ease of measurement in different types of forest, (Prabhu *et al*, 1996). The work has begun with commercial-scale operations in humid forests, but will be expanded to cover small-scale and community approaches.

Initially, it was expected that the tests would reveal the applicability and cost-effectiveness of the total 1068 criteria and indicators taken from the standards and sets of principles and criteria summarised in the previous section. However, the German test showed that it was not feasible or desirable to test all 1068. The subsequent tests in Indonesia and Cote d'Ivoire instead identified a minimum set of criteria, from the 1068, for each field case. The indications to date are that very detailed standards are extremely difficult to implement and assess in the field, even by skilled professionals. Less detailed standards, combined with a degree of interpretation, may be a better approach. The latter option increases the importance of accreditation of those who, as certifiers, make field judgements and decisions. This therefore demands attention on cost-effective rapid assessment procedures, some of which are not available and will need to be developed in parallel with the criteria and indicators. This will be the task of the second phase of the CIFOR programme. We return to these issues in section 4.8.

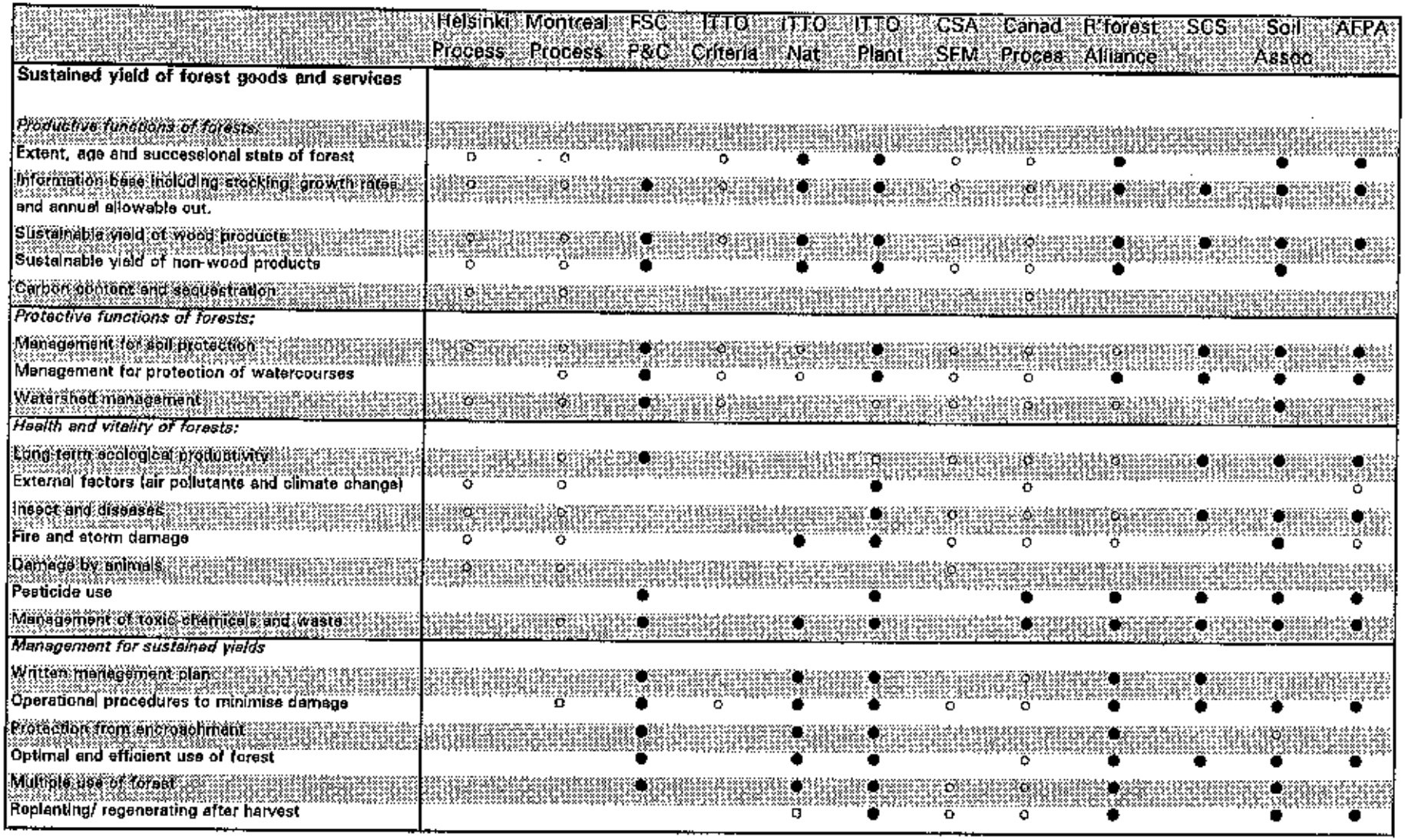

Table 1: A comparison of the issues addressed by current standards initiatives[1]

Performance requirements = ● Measurement criteria = ○ Policy criteria = □

...continued

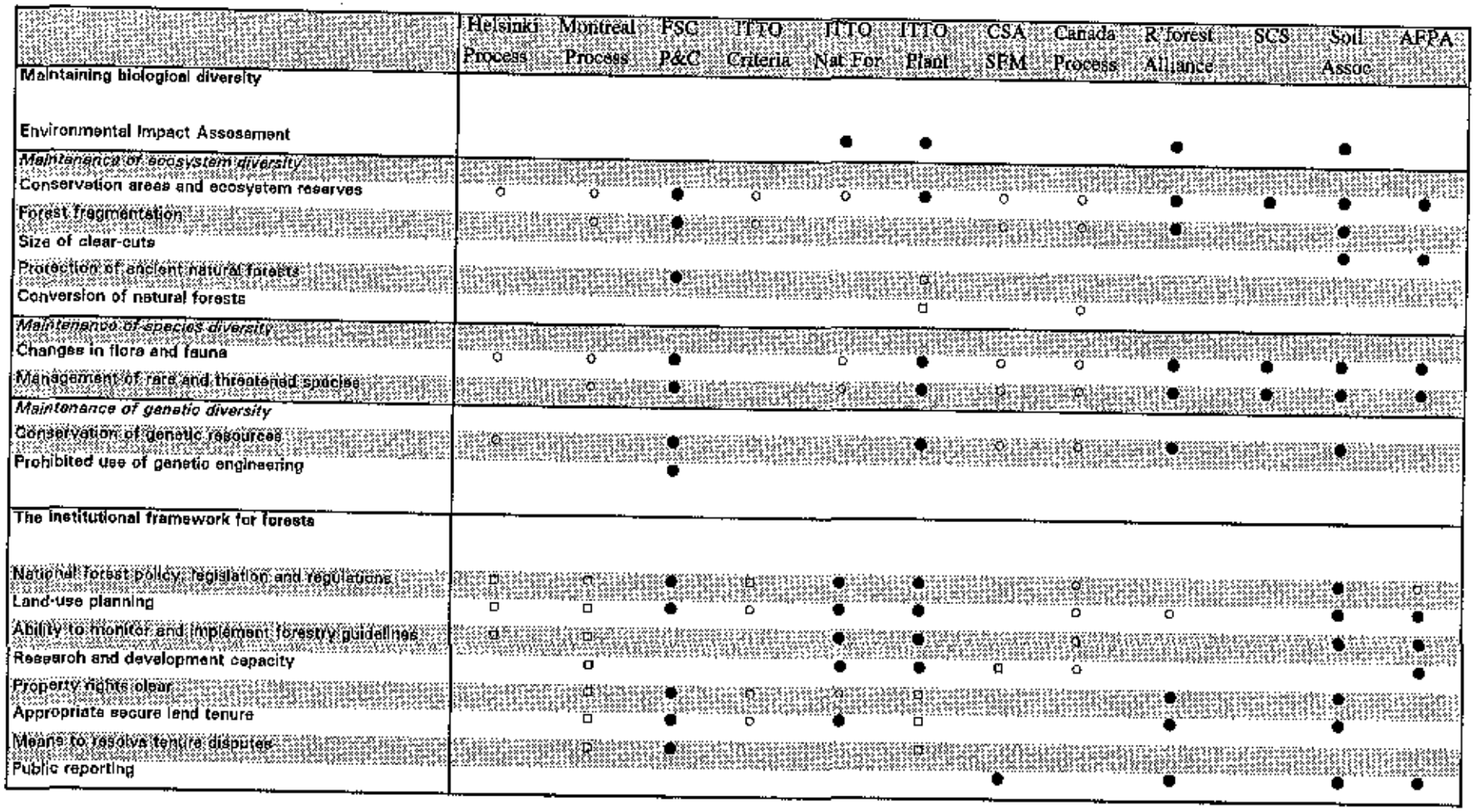

Table 1 (continued): A comparison of the issues addressed by current standards initiatives[1]

Performance requirements = ● Measurement criteria = ○ Policy criteria = □

...continued

	Helsinki Process	Montreal Process	FSC P&C	ITTO Criteria	ITTO Nat For	ITTO Plant	CSA SFM	Canada Process	R'forest Alliance	SCS	Soil Assoc.	AFPA
Socio-economic impacts of forestry												
Impact on indigenous people												
Protection of traditional land rights		○	●		○	●		○	●		●	
Maintenance of customary rights		□	●	○	○	●	○	○	●		●	
Compensation for traditional knowledge			●								●	
Impact on local communities												
Community consultation and involvement		□	●	□	○	●	◐	○	●	●	●	
Compensation for grievances			●			□			●		●	
Recreational use opportunities	○	○				○	○	○		●		
Subsistence use opportunities		○	●		○	●		○	●		●	
Sites of special significance respected (historic, cultural, spiritual)		○	●		○	●		○			●	●
Aesthetic values of forest maintained	○	○	●			○						●
Employment provided	○	○	●	○	○	○	●	○	●	●	●	
Impact on employees												
Health and safety protected		○	●			●	□		●	●	●	●
Wages fair		○	●			●			●	●	●	●
Right to organise respected			●								●	
Economic and financial:												
Stable generation of revenue		○	●		○	●	●	○	●	●	●	●
Contribution to GNP	○	○			□	□		○		●		
Investment in forestry operations		○	●		○	●	●	○	●	●	●	●
Investment in local economy			●		□	●	□	○	●	●	●	

Table 1 (continued): A comparison of the issues addressed by current standards initiatives[1]

Performance requirements = ● Measurement criteria = ○ Policy criteria = □

Note: [1] This table is not definitive and the original documents should be consulted wherever possible: Helsinki Process (Anon, 1994a); Montreal Process (Anon, 1995a); FSC P&C (FSC, 1994); ITTO Criteria (ITTO, 1992); ITTO Nat For (ITTO, 1990); ITTO Plant (ITTO, 1991); CSA SFM (CSA, 1995); Canada Process (CCFM: 1995); R'forest Alliance (Rainforest Alliance, 1993); SCS (Scientific Certification Systems, 1994); Soil Assoc (The Soil Association, 1994); AFPA (AFPA, 1995).

4. The Major Issues: Discussion and Outline Conclusions

The previous sections have shown that most PCI&S initiatives are more or less comparable in that they all broadly cover the basic set of SFM elements. The biggest differences reside in a number of contentious issues:

1 the merits of 'Performance' *versus* 'Management System' standards
2 stakeholder participation in forestry, and people's rights
3 forest conversion and land use
4 tenure
5 participation in standard setting
6 the costs and benefits of certification standards (who gains and who loses)
7 dealing with "greenwash"
8 the lack of information and assessment systems
9 trade barriers
10 harmonisation
11 general *versus* detailed standards, and the need for accreditation of assessors
12 fitness of PCI&S for their different purposes

We now discuss these issues in turn, and conclude (in 4.12) with recommendations on developing PC&I, agreeing standards, implementing standards, and assessing compliance with them.

4.1 Performance *versus* Management System Standards

As discussed above, there are two basic types of standard: environmental management system (EMS) standards and performance standards. *Environmental management system standards* do not establish specific environmental performance criteria, but ensure that a general environmental policy and complementary management system are operated. Conversely, *performance standards* comprise a range of defined environmental performance criteria, but do not always specify the systems which an organisation may need to achieve and maintain the level of performance specified. This is generally reflected in the wording of standards. For example, a performance standard might include 'clearly-marked areas must be set aside for conservation purposes'; while the equivalent section of an EMS standard might include 'the number of areas set aside for conservation purposes should be recorded', coupled with a requirement for continual improvement. This supplementary requirement is essential, rendering it impermissible for the company to record 'zero' against this particular clause for the next twenty years

(unless they had good justification *e.g.* the forest operations are carried out in a small forest area adjacent to a large national park). But EMS standards do mean that a company which was currently recording zero could achieve certification at the same time as a company currently recording ten or twenty, provided that they both make a commitment to continual improvement.

The EMS approach has caused some concern among environmental groups who believe that it would allow 'business-as-usual', combined with a little 'window-dressing' to keep the auditors convinced that continual improvement is under way. They prefer thresholds below which no company could be certified, and this preference is reflected to some degree by consumers who tend to be suspicious of industry-sponsored initiatives. In response, industry argues that this makes life impossible for many companies, and that improvement has to come gradually, with rewards for companies who try to implement better environmental management. In other sectors, the adoption of minimum environmental standards has been especially problematic, because of its impact on economic competitiveness, especially in the short term. The EMS approach has become the commonly-accepted way to improve e.g. waste management performance.

There is concern, particularly from some NGOs, that certification of EMS will be confused with certification of products, and that this will lead to confusion in the market place. It has also been argued that, with resources generally limited, the time and effort which a company must devote to improving its documentation and systems in achieving an EMS standard such as BS 7750 can actually detract from the ability to improve operational environmental performance (ENDS, 1995b).

These differences are at the root of the controversy between those in the forest industry, who want to include forestry within the proposed ISO 14000 Environmental Management Standard, and environmental groups, such as WWF and Greenpeace, who wish to see forestry standards developed along the lines of a performance system under the umbrella of FSC.

The difficulties with performance-based standards also need to be acknowledged. With this approach, there is a special difficulty of identifying in advance, and at a national or even global scale, which issues are the most important. These are likely to vary enormously from country to country, and from forest to forest. Although EMS standards need to define an overall direction and process, they do not have to deal with critical threshold values in the way that performance standards have to. In many cases, the difficulties arise because the different stakeholders want varying types or levels of threshold performance, or assign different levels of importance to the same issues. Often this also reflects a lack of information on the forest ecosystem, or surrounding social issues. Even if threshold performance levels can be set, they may not be easy to measure in the field. This contravenes one of the most basic rules of any standard, which is that conformance can be measured and assessed. In addition, for certification of

sustainability - as opposed merely to certifying good practice - lengthy time series of data need to be available, which is rarely the case in forestry.

Finally, the extremely varied nature of forestry makes the interpretation of a single global performance-based standard unrealistic. The FSC is attempting to overcome this problem by promoting the development of country-specific interpretations, usually by NGOs in each country or by national stakeholder groups. However, even this solution may lead to difficulties of comparison at a later stage if arguments arise over the relative 'toughness' of standards in each country. Therefore, there is a need for further work on minimum sets of criteria and equivalent but nationally-differentiated indicators and threshold levels of performance.

In conclusion, we refer back to our earlier clarifications concerning SFM (section 1). Firstly, *SFM entails a certain type and level of performance in the forest* - specifically, the need to consider certain environmental, social and economic matters. Secondly, *SFM also entails new management processes*, to help plan the integration of the above objectives where possible, or make trade-offs between them where integration is impossible, and then to get them achieved on the ground. There are pros and cons attached to standards that address either performance, or management. Ideally both should be accommodated, but that also has little precedent. National stakeholder groups will be critical in deciding which approach - EMS or performance standards - are the most useful vehicles for encouraging SFM in the local context. There is already a convergence appearing e.g. FSC's accreditation manual includes many ISO-type criteria

In practice, FSC's approach is already operational and ISO is unlikely to include specific guidelines for forestry for some time. However, an EMS approach would be most likely to encourage widespread take-up of SFM in practice, especially where forestry is dominated by larger operations. Once acceptance of EMS-based standards becomes widespread, however, national stakeholder groups also need to determine those *key* areas of environmental and social performance that they consider *essential* for local circumstances. Possibilities should be explored for merging an EMS-based approach with a performance approach, resulting perhaps in a "graded" or "one-to-three-star" system, of the type used by SCS; or a "red-amber-green" categorisation for the different key elements of SFM (an approach used by Austrian ecolabelling).

4.2 Stakeholder participation in forest management, and people's rights

The implications of commercial forest management for indigenous peoples - who have traditionally lived in the forest, who have held long-standing claims over land and resources, and who have developed complex forest management systems - have attracted considerable international attention. Social issues

cause considerable conflict between environmental/human rights groups, and industry and government. They were one of the main driving forces behind the development of the FSC P&C, in which they were addressed in considerable detail. They are given less prominence in the ITTO Criteria and the Montreal and Helsinki Processes, although increasingly the issue is addressed to some extent in all initiatives relating to forest management.

The key issues are: who are the legitimate stakeholders, what are their interests and interactions (positive and negative), and how do they participate in forest management?

Stakeholder analysis (the identification of interests, and the means to pursue interests, of identifiable stakeholders) will be an important first step in both defining and implementing national and local standards. There are many ways to do this, but few have been explored in the context of PCI&S. However, in the context of identifying critical C&I for SFM, CIFOR is considering a way of qualitatively comparing stakeholders in a particular forest - placing stakeholders along "gradients" in six dimensions (proximity to forest, pre-existing rights, dependency on forest, indigenous knowledge, forest/culture integration, and power deficit (Colper, 1995). This still begs the question of identifying who the stakeholders are and how valid are their claims.

Many PCI&S initiatives stress the need for *stakeholder participation* in SFM - sharing the costs and benefits - but have not resolved how to deal with participation. Apart from the question of *who* should be involved, participation is also an issue of both the *degree* of involvement and the precise *task* in the forest management cycle for which participation may be appropriate. How can PCI&S be set up to encourage appropriate participation? One possible way forward is to develop a typology of participation, and to see how different stakeholders fit i.e. whether fully involved or only marginally. One such typology for the degree of participation is given in Bass *et al* 1995, where participation can be said to range from minimal to complete self-mobilisation:

1. *"Participants" being told what's happening (i.e. external groups plan and control but 'let people know' what is happening).*
2. *Participants both listening and giving information*
3. *Participants being consulted, but having no means to change objectives*
4. *Participants contributing own resources to an activity for material returns, but not defining the objectives (e.g. employment or outgrower schemes).*
5. *Participants forming groups or partnerships to implement pre-set objectives (e.g. forming an association of small foresters to participate in an outgrower scheme).*
6. *Participants forming groups or partnerships to help set objectives (e.g. as in the example in 5 above, but using the association to negotiate objectives and terms).*

Such a typology needs to be developed for SFM, covering the SFM activities for which participation is necessary. For example, a high degree of participation may be considered appropriate in setting basic land use and forestry objectives, and in determining benefit-sharing, but less participation may be considered vital in conducting the actual work of management and harvesting operations.

The question of the *rights* of local people - especially indigenous people - in relation to the rights of national government and logging companies is a complex one. Despite the difficulties, this is not an issue which is likely to 'go away', so it is very important that government, industry and indigenous people find ways to resolve conflicts.

The most extreme situation is where indigenous people have legal, recognised rights to the land, but forestry companies illegally remove timber or other forest products. A recent case which attracted (and continues to attract) a great deal of publicity in the UK was Brazilian Mahogany. Mahogany is harvested legally in Brazil, but Friends of the Earth claimed that it was also being harvested illegally from indigenous peoples' reserves and that the illegal loggers were using threats and even murder to acquire the logs. The resulting campaign, based on the slogan 'Mahogany is Murder', was very bad publicity for the tropical timber trade. Whilst some wood products may come quite legitimately from areas which have been gazetted as belonging to an indigenous group, it is essential that it is done with the clear, open, continuous and documented support of local people.

Even when indigenous people do not have codified legal rights to the land, if they are actually dwelling in the forest and maintain other rights and claims, and if they lose their homes and livelihood as a result of logging, then the area could not be certified under the FSC initiative. The other standards are less specific. This has become such an emotive issue that any standard which allowed certification of such an area would risk strong opposition from environmental and human rights groups. It is in the interest of both government and industry to avoid this type of situation, as it can lead to very bad publicity for the forestry sector, as occurred in the case of the Penan tribe in Sarawak. In this case, reports of the Penan being driven forcibly from the forest by loggers led to a successful campaign in Switzerland which almost resulted in a parliamentary vote to ban all imports of tropical timber.

A positive step for a forest organisation is to build links with local people and others claiming rights. The organisation can involve local people in planning and management decision-making, and ensure that there is broad support for, or at least acceptance of, their operations. An advantage for the forest organisation is that if, following review, the land rights are returned to the indigenous people, the basis for a good working relationship will already be in place.

In conclusion, overly-rigid social standards are as inappropriate as overly-specific environmental standards. For social standards in particular, the issue of who defines and implements the standards is key to success. Greater local involvement in standards processes, interpretation and monitoring is the best way to ensure constructive dialogue and co-operative development - but this should also be based on informed professional insight into e.g. human rights. However, this is often unprecedented for local groups, industry, government and environmental groups, and such challenges must be addressed. The notion of a national stakeholder working group, as a first step, is a useful one employed by FSC. The CIFOR work in examining possible social and participation indicators should provide good insight in the near future.

4.3 Tenure

Tenure is an important subset of the issues of rights and claims (above). Three tenure issues need to be taken into account in standards processes:

> Sustainable forest management requires clear long-term tenure
> People with legitimate rights and claims must not be marginalised (see 4.2)
> Current tenure rules are often antipathetic to the above

Tenure is one of the main problems facing many forest managers. Tenure may be codified and registered, or may be based on tradition and custom. It ranges from privately-owned land, through long-term concessions, to short-term leases or rights to cut. Since sustainable forest management requires a long-term commitment, it is necessary that both the operator and, in the case of short-term leases, the owner of the land, show a demonstrable commitment to SFM.

The situation may be very complex where claims to land rights date back to the times of European or other colonisation. In such cases native people may challenge the right of government to claim and manage land. In several countries there is now land rights legislation and special courts have been established to adjudicate tenure or compensation, and it may be beyond the scope of an individual forest organisation to settle such matters permanently. However, until any dispute was settled, it would make FSC certification difficult. It is less clear how the draft CSA standard, or standards based on the ITTO documents, would treat this situation. The problem with dispute settlement, however, is that formal procedures for settlement of tenure can end up excluding poorer or marginalised groups as they do not have good access to legal or bureaucratic processes. Yet these are the people who often have the highest dependence on forests, and in the absence of formal tenure, their use of the forest may have been at least tolerated. Furthermore, in some countries such as Papua New Guinea there is traditionally

a continuous negotiation over the rights and use of land, and settlements in perpetuity are not the norm.

Standards based on single, or simple, tenure models are not desirable. However, there are certain principles of tenure that do seem to be universally applicable for SFM. One of these is equity [4]; and the other is long-term management tenure. If an operator owns land or has the right to use it for more than a single rotation, then it is in the interests of that operator to manage the forest well in order to ensure the success of the next crop which it will be harvesting. Where the rights to land are awarded to an operator for less than the period of one rotation, there is no incentive for the company to do more than meet the minimum requirements of legislation, and where the regulating authority is weak, sometimes there is no incentive even to meet minimum requirements. Even when the regulating authority is sufficiently strong to control use of its land, it is still a case of rights being shared by both parties, but responsibilities remaining predominantly with the regulating authority. Such cases can lead to the development of detailed and prescriptive Codes of Practice which may be difficult to implement and even more difficult to monitor. It is therefore in the interest of both the owner of the land and the forestry operator to negotiate long-term concessions. Many standards initiatives rightly call for long-term tenure.

In conclusion, there is a clear case for harmonization of PC&I initiatives, such that the international PC&I initiatives lead to changes in national tenure rules that allow long-term management tenure of the appropriate forest resources, but also maintain equity with and amongst local rights and claims.

4.4 Forest conversion and land use issues

The importance of forests in global biodiversity is well known, and there are often also strong cultural, aesthetic or spiritual ties to forest areas, yet the last decades have seen accelerating rates of forest loss and degradation. As a result, there is strong pressure from the environmental and forest peoples' lobbies that remaining forests should be protected in a state as close as possible to natural forest. This is reflected strongly in the FSC P&C which prohibit the conversion of natural forest under most circumstances. However, this measure has raised some important questions:

Where conversion is part of a national or regional land-use plan, it has been argued that it would be an unacceptable infringement of a country's sovereign rights to bar from certification a *plantation developed on land converted from natural forest.* This is particularly the case where it can be demonstrated that the land-use plan is acceptable to the majority of national stakeholders, and even more so in cases where

[4] The concept of 'equity' is referred to both explicitly and implicitly in the Rio agreements. In the case of forest management standards, although most standards refer to the maintenance of existing rights, they may not seek to question whether these rights are equitable.

the plan is approved by national or international biodiversity groups. As a result, the FSC is now considering allowing conversion in the context of a national or regional land-use plan, but policy in this area is still under development. It seems unlikely that either the CSA or ITTO-derived standards would bar any type of plantation on the basis of previous land use; the dilemmas here would be many, including how far back in time previous land use should be considered significant.

All the standards encourage plantation development on *degraded land*. However, they have refrained from making it compulsory for plantations, since many areas of degraded land were previously covered by forest which has been disturbed and subsequently abandoned. Indeed, in some countries the bureaucratic or legal proclamation of 'degradation' has been a deliberate part of the process of clearing and legally acquiring land. Furthermore, the largest expanses of degraded land are likely to be in countries which have already destroyed large areas of forest, while in countries which have avoided excessive damage to the forest resource in the past conversion of some forest may be the only way of providing land. Certification of the former country's plantations, but not the latter, could be seen as an indirect rewarding of poor historical practices.

The use of degraded land for plantations is best monitored nationally. The term 'degraded' is very general, however, and where the land was previously forested, could lead to confusion and disagreement about whether an area is or is not degraded. This has been addressed in some cases by the development of more specific guidelines. For example, in the Philippines any area with a tree basal area of greater than 5 m^2 ha^{-1} has been classified as 'non-degraded' and hence unavailable for conversion.

At present, no certification scheme appears to be able to certify *forests that are being cleared for other non-forest uses*, and hence *salvage timber* cannot be labelled as being from a certified forest. The declared reason for this is usually that the forest cannot be claimed to have been managed (in the sense that it no longer remains forest). Underlying reasons are: many certification programmes have an implicit goal of no-net-deforestation; and stakeholders (who to greater or lesser extents have defined the standards) clearly do not want to have a market instrument that permits even individual instances of deforestation. In the absence of declared and protected Permanent Forest Estates in many countries, each individual forest loss is considered part of the problem of long-term incremental deforestation i.e. the operator clears one forest and then moves on to another.

In spite of the above, the notion of *sustainable land use standards* is gaining ground - within which the salvage products from forests legitimately planned for conversion may be considered compatible with sustainable development in the wider landscape. For example, the new use of forest land (for tree crops or agriculture, etc) may be considered sustainable, and producing greater net benefits than forest cover.

When it comes to afforestation - as opposed to forest clearance - there appears to be more sympathy with the idea of landscape planning and considering forestry within the context of other land uses. Here the issue is often defining where it is legitimate to site plantations (especially monocultures) with their environmental and social externalities, the magnitude of which often depend upon *neighbouring* land uses. This issue is particularly important for intensive industrial plantation forestry. Currently the tendency is to compare plantations with other, forest-based uses of the land, rather than with all other potential land uses such as agriculture, industry or urbanisation.

In conclusion, where natural forests and plantations are part of a planned land use pattern which sustains a mix of economic, social and environmental benefits (and where stakeholders have been properly represented in this planning), the argument can be made that it is legitimate for forests to concentrate on certain goods and services, and for other parts of the land use system to concentrate on others. Within the spread of different forest types, it can be similarly argued that it is more efficient to concentrate certain demands (such as high fibre production) on intensively-managed plantations, and concentrate e.g. environmental and biodiversity services on natural forests. This will undoubtedly be better than trying to wring all types of benefit out of every one of many types of forest (and indeed is the way the world works).

That said, however, the management of these individual forest, plantation and other land types cannot proceed in isolation - for there are ways of organising land use patterns to gain complementary benefits, for example the precise alignment of plantations with natural forests can allow wildlife corridors and better water management.

As the dilemmas over forest conversion begin to be faced squarely, this may result in broader sets of standards which deal with land use and landscape issues, as opposed to just forestry. While more challenging still than forestry standards, this may help ultimately to tackle both the cross-sectoral root causes of forest problems and the problems of forests (especially plantations) fitting into the wider landscape. Key factors in moving forward to a landscape-based system of standards would include:

- landscape stability long-term i.e. an emphasis on the notion of agreeing a national Permanent Forest Estate (PFE) to avoid incremental deforestation
- the need for much better stakeholder participation in deciding the PFE, land use patterns and the choice of where to focus the production of social, economic and environmental goods and services most efficiently (this needs to take into account not only current landuse patterns, but also likely changes in demand with changing social and economic expectations),
- management agreements for adjacent land uses to work together.

There are precedents for this. One system in Britain, LEAF, adopts a landscape-type approach for the certification of organic food products (Upton and Bass, 1995).

4.5 Participants in developing standards

PCI&S are at the heart of the current renegotiation of roles amongst global, national and local actors - who should be responsible for what aspects of SFM, and how should they be held accountable?

One major difference between standards initiatives lies not in the issues addressed, but in the range of stakeholders involved with the standard and the purposes (both overt and covert) of the stakeholders in developing that standard. This is an issue of vital importance to the future of standards of SFM, since each stakeholder is likely to have different priorities and interests, and is unlikely to respect a standard which does not seem to reflect these priorities adequately.

The FSC standard was developed with limited input from industry. Although it is being adopted by some forest corporations, particularly those dealing directly with consumers, it faces considerable suspicion from other parts of an industry whose perception is that it was not invited to participate in the development phase, has not been consulted in the implementation phase, but is now expected to implement the results.

Conversely, the Canadian Standards Association (CSA) standard has been dominated by business and industry interests, Yet this may reduce its effectiveness as a marketing tool, since the purpose of an environmental standard is ultimately to improve the credibility of the forest industry. If a standard fails to do this, it loses much of its value. The CSA standard has been sharply criticised by WWF International. The senior forest officer of WWF claimed that the CSA standard was 'developed with financial support from the Canadian Pulp and Paper Association', that it was 'notoriously vague' and 'had been sharply criticised by environmental groups who had withdrawn from the CSA process', and that it would certify 'business as usual, including large-scale clear-cutting and other ecologically damaging forestry methods still widely practised across Canada' (TTJ, 27 May 95, p5). This was followed up by a half page editorial in the TTJ from WWF-UK who commented 'It appears that the CSA ...have failed to realise that development of forest management standards do *[sic]* require full participation from a wide range of stakeholders' (TTJ 27 May 1995, p 32).

Uncertainty has also been expressed about 'how much of a departure from business-as-usual' the American Forest and Paper Association standard really represents (Tomorrow, Vol IV, No 2 April-June 1994). Again, this is because it is perceived as an industry standard which has been developed with little

input from other stakeholders.

The procedures for standard-setting have been well-established by a number of national and international organisations - notably the **International Organization for Standardization** (ISO). ISO's generic approach to standard formulation is one which attempts to ensure full participation. This is described in Box 4.

In conclusion, a standard:

- must be practicable and acceptable to the forest industry or it will not be adopted (possibly suggesting an EMS approach whcih allows for continual improvement over time);
- must be acceptable to environmental and social pressure groups or it is unlikely to be trusted by the public at large (suggesting generally a performance-based approach and wide participation in defining standards with minimum threshold levels of performance);
- must be consistent with evolving local and national legislation (suggesting the need for government involvement or specific consideration of international and national policy).

Only when all interested groups are represented and feel that their views are respected, or when the industry has been able to prove that they are making genuine improvements, will a standard be fully trusted. The need for broad participation is especially needed for SFM standards - for SFM itself is a construct resulting from many stakeholders' needs from, and perceptions of, forests. The *processes* of agreeing, formalising, adapting, implementing and assessing *standards* should, in general, be based on the approach of ISO (Box 4) [5]. In this approach, stakeholder participation is integral and paramount - and this is vital for the forest sector. At national level, such participation should be wider than ISO usually operates.

[5] It is acknowledged that some forest stakeholders do not like some of the management system standards developed by ISO, which involve management processes and continuous improvement rather than performance thresholds. Equally, some of the subjects for which ISO has had its major achievements e.g. electric sockets and light bulbs, involve a degree of standaradisation which is completely inappropriate for SFM, which in many instances will be culturally-led and very different betweenc ountris. However, the content of actual ISO standards should not be confused with ISO's processes for setting standards, which are participatory and well-proven.

Box 4: ISO's Approach to Standard-Setting

ISO standards are developed by technical committees which include qualified representatives of industry, research institutes, government authorities, consumer bodies, NGOs and international organisations from all over the world. The major responsibility for administering a specific standards committee is accepted by one of the national standards bodies that make up the ISO membership. The member body holding the secretariat of a standards committee normally appoints one or two persons to do the technical and administrative work. A committee chairman assists committee members in reaching consensus. Generally, a consensus will mean that a particular solution to the problem at hand is the best possible one for international application at that time - since the membership tends to encompass those with knowledge of the necessary policy, technical and operational issues. Each member body interested in a subject has the right to be represented on a committee. International organisations, governmental and non-governmental, in liaison with ISO, also take part in the work.

The ISO Secretariat in Geneva ensures the flow of documentation in all directions; clarifies technical points with secretariats and chairmen; and ensures that the agreements approved by the technical committees are edited, printed, submitted as draft International Standards to ISO member bodies for voting, and published. Meetings of technical committees and sub-committees are convened by the Central Secretariat. Although the greater part of the ISO technical work is done by correspondence, there are, on average, a dozen ISO meetings taking place somewhere in the world every working day of the year. ISO's standards are prepared according to the following principles:

- **consensus** - through committees, working groups and document distribution; the views of all interests are taken into account (manufacturers, retailers and users, consumer groups, assessors, governments and professionals)

- **industry-wide** - global solutions are sought

- **voluntary** - as international standardisation is market-driven, it is based on voluntary involvement of all the interests in the market-place

- **periodic revision** - technological evolution, new methods and materials, and new societal requirements for quality and safety mean that ISO standards are reviewed at least every five years

There are three main phases in the ISO standards development process.

1. The need for a standard is usually expressed by an industry sector, which communicates this need to a national member body. The latter proposes the new work item to ISO. Once the need for an international standard has been recognised and formally agreed, the first phase involves definition of the technical scope of the future standard. This phase is usually carried out in working groups, which comprise technical experts from countries interested in the subject matter.

2. Once agreement has been reached on which technical aspects are to be covered in the standard, a second phase is entered, during which countries negotiate the detailed specifications within the standard. This is the consensus-building phase.

3. The final phase comprises the formal approval of the resulting draft international standard. The acceptance criteria stipulate approval by two-thirds of the ISO members that have participated actively in the standards development process, and approval by 75% of all members that vote. Following this, the agreed text is published as an ISO international standard. This can be anything from a four-page pamphlet to a 1 000 page tome.

Many standards require periodic revision. Several factors combine to render a standard out of date: technological evolution; new methods and materials; and new quality and safety requirements as a result of changing market and legislative demands. To take account of these factors, ISO has established the general rule that all ISO standards should be reviewed at intervals of not more than five years. On occasion, it is necessary to revise a standard earlier.

4.6 Costs and benefits of certification standards

Certification will result in two types of cost to forest organisations:

- Costs of improving forest management
- Costs of certification

Costs of Improving Forest Management:

The costs of improving forest management are likely to depend on two factors:

- The current standard of management in the forest
- The standard of forest management required ("good", "quality", "sustainable", etc)

Early certification activities have not tended to result in significantly increased management costs for the companies concerned, largely because the pioneers of certification have tended to be companies which already practice excellent forest management. Therefore, incremental cost data are not yet available. However, in some temperate and boreal countries, there has been considerable public or legislative pressure to improve forest management for some time, which has already forced companies to spend money on environmental management. For example, the Forest Engineering Research Institute of Canada estimated that meeting the new Forest Practice Code in British Columbia will result in an increase of 20 - 30 % in costs.

While there are several examples of sustainable management of temperate and boreal forests, little information exists on the costs of sustainable forest management in the tropics. A current ITTO exercise to look at the costs of achieving Objective 2000[6] addresses principally macro-level factors, and is based largely on estimates rather than empirical evidence. Few tropical forests are currently under any kind of management system and very little logging can be considered sustainable (Poore, 1989). One of the main reasons for this is the damaging logging techniques which are used. Therefore costs of 'sustainable' management are likely to be closely related to the costs of implementing low-impact logging techniques. The estimated costs range from US$38 to US$60 per hectare in the tropics (Ghazali and Simula, 1994) which is up to twice the cost of conventional logging. However, some studies currently underway in tropical forests indicate that there may be substantial savings to be made by planning operations carefully and carrying them out in a structured way.

There are many potential benefits associated with standards of improved management, although it is still too early for the magnitude of these in the forestry sector to be quantified. Many of the benefits accrue

[6] A commitment made by ITTO members that all tropical timber should be sourced from sustainably-managed forests by the year 2000.

to society as a whole. However, it seems likely that some of the benefits will go directly to the operator (ISO, 1994b), thereby helping to offset some of the costs *e.g.*:

- meeting customers' environmental expectations;
- maintaining good public/community relations;
- satisfying investor criteria and improving access to capital;
- obtaining insurance at reasonable cost;
- enhanced image and market share;
- meeting vendor certification criteria;
- improving cost control;
- liability limitation;
- demonstration of reasonable care;
- conservation of input materials and energy;
- facilitate the obtaining of permits and authorizations;
- technology development and transfer;
- improved industry-government relations.

The increased costs of improved forest management will have to be borne by producer or customer or - as seems most likely - a combination of the two. The main advantage for producers may be increased market share, rather than a price premium. For example, in a recent survey of furniture manufacturers by TTJ (TTJ 21 Jan 95, Environmental Supplement p3), three-fifths of respondents said that they would prefer to buy certified timber given the choice, while 28% said they would pay a premium.

Costs of Certification:

The costs of certification are not yet well-established for different applications, for the simple reason that certification is relatively new and has not been routinely used. Available estimates of initial certification costs range from US$3,500 to US$45,000 for a full assessment, depending on the size of the forest organisation and the area of forest. Other estimates have used a figure of around 40 cents per hectare as a rough estimate of costs. Subsequent annual audits are likely to cost between US$ 1000 and US$ 3000 per annum. The cost per hectare decreases with increasing area of forest assessed, which may make it relatively easier for larger forest organisations to become certified. As most certification has been undertaken with North American or European inspectors, one might expect costs to drop if inspection was done by developing-country-based groups. Yet this has not been the case for ISO 9000 inspections (a process involving similar procedures). In fact, Brazilian and Indonesian ISO 9000 costs, for example, are high on a world scale. At present, the same appears to be the case with forest certification - it is presently a "rich man's club" (TTJ 2 September 1995) and smaller local groups have

not been much involved - or if they have, the importer has paid the bill.

Various strategies have been proposed to overcome the difficulties many small operations have in paying for certification:

- Some non-profit certification organisations such as the Rainforest Alliance have a policy of making certification available to all forest organisations, irrespective of their ability to pay. The costs of certifying companies or organisations that lack sufficient funds to pay is subsidised by donations or income generated from other certifications. However, this often results in delays.
- In some cases, part or all of the costs of certifying a forest operation are borne by buyers who wish to purchase timber or timber products from a certified source and who may, for PR or other reasons, favour small producers. An example is the British do-it-yourself company B&Q, which covered the costs of certifying the Bainings community forests in Papua New Guinea.
- The SCS approach for reducing the costs of certifying small and medium operations is the development of an adjunct programme for certifying foresters and loggers. Forestry operations run by certified professionals will require a less rigorous assessment (which is the main expense of certification), though regular inspections will be carried out to confirm continued commitment to - and compliance with - sustainable management standards.
- Another possibility, particularly in countries where strong producers' associations or co-operatives exist, is for small producers to pursue certification as a group, with a common environmental/forest management policy and coordinated operations.

One of the potential advantages of independent certification was demonstrated by the recent controversy over mahogany imports into the UK. Although importers had certificates provided by producers, there were consistent claims that, in fact, some of the mahogany was illegally taken from indigenous reserves. This resulted in a campaign to take back this 'stolen property' from retailers in the UK, to be returned to its rightful owners. However, the campaign group assured reporters that 'members of the WWF's 1995 group and companies who import mahogany *from a source verified by a third party* will not be targeted' (TTJ 6 May 1995, *our emphasis*). According to a major UK timber merchant, the certificate that was provided by the mahogany producers was meaningless because 'it had no independent input whatsoever. You can't self-verify and then expect people to take you seriously. Environmentalists won't buy it' (TTJ 6 May 95, p18).

In conclusion, while certification standards continue to be the forest standards with which there is most practical experience, the cost aspects of both SFM and certification need serious attention. The "rich man's club" of organisations having certified forests should have the potential to become open to broader groups. A graded system (e.g. the 'well-managed' and 'sustainably-managed' categories of Rainforest

Alliance) for different aspects of SFM, together with a continuous-improvement, EMS approach, may enable a higher degree of take-up. However, EMS standards should not be structured so as to make a high-technology, corporate approach to EMS systems obligatory; community participation and monitoring, with simple technology, for example, could form the basis of a community enterprise's EMS. So could small producers' associations - which could also provide other benefits in addition to making certification more accessible.

4.7 Dealing with "greenwash"

The issue of 'greenwash' was well summed up by John Heissenbuttel, an AFPA vice-president, who was quoted in *Tomorrow* as saying 'Through research we realised we were not going to be able to win the hearts and minds of the public through standard communication brochures. The public wanted a *behavioural change*' (Tomorrow, Vol IV:2, Apr-Jun, 1994, *our emphasis*).

As the pressure to improve environmental performance increases, some companies have resorted to producing publicity material without actually changing their working practices. Or they make improvements in one area, and use this to divert attention from other areas where performance is less strong. This has led to confusion and growing suspicion on the part of consumers, and irritation on the part of environmental groups. WWF took up the question of inaccurate advertising by contacting companies directly, taking cases to the Advertising Standards Authority and producing a publication on the issue (WWF, 1994a). As the development of SFM standards continues, there is likely to be increasing antagonism towards unsubstantiated, misleading or downright untrue claims of environmental performance from others in the industry as well as the environmental lobby, consumers and the media.

In conclusion, any company which wishes to maintain a reputation as a respectable and trustworthy organisation can no longer afford to make "greenwash" claims that it is unable to meet and demonstrate. The likelihood of exposure is now far greater than a few years ago. The issue is therefore likely to become less important as consumers, retailers and producers become more aware of the standards that are becoming accepted, and as certification bodies control the use of their labels.

4.8 Lack of information on which to base standards, and lack of monitoring/assessment systems

One of the most common reasons given for the failure to agree and implement SFM standards is the lack of information, particularly in the tropics, on which to base the standard. However, there is a growing consensus that, although there is still much to learn, a great deal is already known and it is imperative that forest management should be improved as soon as possible. Indeed, this point was well made in

1989 (Poore, 1989). Only basic information is needed to move from a position of weak management to adequate management.

There is a reasonably clear understanding about the information needed to assess timber and biomass *stock, logging damage* and *regeneration rates*. But the choice of indicators, information needed and assessment methods are less clear for *biodiversity* and *social sustainability*. For biodiversity, in theory it is genetic change which proceeds quicker than species diversity or ecosystem diversity change. However, there are difficulties in defining useful indicators or cost-effective assessment methods for identifying changes in genetic diversity. WRI and WCMC are coordinating useful work on habitat condition and vulnerability.

The general lack of routine assessment systems for actually monitoring standards which apply at field level, and the costs of such assessments, are considerable practical problems with the use of PCI&S. By and large, current forest inventory and information systems focus on factors which were most important to forest objectives in the past e.g. forest area, stocking rate and regeneration. Currently used inventory and information systems are not equipped to deliver the new information beginning to be demanded by different actors as they hold one another accountable for different aspects of forestry. The information base to report on PCI&S is potentially huge and costly to maintain. The EMS approach is one way to focus on just that information which matters for an individual enterprise. This still demands the development of rapid (or at least cost-effective) assessment tools for the chosen information and a system for selecting the critical aspects on which to focus. This is an area which the CIFOR study will be investigating, in parallel with the definition of a minimum set of C&I. For some topics, composite indicators or proxy indicators may be possible to derive and assess. For others, there may be a larger burden of individual assessments.

At the level of the individual forest operation, assessment will be carried out by the assessors from certification bodies. If, as was discussed above, standards are kept general to allow for local interpretation, this puts a great deal of responsibility on the assessor who must judge whether the forest manager's interpretation of standards is acceptable. This once again highlights the need for professional, credible certification bodies, which in turn necessitates strong accreditation bodies capable of ensuring that standards are maintained. This is not impossible, as has been shown by the success of the very general Quality Management standard, ISO 9000.

In conclusion, more research will be needed in defining the social and biodiversity PCI&S. At the forest level, a major advantage of the EMS continuous improvement approach is that it helps to focus on the information categories, sources and research that actually matter, thereby avoiding an overly-comprehensive and heavy information/monitoring burden. However, such an approach may fail to give

the reassurance currently demanded by consumers and NGOs. At the national level, information on forests now needs to cover the physical, environmental, economic and management information that is needed for balanced national forest resource stock-taking (an approach becoming known as "Forest Resource Accounting" - see IIED/WCMC 1994) or, more ambitious still, to cover the information categories needed for valuation of the national forest asset (Eaton 1995). Forest inventory, and forest information systems, will have to evolve to produce and maintain PCI&S information. As far as possible this information should be generated through routine management operations and not all as separate "audit" exercises. Development of rapid assessment methods will be needed for certain C&I.

4.9 Trade Barriers

One of the reasons repeatedly given by many timber-exporting countries for the opposition to externally imposed standards is the question of free trade. This is an important issue which should be addressed. As long as standards are completely voluntary, they do not come under the aegis of GATT or WTO. However, if consumer and retail groups in certain countries make commitments to buy wood products only if they come from certified forests, this may contravene free trade regulations. This issue is currently under discussion. However, it should be pointed out that while a commitment to **only** buy certified timber products may be illegal, a commitment to **preferentially** buy them almost certainly would not. The FAO harmonisation process, the Intergovernmental Panel on Forests, and the Committee on Trade and Environment, will provide useful fora in which to discuss this issue.

Standards of forest management may become more complicated than simply an issue of a bar to free trade, as environmental clauses are now being included in trade agreements which may be used by environmental groups. For example, the North American Free Trade Agreement (NAFTA) includes clauses to ensure that signatories do not obtain unfair trade advantage by neglecting the environment. The Canadian Natural Resources Defence Council passed a report to the North American Commission on Environmental Co-operation, established to oversee fair environmental performance of NAFTA signatories, claiming that forest management in Canada was worse than in the US with more ancient forest cut, clear-cut areas six times bigger, and poor salmon stream protection (TTJ 1 Apr 95, p2).

Three main worries concern those in charge of trade aspects:

- fear that compliance with currently voluntary schemes may become, in effect, compulsory for market access;
- the possible high costs of compliance, and
- standards could be operated in a discriminatory way.

A number of points can be made concerning the possible clashes between certification standards and the World Trade Organisation (WTO) Agreement (Dubois *et al*, 1995):

- According to the WTO Agreement, WTO Members are currently free to implement any domestic environmental policies, provided they pertain only to their own countries. Thus countries are free to protect their own forests, but not those of other countries. They can prohibit the *export* of timber from unsustainably-managed domestic forests, but not the *import* of such timber from other countries. None the less, these issues are not resolved in perpetuity and are hotly debated in WTO and UNCTAD.

- Consumption-related standards are not prohibited, as long as they do not discriminate between domestic goods and imports. For example, a country may restrict the consumption of fruits with pesticide contamination, provided that the restriction applies to both locally produced and imported fruits equally. This is because discrimination between products is permissible if there is a detectable difference, e.g. a residue, in the different products. This would rarely apply to timber, produced under different management regimes.

- However, all wood products (whether tropical, boreal or temperate) are considered "like products" and trade should not discriminate between like products on the basis of processes, or production methods (PPMs), or origin. Members of the WTO are generally not permitted to distinguish between domestic and foreign like products, or among different foreign like products produced by other Members. To allow trade restrictions based on PPM differences "would undermine the capacity of countries to benefit from their comparative advantage" (Sorsa 1992, quoted in World Bank 1993). However, again, there are debates about whether GATT rules and the WTO Agreement should reflect current concerns about production processes. GATT was established with a product focus, some time before environmental concerns were considered important.

In spite of the above, four policy routes are available for SFM which would not directly contravene WTO rules (Appleton, 1995):

- Efforts to achieve SFM through development assistance, or domestic efforts to encourage national or local authorities, as well as communities and forestry companies, are legitimate

- The negotiation of multilateral environmental agreements can be encouraged i.e. a non-trade approach to SFM

- *Voluntary* certification and timber labelling schemes can proceed

- The development of an *internationally recognised* approach to certification, e.g. using processes such as ISO.

In conclusion, the trade aspects of standards, and certification standards in particular, are far from clear except with respect to voluntary programmes and domestic markets. Hence the current attention on voluntary programmes in certification. In the long run, certain aspects of GATT and WTO rules are not sustainable. It could be argued that these should change - rather than environmental aspects having to "fit" with rules which were set up before environmental concerns were fully considered. Because all of these issues are in flux, and it is important to avoid discrimination, an internationally-agreed approach is desirable. Parties need to agree on what the trade problem is. They need to monitor current certification schemes as they progress towards mutual recognition or harmonisation. They should also examine those aspects of GATT and the WTO Agreement which are obstacles to SFM, and certification as an instrument of SFM, and seek to change them. (Dubois et al 1995).

4.10 Harmonisation

The current spate of international activity to harmonise the various PCI&S initiatives has been discussed in 3.2. It is necessary, however, to examine the purposes of harmonisation, its legal possibilities, and its implications. Principle 11 of the Rio Declaration provides that:

> "Environmental standards,.. should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries."

Agenda 21 therefore implies the need for some harmonisation, to allow for comparability between nations, and yet to avoid discrimination. However, harmonisation has no single, agreed meaning in international law. It can mean many things, including standards which are *identical*, or standards which are broadly *similar*, or standards of *averaging*, or any standards which are higher than an *agreed minimum*. It can also refer to different standards between which there is a *mutual recognition*. According to FIELD (1993), several factors determine the likelihood of standards being harmonised at the international level:

- identifying and agreeing upon the *values to be protected by the standards* (the PC&I work has been making headway here, but there are differences in global, national and local values)
- agreeing a *consensus on the scientific evidence*, or agreeing a *threshold* above which standards

are needed to adopt a precautionary approach

- agreeing the degree to which *different ecosystems* require different standards
- establishing the link between economic performance and the adoption of environmental standards *(costs and benefits of standards implementation)*
- ensuring that differences in the *social assessments of risk* can be accommodated by agreed standards
- ensuring the adoption of equitable means to permit the *sharing of economic burdens* associated with standards

This suggests that, although harmonisation of initiatives will ultimately be important, full harmonisation will take time to achieve because more experience in the above areas is needed. The fact that most current certification schemes are aiming to ensure that their standards are compatible with the P&C of the FSC bodes well for international compatibility in the not too distant future.

In conclusion, harmonisation is an extremely sensitive process and will take some time to be achieved. The IPF (the Intergovernmental Panel on Forests set up by the Commission on Sustainable Development), the FSC and ISO processes, represent promising vehicles for this. Harmonisation should not lead either to the lowest common denominator, or to inappropriate averaging of national standards, or to maximum standards. It ought to encourage the achievement at, or just below, industry best practice in the country in question. The need for comparability and harmonisation should be balanced with the need for innovation that, in practice, is also required if SFM is to be achieved. Meanwhile, because harmonisation depends upon negotiation - which can end up in stalemate - monitoring of PCI&S, their impacts and their convergence, is also recommended.

4.11 Generalised *versus* detailed standards

The issue of the level of detail of standards has been raised in 4.1. While there is beginning to be broad agreement on international P&C, there is less agreement on how this should be assessed for any one type of forest or management type. Extremely detailed standards, as CIFOR's multi-national test is beginning to reveal, are impracticable as required assessment systems are not in place, and the financial costs of assessment would be high. On the other hand, if standards are few and generalised, their equitable application across different forest and management types becomes difficult.

In conclusion, we would suggest that the more generalised standards are the way to start, provided these are supplemented by training local forest managers and assessors of local forest operations in interpretation of the FSC P&C and (generalised) local standards, plus good accreditation of assessors.

This approach has been outlined by Palmer:

> "The most practical and equitable solution at the moment seems to be assessment of about eight contrasted aspects of good forest stewardship, as demonstrated in the forest management system developed for any particular area. The certification inspectors check the rationale for the management prescription, the details of the prescription itself, and whether the prescription is actually implemented. Each operator or manager is thus free to devise systems which are appropriate for particular forest types or demands on the forest, but has to provide reasons to justify the choice. This solution overcomes objections to certification as a challenge to national sovereignty, and as an impractical and costly external imposition." (Palmer 1995a)

4.12 Overall conclusions on fitness of PCI&S for their purpose

We began this review by suggesting that, although there is now broad agreement on the principle that forests should be managed sustainably, confusion remains as to how to do this in practice. We proposed that the transition to sustainable forest management would be achieved through a more-or-less cyclical - or at least iterative - process. This process would be a participatory one and would be composed of various tasks: agreeing the agenda and basic goals, knowledge generation, practice, monitoring and continuous improvement. To be of use, PCI&S should help these tasks. We have emphasised the point that principles, criteria, indicators and standards need to be *fit for their purpose* -and that both specific purpose and PCI&S content need to be agreed amongst stakeholders and defined at a number of scales: global, national and local. It is also important to differentiate the different stages in the development and implementation of standards:

- The development of principles, criteria and indicators
- The formulation of standards
- The implementation of standards
- Assessing compliance with standards

We now summarise some of the conclusions suggested by this review for each of these four stages.

4.12.1 The development of principles, criteria and indicators

Initiatives to develop principles and criteria of forest management at a global level are aimed at either *national planning, monitoring and reporting*, or at *forest certification*. In both cases the main purpose has

been to provide a definition of what constitutes the important elements of sustainable forest management, to prioritise the areas which require most urgent attention and to provide guidance in what should be monitored to assess the degree of sustainability.

National initiatives tend to take one of three basic approaches, depending upon whether the nation is a wood importer, an exporter, or both. Importers e.g. the Netherlands focused first on P&C for imported timber. Exporters e.g. Canada and Scandinavia started by setting standards for domestic forests. Countries that both produce and import e.g. UK and Germany have looked at both foreign and domestic affairs.

There have been a large number of initiatives, developed by different groups with a wide range of agendas, resulting in considerable confusion. There has also been distrust and sometimes conflict between groups with different definitions of sustainable forest management. To overcome this, it will be necessary for some degree of harmonisation of the different initiatives to be made. As was shown in the discussion in section 3, despite the differences there is also a considerable degree of overlap and agreement between initiatives. Therefore, one of the first challenges for those interested in promoting sustainable forest management is to understand the content of the many initiatives which exist and identify the areas of agreement. Once this is done, the work of addressing the real differences of priority and definition between initiatives and stakeholders will be considerably easier. Industry should be actively involved in this process both to listen to the concerns and priorities of other stakeholder groups and to explain their own concerns and needs.

This having been said, although convergence is ultimately desirable, especially for trade purposes, the scope of PC&I initiatives should not be prematurely restricted by international panels intent on a process of harmonisation without being clear what the purpose is. A very important step is to get national working groups developing national PC&I sets which cover the broad areas found in international initiatives, but adapt them for local needs and conditions.

The process of developing national versions of international PC&I sets is already under way, with Canada's forestry criteria ('The Canadian Approach'), developed from the Montreal Process, being the most advanced. Progress is also being made in interpreting the Helsinki Process in some European countries and the ITTO criteria in some tropical countries. However, this process is not always participatory and as a result some stakeholders may feel excluded and therefore become opposed to the process. Again, industry can and should play an important role since not only is it likely to be directly affected by the process, but it also has the greatest first-hand knowledge and experience of managing forests under local conditions. However, it is also important that no party dominates discussions, since this is will alienate other stakeholders and thereby reduce the credibility of the initiative.

However, the notion of PCI&S for maintenance of the genuinely *global benefits of forests* still requires much work. The global purposes of PCI&S is an area where international discussion is required, and in large part has been avoided because of the many (perceived) agendas, such as the contentious notion of a global forests convention. The Intergovernmental Panel on Forests, set up by the CSD and aided by the FAO, presents a special opportunity to redress this balance. At present, it is clear that measurement criteria could be helpful, such as *biomass* (for carbon sequestration and storage), *biodiversity* and perhaps the status of *forest-dependent peoples*. It is only when international agreements can be made, e.g. on payment transfers for carbon sequestration or biodiversity conservation, that performance criteria and policy criteria will be appropriate.

4.12.2 Formulation of standards

International standards, if they are to be fit for their purpose - which is ultimately to confirm to the global community that forest resources are being well-managed - must have credibility with the general public, consumer groups, retailers and NGOs. They must also be practical and have the support of government and industry so that they can be adopted and implemented in practice.

Progress is being made in: developing and testing suitable P&C for national use and standards for local use; ensuring appropriate international comparison of performance (notably through FSC) and of management processes (notably through ISO approaches); and in developing international coordination (notably through FAO and now the Intergovernmental Panel on Forests).

There remain divisions between those who adhere to performance-based approaches, and those who adhere to continuous improvement EMS-based approaches, but convergence is beginning. Convergence can be achieved in part by a focus on the precautionary principle and the preventative principle - which apply to both management systems and performance.

There is also the question of how detailed a standard should be. The evidence emerging from studies such as that of CIFOR is that it is best not to produce overly-detailed standards, but to keep them general to allow national interpretation in each country, and even local interpretation for each forest organisation. Those working at the local level often feel that their needs and concerns are marginalised when issues are discussed at international and even national fora. Forests are found in such a wide range of geographical, social and economic situations that a single definition of management is untenable. This is especially true of some of the more contentious and complex issues raised in section four, such as land-use planning, forest conversion and social issues which vary enormously from forest to forest.

However, local interpretation in a country must be uniform enough to allow international recognition. The degree of international uniformity with which national groups need to be presented could be, for example, a core set of P&C, such as CIFOR is trying to isolate from the 1068 being considered, together with mechanisms for adding those with local significance. Practical issues, of how to set up (rapid) assessment methodologies to examine chosen national sets of PCI&S in the field, and how to integrate these with forest inventory and information systems, should receive more attention. Again, CIFOR is making a useful beginning; and the IIED/WCMC work on forest resource accounting is providing practical guidance at national levels.

4.12.3 Implementation of standards

The first forestry standards to have been implemented in practice were those developed under the FSC umbrella. There are already forests in all five continents which have been certified, but as yet they are a tiny fraction of the world's total productive forest area. EMS standards are further behind, with no forest yet registered for ISO 14000, although there are a few forest organisations which have achieved certification to the quality standard ISO 9000. However, there are a large number of forest organisations beginning to implement improved management and conduct internal audits of their own environmental performance.

This is an area which still requires considerable development, and one where the input of forest managers is essential. Although there is consensus on the importance of many issues such as sustainable production of timber or the conservation of biodiversity, there is much less agreement on how to achieve this in practice. Therefore, an extremely important element of the discussion of sustainable forest management must be on how to bridge the gap between theory and practical management.

Much of this will need to be done at a national or even local level by stakeholders with a detailed knowledge of local conditions, needs, priorities and limitations. This requires serious consideration of how to decide *who* should be involved. At the same time, local interpretations must be in line with global expectations to maintain the wider goals of standards. It is also essential that the standard being implemented is credible. There is some danger that a proliferation of different standards could mitigate against this unless they are harmonised under a single umbrella organisation such as the Forest Stewardship Council or ISO. The recent conflict between the developers of the Canadian Standards Association SFM standard and the backers of the FSC initiative was a good example of the type of negative publicity which conflicts between different stakeholders with different standards can attract.

4.12.4 Assessing compliance with standards

If international standards are kept general to allow local and even site-specific interpretation, as suggested above, then there are several important pre-requisites for success.

The first of these is the *re-establishment of trust* between the forest industry and the general public. Much of the motivation for prescriptive, performance-based standards has been the assumption that industry and government, if left to itself, will manage forests badly. Less prescriptive standards can succeed only if industry and government claims are believed. This may require a degree of self-policing by the industry to ensure that false claims made by a minority of operators do not jeopardise the reputation of the majority.

The second issue is *the credibility of certification bodies*. Since it will be up to these organisations to decide whether the local interpretation of a standard is acceptable, it is essential that these bodies are professional, reliable and credible. This can be achieved through rigorous accreditation procedures together with constant monitoring of the performance of certification bodies, as is the case with the quality management standard ISO 9000.

However, the use of general standards coupled with site-specific interpretation and rigorous monitoring is likely to have cost implications. A way of minimising the costs of monitoring is the implementation of a management system. Where all operations are well-documented, much of the work of monitoring and assessment can be done from offices with field visits, the most costly element of an assessment, restricted to confirmation that documented procedures are followed in practice.

In conclusion there is still much uncertainty about the implementation of sustainable forest management standards, with those actively managing forests often the most confused. However, this masks the considerable advances which have been made over the last decade in both defining and in implementing improved forest management practices. But there is still a long way to go at every stage of the process. There is a need for understanding and some degree of harmonisation between both principles and criteria developed by different stakeholder groups and the various standards which have been formulated. Industry has a vital role to play in this process in a number of ways:

- Providing information for both P&C development and the formulation of standards based on extensive management experience.

- Being open to new needs and ideas thrown up by the initiatives which have been developed.

- Contributing to the re-establishment of trust between NGOs, the general public, governments and industry by adopting a positive, open attitude to discussion and implementation of improved forest practices.

Current standards all cover, to a greater or lesser extent, the needs and dimensions of SFM, but some are more suited to some purposes than others. Most of the standards initiatives are currently evolving. It is not the intention of this report to make a definitive judgement on which PCI&S initiatives are best set up for specific purposes. This is a matter for stakeholder discussion. However, in assessing the suitability of sets of standards for specific applications, we can suggest a number of questions that should be asked (Box 5). These questions could also be used in designing standards.

Box 5: Assessing External Standards - Questions to Ask

When developing standards, development must occur at each scale of application: global, national and local. However, there are some broad general principles and questions which are useful:

1. PROCESS

Have all legitimate stakeholders been identified and are they involved in the process ?
Does the formulation follow ISO Principles:

- technical scope defined first through wide participation?
- developed through consensus?
- industry-wide i.e. globally applicable?
- voluntary approach adopted?
- allows for periodic revision?

Are standards developing alongside:

- the institutional and regulatory *structure* for standards use e.g. certification?
- development of effective *procedures* for implementation and monitoring?
- the possibility for local interpretation fitting with *EMS continuous improvement* approach?

2. CONTENT AND STYLE

- Are there clear overall goals for the standard ?
- Are there defined boundary conditions e,g, forest, landscape, nation?
- Is the standard complementary to national legislation or codes of practice?
- Is the standard balanced and relevant to economic, social, cultural and environmental objectives?
- Is the level of detail low enough, except for priority threshold issues?
- If detail is low, is it accompanied by a strong accreditation process?
- Is the standard practicable and implementable?
- Is there a focus on cutting out poor practice and bringing in current best practice, not just an ideal?
- Are the requirements pitched just below industry best practice, to allow for effective take-up?
- Is the standard flexible but not allowing poor performance?
- Harmonisable e.g. covering normally-accepted topics?
- Is the standard compatible with free trade?
- Is the standard fair in relative ease of application by different groups?

Supplement: Preliminary recommendations to the WBCSD

Our discussion and conclusions (section 4) concern all stakeholder groups. There are some recommendations, however, which we wish to draw to the attention of the WBCSD, as representing a key group of stakeholders, the industry.

There have been considerable changes in forest management practices in recent years as foresters try to adapt to changing (and often conflicting) perceptions of the most desirable nature and uses of forests. However, there is still considerable antagonism and mistrust between environmental and social NGOs on the one hand, and some parts of industry on the other. This has been highlighted in the recent debates on the FSC and ISO standards.

Recommendation 1: The WBCSD should lead the way in re-establishing trust and a co-operative working relationship between industry and NGOs. It should provide a continuing forum for the discussion of difficulties and suggestions for how to overcome them. Those members of WBCSD who have progressed furthest with improving forest management practices should assist those who are lagging behind.

A very wide range of stakeholders covering government, industry and environmental groups agree that sustainable forest management no longer refers only to the sustainable production of timber. The definition has expanded to cover sustainable production of many forest goods and services. However, there is still considerable disagreement and confusion about the relative importance of the various issues, both generally and in specific situations.

Recommendation 2: The WBCSD should analyse all the topics which have been included in the current sustainable forest management initiatives, and assess their reaction to each one, based on section 4. This should be done in the most positive and innovative way possible. National stakeholder groups or round tables should then be encouraged, in order to set the agenda for inter-stakeholder discussion.

Even if agreement has been reached on the importance of a particular issue, there remains disagreement about how it should be implemented in practice.

Recommendation 3: The WBCSD should assess what operational experience its members have on the dilemmas of section 4 and, in discussion with other interested parties, communicate positive ways forward to both members and non-members whose environmental practices need to be improved.

The certification of forests to internationally-accepted standards of sustainable forest management provides a guarantee to environmental groups, consumers and governments that best management

practices have been implemented.

Recommendation 4: WBCSD should support the concept of independent third-party assessments of forest management, leading to certification. A standard should be chosen or developed which has the full support of both NGOs and industry. Where certification standards are being developed, this should be done at the same time as consideration of the necessary assessment systems and accreditation procedures - so that the standards, their assessment, and accreditation of the assessors are complementary.

Forestry is one of the most potentially sustainable ways to provide the world with energy and raw materials, but it is currently viewed with some suspicion by the general public. As a result, reports of bad forest practices tend to be believed more readily than industry publicity of good management. Self-proclaimed SFM is no longer adequate, and is treated with suspicion in many markets and by most NGOs.

Recommendation 5: Members of WBCSD should try to communicate with the public about the advantages of forestry, but this must be combined with a real improvement in forest management world-wide, as one or two highly publicised cases of bad forest management can adversely affect the entire industry. Independent research and assessments of industry progress should continue to be supported.

As the concept of standards of forest management is developed, it is likely to influence market share and trade.

Recommendation 6: The WBCSD should ensure that an industry forum exists to discuss the potential implications of sustainable forest management on business. This forum might include progressive companies - large and small - to provide leadership, as well as some industry associations to provide representativeness. Members of WBCSD who attend such fora should use their influence to ensure that discussions are innovative and proactive rather than defensive. The industry forum should, at appropriate times, open its participation to NGOs and governmental interests.

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APPENDICES

Details in these appendices were accurate as of October 1995.

Appendix 1:

Details on Current Forest Principles, Criteria, Indicators and Standards

CONTENTS

1. ITTO criteria for the measurement of sustainable tropical forest management

organisation: International Tropical Timber Organisation, based in Yokohama, Japan.

declared aim/ rationale: The criteria were developed to "aid producer member countries of ITTO to both assess and report on their own progress towards achieving sustainable tropical management and Target 2000" - as part of ITTO's strategy to ensure that all trade in tropical timber is sourced from sustainably managed forests by the year 2000. The criteria were developed in line with the ITTO statement that: "progress can only be achieved through a definition in simple practical terms linked to operational criteria in the field".

proposed use: "These criteria will help to focus current weaknesses in management, and will therefore help to identify achievable improvements in management practice. They can also provide a basis for a standard reporting system to facilitate comparison and discussions for cooperation and assistance." The criteria represent an advisory guideline.

target group: Initially, national groups, in tropical timber producing countries, responsible for developing national standards, whose 'target group' in turn includes forest managers and planners working in tropical countries.

geographical scope: Tropical timber producing countries who are members of ITTO.

application to forest type: The document addresses natural forest management at both the national and the local forest management levels.

status: Not mandatory.

stakeholders involved in preparation of standard: An Expert Panel was convened to "formulate possible methods for defining general criteria for and measurement of sustainable tropical forest management". The panel consisted of experts from both producer and consumer countries and representatives from conservation NGOs and the timber trade.

process: formulation of standard: On the basis of a detailed discussion paper developed by two consultants, an Expert Panel developed a working definition of sustainable management of tropical forests and a list of criteria for sustainability and examples of indicators. The ITTC further streamlined the definition and the criteria, and invited both producer and consumer member countries to contribute to the process, before further consideration by the ITTC.

process: implementation of standard: The document emphasises that "determinations of sustainability and therefore use of the list of criteria must be specific to each nation or each management unit". The criteria are deliberately kept simple and field-oriented. There is generally a low degree of detail, such that the criteria may be adapted at national or local level.

what constitutes the standard? Eleven criteria and associated indicators are defined for sustainability at, firstly, the national level and secondly, the level of the forest management unit.

Criteria for sustainability at the national level concern:
- the forest resource base
- the continuity of flow (of products)
- the level of environmental control
- socio-economic effects
- institutional frameworks

Criteria for sustainability at the level of the forest management unit concern:
- resource security

- the continuity of timber production
- the conservation of flora and fauna
- an acceptable level of environmental impact
- socio-economic benefits
- planning and adjustment to experience

For each criterion, examples of indicators are given.

progress to date: An ITTO project to disseminate and promote the use of the Criteria is under way in the *Brazilian* states of Acre, Rondonia and Mato Grosso. The aims of the project are to disseminate the criteria (and the ITTO Guidelines for the Sustainable Management of Natural Tropical Forests) to relevant people in the region, develop a databank of forest management plans already in existence and assess their compliance with the ITTO guidelines and criteria, and introduce the concepts embodied in these documents to relevant personnel through training workshops.

Busink et al (1994) describe an attempt to test the applicability of the ITTO criteria for sustainable forest management in the *Netherlands*, both in terms of an overall picture of forest management at the national level, and by applying the ITTO criteria to a forest management unit in the Netherlands. ITTO criteria for the national level were used to review the actual forest management situation in the Netherlands. The criteria comply with those proposed by ITTO, but not all indicators as proposed by ITTO are used; others have been specified to the national situation. The study concluded that the "ITTO criteria and indicators may be used for the assessment of management in non tropical countries as well, eg the Netherlands. They proved to be most relevant with regard to the assessment of the national forest policy. For the management unit level criteria and especially indicators had to be further specified and detailed according to the prevailing circumstances".

A team from *Indonesia*'s Association of Indonesian Forest Concessions (APHI) and Indonesian Forestry Community (MPI) prepared guidelines, criteria, indicators and checklists for sustainable forest management to be used by members of APHI. This was based on the ITTO Criteria with modifications for Indonesia, and was also used as a reference by the Ministry of Forestry in its policy making. The team produced criteria for national forest management, sustainable forest management indicators for forest management unit and assessment criteria for forest management unit, following the ITTO criteria adapted for Indonesia. Field testing took place in Sumatra and Kalimantan.

Based on the results the Ministry of Forestry issued an Act on the indicators for sustainable management of natural production forests. A team of experts from various universities then held a series of workshops with concession managers, planners and owners, for the purpose of 'disseminating information on aspects of sustainable forest management ', prior to assessment of the performance of natural production forest management.

position in Figure 2: Principles and criteria.

links with other initiatives: Complemented by ITTO guidelines for the sustainable management of natural tropical forests, and ITTO guidelines for the establishment and sustainable management of planted tropical forests.

comments: The criteria are intended for use in tropical forest management: however the Netherlands employed the criteria to show that they can be used in any country, and to show what is possible to other countries. The Netherlands study recommended that similar studies be done in boreal and temperate, as well as tropical, countries.

2. ITTO Guidelines for the Sustainable Management of Natural Tropical Forests

organisation: International Tropical Timber Organisation, based in Yokohama, Japan

declared aim/ rationale: This initiative is to help member states meet one of the objectives of the 1983 International Tropical Timber Agreement, ie. "to encourage the development of national policies aimed at sustainable utilization and conservation of tropical forests and their genetic resources, and at maintaining the ecological balance in the regions concerned". The guidelines are also considered an important contribution towards ITTO's target to produce tropical timber for export from sustainably managed forests by the year 2000. ITTO states that the adoption by ITTO and its member countries of these international guidelines "is in the best interest of all producer and consumer countries which are concerned with the efficient and sustainable development of the tropical forest resources and forest-based industries."

proposed use: These advisory guidelines aim to constitute the international reference standard for natural tropical forests; it is intended this standard is used in the development of more specific guidelines, at the national level, for sustainable management of natural tropical forests for timber production. "The development, application and enforcement of national guidelines based on this standard are matters for national decision by individual timber producing countries".

target group: "Forest managers and administrators in all three tropical regions".

geographical scope: Tropical timber producing countries which are members of ITTO.

application to forest type: The document addresses natural forest management and distinguishes between national and local forest management levels.

status: Not mandatory

stakeholders involved in preparation of standard: The guidelines were prepared by a panel comprising representatives from tropical timber producer and consumer countries, environmental NGOs (WWF), UN agencies (FAO), the trade, and other consultants from ODA, CSIRO and IIED, on the basis of drafts prepared by consultants.

process: formulation of standard: The initial draft was considered at a workshop by an international 13 member panel of experts. The panel's report was subsequently endorsed by the ITTC.

process: implementation of standard: ITTO intends that national guidelines be developed in each country, and assists member countries in doing so. The guidelines are general to allow for country- and forest-specific interpretation.

what constitutes the standard? The ITTO guidelines are presented in the form of principles and possible actions covering considerations ranging from general policy to forestry operations aspects. Where available, examples of elements for possible inclusion in national and operational guidelines are given in appendices. The Guidelines are detailed, containing 41 principles (or guidelines) grouped under the following issues:

- policy and legislation: forest policy; national forest inventory; permanent forest estate; forest ownership; national forest service;
- forest management: planning; harvesting; protection; legal arrangements; monitoring and research;
- socio-economic and financial aspects: relations with local populations; economics, incentives and taxation.

Most, but not all, principles are combined with one or more 'recommended actions'. An appendix

includes an 'indicative scheme of prerequisites for sustainable management at various levels, including guidelines'.

ITTO acknowledges that the guidelines will need to be modified and expanded as understanding of the forest resource increases.

progress to date: Early efforts to interpret the guidelines have begun, or are about to begin, in Ghana, Papua New Guinea, Cameroon and Ecuador.

An ITTO project to disseminate and promote the use of the Guidelines is under way in the Brazilian states of Acre, Rondonia and Mato Grosso. The aims of the project are to disseminate the guidelines (and the ITTO criteria) to relevant people in the region, develop a databank of forest management plans already in existence and assess their compliance with the ITTO guidelines and criteria, and introduce the concepts embodied in these documents to relevant personnel through training workshops.

position in Figure 2: The forest management guidelines are not a full standard but behave like principles, with associated criteria. However, they are fairly detailed and could be turned into a standard quite easily.

links with other initiatives: Complemented by ITTO guidelines for the establishment and sustainable management of planted tropical forests, and ITTO criteria for the measurement of sustainable tropical forest management.

comments: Grayson (1995) notes that: "[the ITTO Guidelines] principles underlie 'criteria' and 'indicators' as understood in the Helsinki and Montreal processes."

ITTO's guidelines are frequently cited, and are used by many more progressive forestry operations and development assistance projects in the tropics as checklists (at least) for forest management and policy. There is fairly strong political commitment, but less practical action, on the part of governments.

3. ITTO Guidelines for the Establishment and Sustainable Management of Planted Tropical Forests

organisation: International Tropical Timber Organisation, based in Yokohama, Japan

declared aim/ rationale: These guidelines were prepared "to help promote sustainability in all aspects of tropical forest management and to help solve existing problems. It is hoped that the guidelines may:

- stimulate policy development and the adoption of comprehensive planning processes;
- help to ensure environmentally and socially acceptable selection of site, species and forest design;
- help to adopt appropriate procedures of establishment and management for all types of planted forests in the tropics;
- help planners to reduce the risk of selecting unsuitable species, provenances or populations;
- stimulate the adoption of appropriate management throughout the whole of the life of the planted forest with particular emphasis on the often neglected post-establishment period;
- focus the attention of forest managers and planners on the importance of pre-establishment and continued market evaluation and the ultimate end use of the forest products they are attempting to grow;
- help to prevent the misallocation of scarce human, land and financial resources."

Guidelines for 'best practice' for planted tropical forests were requested by the ITTO Council in 1990. "The guidelines are not meant to be an encyclopaedic silvicultural manual for the establishment and management of planted tropical forests...(but) provide a succinct summary of the major issues and principles that need to be addressed in the planning, establishment and management of planted forests in tropical environments."

proposed use: These advisory guidelines aim to constitute the international reference standard for tropical plantations - a set of "universally relevant fundamental principles" - established by ITTO for the development of more specific guidelines, at the national level. "The development, application, adherence and enforcement of national guidelines based on this standard are matters for national decision by individual timber producing countries".

target group: Initially, national groups, in tropical timber producing countries, responsible for developing national standards, whose 'target group' in turn includes forest managers and planners working in tropical countries.

geographical scope: Tropical timber producing countries who are members of ITTO.

application to forest type: The guidelines are designed to be relevant to any deliberate planting of trees in tropical environments, but they outline principles and actions that should be particularly relevant to the establishment of intensively managed large scale plantation forests for industrial wood production. They are addressed to both the national and forest management unit level.

status: Not mandatory.

stakeholders involved in preparation of standard: An international panel of experts convened on behalf of ITTO, including representatives from tropical timber producer and consumer countries, environmental NGOs (WWF), UN agencies (FAO) and the trade in tropical timber, as well as academic research staff.

process: formulation of standard: The initial draft guidelines, prepared at the Institute for World Forestry and Ecology in Hamburg, were reviewed by an international panel of experts. The report of the panel was subsequently reviewed, revised and endorsed by the ITTC.

process: implementation of standard: ITTO intends that national guidelines be developed in each country, and assists member countries in doing so. The guidelines are general to allow for country- and forest-specific interpretation.

what constitutes the standard? The guidelines are very detailed: they present a set of 'fundamental concepts', and consist of 66 principles (or guidelines) and 75 associated recommended actions. The Principles are grouped under the following headings:

- policy and legislation,
- feasibility assessment,
- establishment of planted forests, and
- post-establishment management.

The guidelines also include descriptions of categories of forests, defined by function and condition.

progress to date: • [have any specific guidelines been developed at national level?]

position in Figure 2: The forest management guidelines are not a full standard but behave like principles, with associated criteria. However, they are fairly detailed and can be turned into a standard quite easily.

links with other initiatives: Complemented by ITTO Guidelines for the sustainable management of natural tropical forests and ITTO Criteria for the measurement of sustainable tropical forest management.

comments: These guidelines incorporate greater attention to social issues than other ITTO guideline documents. This possibly reflects the fact that they were prepared later: ITTO was initially concerned with trade and environmental issues and has only latterly picked up on the importance of social aspects in sustainable development of forests.

4. ITTO guidelines on the conservation of biological diversity in tropical production forests

organisation: International Tropical Timber Organisation, based in Yokohama, Japan

declared aim/ rationale: ITTO states that "the objective of these guidelines is to provide a practical description of key issues in biodiversity conservation, to record technical considerations for policy formulation, and to guide the implementation of such activities." It also describes the principal objective: "to optimise the contribution of [tropical production forests] to the conservation of biological diversity that is consistent with their primary objective, namely the sustainable production of timber and other products."

ITTO considers one of its roles to be promotion of "the conservation of biodiversity in tropical production forests as an integral part of sustainable forest management." The guidelines are seen as a contribution to achieving the ITTO objective: "to encourage the development of national policies aimed at sustainable utilization and conservation of tropical forests and their genetic resources, and at maintaining the ecological balance in the regions concerned", as stated in the 1983 International Tropical Timber Agreement.

proposed use: These guidelines aim to constitute the international reference standard established by ITTO for the development of more specific national guidelines.

target group: Forest managers and administrators in tropical regions.

geographical scope: Tropical timber producing countries which are members of ITTO.

application to forest type: Production forests.

status: Not mandatory.

stakeholders involved in preparation of standard: The guidelines are "the result of international collaborative efforts which involved [a technical working group of] specialists of ITTO member and non-member countries and international NGOs".

process: formulation of standard: The ITTO working group's report was based in large part on a pre-project report on 'realistic strategies for the conservation of biological diversity in tropical forests', prepared for ITTO by IUCN. This report summarised the outputs from a workshop conducted in conjunction with the General Assembly of the IUCN, held in Perth in 1990. IUCN revised draft guidelines prepared at the GA workshop; these were then considered by the working group.

ITTO states that "This process facilitated the development of guidelines that could be accepted as an international standard and used as a technical reference for addressing biodiversity conservation issues in tropical production forests".

process: implementation of standard: ITTO states that the "details of (these) national guidelines are matters for national decision by individual timber producing countries, in accordance with their national objectives and land use strategies".

what constitutes the standard? Fourteen principles and 20 associated recommended actions. The principles are grouped under the following headings:

- policy and legislation
- promoting the role of sustainably managed production forests in conserving biodiversity at the landscape level
- considerations for the conservation of biodiversity at the management unit level in

production forests (including planning - choice of silvicultural concept; yield regulation, annual allowable cut and rotation time; management inventory and mapping; - and extraction)
- implementation, and
- research and monitoring.

position in Figure 2: Principles and criteria.

links with other initiatives: These guidelines are described by ITTO as a supplement/ complement to ITTO guidelines for the sustainable management of natural tropical forests. ITTO states that the guidelines are consistent with the 'Forest Principles' agreed at UNCED.

5. Montreal Process: 'Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests'

organisation: The 'Working group on criteria and indicators for the conservation and sustainable management of temperate and boreal forests', set up by the Organisation (formerly Conference) on Security and Cooperation in Europe, to which, *inter alia*, Canada and the USA belong.

declared aim/ rationale: The Working Group was set up to "advance the development of internationally agreed criteria and indicators for the conservation and sustainable management of temperate and boreal forests at the national level."

The Montreal Process was developed in response to the Forest Principles contained in agreements made at UNCED. The Working Group states that the Criteria and Indicators "provide a common understanding of what is meant by sustainable forest management. They also provide a common framework for describing, assessing and evaluating progress towards sustainability at the national level."

proposed use: The Criteria and Indicators "are not intended to assess directly sustainability at the forest management unit level. As such, [they] should help provide an international reference for policymakers in the formulation of national policies and a basis for international cooperation aimed at supporting sustainable forest management." Their principal use is for national level monitoring and reporting.

target group: "The criteria and indicators should be useful in improving the quality of information available not only to decision makers but also to the general public. This in turn should better inform the policy debate at national and international levels".

The Criteria and Indicators are intended as guidelines for use by policymakers in the countries represented by the Working Group. The Group also encourages other states which have temperate and boreal forests to consider the endorsement and use of these Criteria and Indicators.

geographical scope: Temperate and boreal forests (a separate agreement exists for forests within Europe: the 'Helsinki process').

application to forest type: Both natural forests and plantations.

status: Non-legally binding.

stakeholders involved in preparation of standard: [Governmental] participants in the Working Group represented 90 per cent of the world's temperate and boreal forests (representing governments of Australia, Canada, Chile, China, Japan, Mexico, New Zealand, the Republic of Korea, the Russian Federation and the USA). Several international organisations, NGOs and other countries also participated in meetings of the Working Group.

process: formulation of standard: The set of criteria and indicators was endorsed following a number of technical meetings of the Working Group. The statement of endorsement is known as the 'Santiago Declaration'. The approach favoured parallels that set out in the Helsinki process formulated specifically for European countries, but is more detailed.

process: implementation of standard: The Criteria and Indicators should help provide an international reference to assist with national-level monitoring, evaluation and reporting. Specific measurement schemes to address how data would be gathered, appropriate to national conditions, would need to be developed.

what constitutes the standard? Seven criteria, each with a number of possible indicators. The first

6 criteria relate specifically to forest conditions, attributes or functions, and to the values or benefits associated with the environmental and socio-economic goods and services that forests provide. The seventh criterion relates to the overall policy framework of a country - such as the broader societal conditions and processes often external to the forest itself but which affect criteria 1 to 6. The criteria address:

1 conservation of biological diversity;
2 maintenance of productive capacity of forest ecosystems;
3 maintenance of forest ecosystem health and vitality;
4 conservation and maintenance of soil and water resources;
5 maintenance of forest contribution to global carbon cycles;
6 maintenance and enhancement of long-term multiple socioeconomic benefits to meet the needs of societies; and
7 the legal, institutional and economic framework for forest conservation and sustainable management.

progress to date: The working group first met in 1993; the final version of the guidelines was endorsed in Santiago, in February 1995. The 'Santiago Declaration' notes the ongoing nature of the discussion and the need to review and update as new information and data become available and assessment capability increases.

position in Figure 2: Principles and criteria.

links with other initiatives: Forests within Europe are covered by a separate agreement, under the 'Helsinki process'. The Montreal Process is similar to the Helsinki Process, but includes a seventh criterion referring specifically to the institutional framework for forestry.

comments: The Santiago declaration notes that "indicators should be understood to have a temporal dimension. This means they will need to be assessed as trends.. or with an historical perspective to establish trends. The monitoring of changes in indicators will be essential to evaluating whether and how progress is being made toward the sustainability of forest management at the national level."

Being based on national-level assessment, the use of the 'Montreal' criteria and indicators appears to be aimed at mutual reporting on a voluntary basis, but could also be used for adherence to a possible forests convention or country-level certification.

The Montreal Process was developed for similar reasons, and has a similar purpose, as that of the Helsinki Process.

6. Helsinki Process: 'European Criteria and Indicators for Sustainable Forest Management'

organisation: Ministerial Conference on the Protection of Forests in Europe.

declared aim/ rationale: To "better contribute to national and regional objectives with respect to the rural sector, to the environment and to economic growth, trade and sustainable development in all European countries". The Helsinki Process has a number of intentions:

- to provide mutual assistance and coordination especially for forestry sectors in poorer European countries;
- agreements on data collection and reporting formats;
- research for mitigation of and adaptation to climate change;
- enabling participation by local communities and NGOs; and
- general stimulation of the implementation of the Forest Principles, the Climate Change and Biodiversity Conventions and Agenda 21 in Europe.

The Helsinki Resolutions constitute a joint response of the European countries to many of the forest decisions of UNCED, having begun as a response to growing concern over the effects of acid rain. The process was motivated by "the need for the cooperation of all European countries in the prevention and control of forest degradation, coherence in the recommendations and themes elaborated by the intergovernmental organisations and their subsidiary bodies, and the usefulness of the process as a reference for other countries."

proposed use: The criteria are the same for all European countries. They are intended for evaluating progress/ status at the national level, not at the local forestry level. The criteria are defined in such a way that they are easy to measure. The quantitative and descriptive indicators are interdependent and should be seen as jointly providing a full picture of the state of forests and forest management in a country.

The ministerial conference on the protection of forests in Europe (1993) states that "the criteria and indicators are useful not only as a guide for government action, but also as a demonstration to the consumers and the general public about the sustainability of national forest management." They continue that by repeated measurement of the fulfillment of the criteria, it will be evaluated whether forest management is moving towards or away from sustainability at national level. In that way the criteria are used as a 'toolbox' for reporting on the implementation of the commitments made in the Helsinki Conference and thus whether the objectives are being met.

target group: National level forest stakeholders in Europe.

geographical scope: Europe, including Russia, although the Helsinki process also acknowledges the global dimension of European forests, which amount to approximately a quarter of the world's forests. The Helsinki Process focuses on forestry issues at a national level.

application to forest type: Both natural forests and plantations.

status: Non-legally binding, but the signatory states and the European Community "commit themselves to promote" the implementation of the guidelines.

stakeholders involved in preparation of standard: The criteria and indicators were formulated through broadly based pan-European cooperation, national preparation and convergence of different approaches. The second Ministerial conference was attended by representatives of 37 states and the European Community, as well as representatives of UN agencies and international NGOs.

process: formulation of standard: At a roundtable meeting in Brussels in March 1994, participants

agreed on a core set of scientifically-based criteria, which were further developed by the Scientific Advisory Group assisted by the Liaison Unit. A circular letter to participants at the April 1994 Helsinki conference elicited comments on the proposed list of criteria and quantitative indicators, and a revised core set of criteria and indicators was adopted in Geneva in June 1994.

process: implementation of standard: The Helsinki Process has been kept general to allow country-specific interpretation. The Helsinki initiative stresses the need for effective follow-up, and monitoring and evaluation at each conference of work accomplished to date at national and international levels. The conference coordinators produce detailed actions required for each resolution. They acknowledge the need to revise over time.

what constitutes the standard? Four 'Helsinki resolutions' ('H1' to 'H4') act as general guidelines:

H1 general guidelines for the sustainable management of forests in Europe - (which recognises and builds on the Forest Principles and other UNCED instruments);
H2 general guidelines for the conservation of the biodiversity of European forests (which recognises and builds on the biodiversity convention and many other preceding agreements);
H3 forestry cooperation with countries with economies in transition;
H4 strategies for a process of long-term adaptation of forests in Europe to climate change.

These initiatives (H1 and H2 particularly) call for national planning and action without delay, and this has begun at the planning level.

Six criteria and associated indicators act as the tools for gathering and assessing information on how the signatory states have succeeded in implementing the general guidelines for sustainable forest management as described in the Helsinki Resolutions, particularly H1 and H2. In addition to the adopted list, descriptive indicators and some additional quantitative indicators have been proposed for the purposes of the follow up work of the Helsinki conference. The criteria are designed to be the same for all European countries. The quantitative and descriptive indicators are interdependent and are to be seen as jointly providing a full picture. The six criteria are:

- maintenance and appropriate enhancement of *forest resources* and their contribution to global carbon cycles
- maintenance of forest ecosystem *health and vitality*
- maintenance and encouragement of *productive functions of forests* (wood and non-wood)
- maintenance, conservation and appropriate enhancement of *biological diversity* in forest ecosystems
- maintenance and appropriate enhancement of *protective functions* in forest management (notably soil and water)
- maintenance of *other socio-economic functions and conditions*

progress to date: European ministers committed their governments at a meeting in Helsinki in June 1993 to the need for cooperation among all European countries to implement the guidelines of the UNCED Forest Principles and Agenda 21. Two follow-up meetings (Geneva, June 1994 and Antalya, January 1995) have produced six agreed criteria and 27 quantitative indicators, plus some descriptive indicators.
The quantitative and descriptive indicators will be analysed and further developed during the ongoing Helsinki process. Documents describing follow-up action needed are produced and updated regularly. National planning and action in relation to the Helsinki Resolutions has already begun, as has the revision of monitoring.
It is planned that there be a pan-European round table meeting in Brussels in November 1995, expert level follow-up meetings in 1996 and 1997 and a ministerial conference in 1998 in Lisbon. (Kremer, pers. comm.)

position in Figure 2: Principles and criteria.

links with other initiatives: The Helsinki process resembles the Montreal Process, but is confined to Europe.

comments
Upton and Bass (1995) note that, for the first time in a European document, the Helsinki process defines the sustainable management of European forests.

The conference coordinators state that this instrument could be very effective if the following two conditions were met: collaboration and fruitful technical work is done with and within the existing international organisations; and appropriate policy analysis is carried out for common problems.

The Helsinki resolutions represent a political commitment and rely upon political will as an incentive for reporting to the Conference.

The Helsinki process should not be put at the same level as the Montreal process as far as its geopolitical and negotiating nature is concerned. While the Helsinki process is a ministerial process with political commitments, the Montreal process is purely technical (EC-DGVI).

7. Forest Stewardship Council 'Principles and Criteria for Natural Forest Management'

organisation: The Forest Stewardship Council (FSC) is an international, independent, non-profit, non-governmental association, founded in 1993 by a diverse group of representatives from environmental institutions, the timber trade, the forestry profession, indigenous peoples' organisations, community forestry groups and forest product certification organisations from 25 countries. The FSC is based in Oaxaca, Mexico.

declared aim/ rationale: The goal of the FSC is to set a worldwide, common standard for good forest management by promoting widely recognised and respected Principles and Criteria of Forest Management. "The FSC will promote management of the world's forests that is:

- *environmentally appropriate*: such that the harvesting of timber and non-timber products maintains the forest's biodiversity, productivity, and ecological processes;
- *socially beneficial*: such that both local people and society at large enjoy long term benefits from harvesting forests;
- *economically viable*: such that forests are properly valued, the prices of forest products reflect the full costs and benefits of good management and that sufficient reinvestment is made in the forest resource."

The FSC aims to provide consumers with reliable information about forest products and their sources. It aims to help to eliminate confusing and false claims (as to whether forest products come from well-managed forests) by evaluating, accrediting and monitoring nationally based certifying bodies according to the internationally agreed upon FSC Principles and Criteria and FSC Guidelines for Certifiers. The FSC also intends to promote good forest management by encouraging the development of national and regional forest management standards, and by strengthening national certification capacity by supporting the development of certification initiatives worldwide.

proposed use: The FSC Principles and Criteria form a broad umbrella, under which specific standards can be formulated by certification bodies for different forest types in different parts of the world, and by which these forests can be consistently evaluated. FSC promotes forest stewardship through a voluntary accreditation programme for certifiers of forest products. Those standards developed under the FSC Principles and Criteria are performance standards.

target groups: National and/or regional standards are intended to be developed nationally or regionally through a multi-stakeholder consultative process (eg. national working groups), to include interested and affected parties such as commercial, environmental, social, government and other interests. Certification bodies (some of which may be set up as a result of such working groups) are also 'targets' in the sense that FSC seeks to accredit certifiers to ensure they all work in comparable ways.

geographical scope: Global. The intention is that the Principles and Criteria are regarded as a superset of standards from which more focused national or regional standards are developed.

application to forest type: The Principles and Criteria apply to all forests which are managed for production of forest products, including natural forest, plantations and conversion forest.

status: voluntary

stakeholders involved in preparation of standard: The FSC itself is an association of voting members, and the membership has the highest authority. FSC's Board is structured to achieve an intended balance between social, environmental and economic interests, as well as North and South. The FSC has "consistently insisted on the widest possible consultation" during its formation and the development of its standards (eg. national consultations were held in several countries on

the possible role and procedures of the FSC - the UK consultative process took place over 3 months and sought to gather feedback from as many interest groups as possible). Formulation of the FSC Principles and Criteria was carried out by an international committee of NGOs, certification bodies, World Bank and industry representatives.

process: formulation of standard: In the preparatory phase of FSC, consultations were carried out in ten countries. There was a separate consultation for indigenous peoples. Industry representatives were also consulted.

National/ local standards should be compatible with FSC Principles and Criteria and other recognised standards and agreements to which the country is signatory, and should be used in conjunction with national and international laws and regulations. The FSC aims to ensure that initial local standards are not so high that they only define an 'elite' few forests, but not so low that standards are meaningless. Periodic revision and an insistence to assess change over time, which is one of the FSC Principles, should ensure that quality is continually raised.

process: implementation of standard: (accreditation procedure) certification bodies can apply voluntarily to the FSC for accreditation and the right to use the FSC name in their documentation and labels. The FSC will assess these requests based on the certification body's adherence both to the global FSC Principles and Criteria and evidence to support the existence and use of adequate assessment procedures. Certifiers will use site-specific national/ regional forest management standards for the evaluation of individual forests. FSC and accredited certifiers will not insist on perfection in satisfying the Principles and Criteria, but major failures in individual Principles will normally disqualify a candidate from certification. The FSC Council will also monitor the accredited certification organisations.

what constitutes the standard? Ten Principles, each with several Criteria, which form the basis for the development of more detailed standards. Eight Principles refer to all types of forest, while Principles 9 covers conversion of natural forest and Principle 10 is specific to plantations. The Principles concern:

1 compliance with laws and FSC principles
2 tenure and use rights and responsibilities
3 indigenous peoples' rights
4 community relations and workers' rights
5 benefits from the forest
6 environmental impact
7 management plan
8 monitoring and assessment
9 maintenance of natural forests
10 plantations.

Indicators are not included in the FSC Principles and Criteria as it is intended that these be developed at regional or national level. The Guidelines for Certifiers concern:

- compliance with FSC
- independence
- sound evaluation procedures
- transparency
- reciprocity
- public information
- verifiable chain-of-custody
- compliance with applicable laws
- equity of access
- maintaining adequate documentation
- appeal procedures

- integrity of claims

progress to date: The FSC has established an international Board of Directors, consisting of two representatives of economic interests, and seven members who may represent social, indigenous, ecological, or environmental interests. The Board meets quarterly. The FSC Statutes, Principles and Criteria, and the Guidelines for Certifiers were approved by the Founding Members in a postal ballot. FSC has now ratified all 10 of its Principles and Criteria. The text of the principles and criteria for natural forests was agreed in June 1994, those for plantations in early 1995. The FSC expects to commence formal accreditation of certification bodies in August 1995: it will be the first organisation to accredit certifiers of sustainable forest management standards.

FSC has been invited to collaborate in planning for certification and for national and regional standards of forest management in several countries including Brazil, Costa Rica, Guyana, Indonesia, Mexico and the member countries of the African Timber Organisation. To date no national Principles and Criteria have been finalised.

position in Figure 2: FSC is both a 'specialist group' and an 'accreditation body'. It is not a certification body. The Principles and Criteria constitute an 'ecolabel' standard.

links with other initiatives: FSC intends to complement, not supplant, other initiatives that support responsible forest management worldwide, such as ITTO and ISO. FSC procedures will follow the appropriate ISO standards and guidelines for certification and accreditation.

comments
During the UK consultation (as part of the formulation of the international Principles and Criteria) some consultees felt certain issues to be missing: education, policy, (and for UK) landscape, recreation and afforestation: they also felt that Principles and Criteria should maybe be extended to include elements of the milling and manufacturing processes.

Ghazali and Simula (1994) contend that the "Success of the FSC will depend on the Principles being realistic and financially viable." They point out the risk that two types of standards may be used to regulate forestry, ie the national rules and regulations of the respective forestry administrations, and those used by FSC and adapted to national level. FSC has been criticised for being biased away from industry in general (partly by being performance-based rather than EMS-based), and furthermore designed primarily to meet the needs of trade and industry in the developed countries, with insufficient attention given to the specific requirements of the forest industry in tropical countries, and insufficient involvement of governments viz. the implications of converging FSC standards and national legislation. However, although FSC's Board of Directors and voting structure is weighted against commercial representation, this is not the same as the organisation being anti-industry in its work. That should be self-evident, since FSC could not function without industry interest and cooperation expressed as demand for certification. There is certainly a philosophy that there must be minimum or threshold levels for indicators, and that FSC should seek to achieve equivalent levels of forest sustainability worldwide, so a simple ISO 9000 approach would not be acceptable.

Grayson (1995) notes that "with one or two exceptions, and unlike the indicators in the Helsinki and Montreal systems, these [principles and criteria] do not lend themselves readily to numerical expression."

Not all industry representatives felt their concerns were adequately reflected; some consider there to have been minimal input from industry.

8. Initiative Tropenwald

organisation: Initiative Tropenwald (ITW), an association formed jointly by German industry, academics and NGOs, founded in 1992.

declared aim/ rationale: ITW aims to ensure that "only tropical timber from sustainable sources is imported and processed". They intend to achieve this through the creation of a certificate of sustainability for tropical timber.

In addition, "ITW proposes to create a unique trademark for the European market for all kinds of certified timber, in order to give to:
- producers, a strong incentive towards sustainability, and
- consumers, the confidence that the timber they buy comes from sustainable sources."

proposed use: A performance standard.

target group: ITW seeks to establish a system of certification in which industry, trade unions, and NGOs are working together and the government is playing a facilitating role.

geographical scope: Tropical forests; the intention is that all forests are included in due course.

application to forest type: The ITW standard addresses natural forests at the national, regional and local levels.

status: Voluntary.

stakeholders involved in preparation of standard: The scheme was generated by employers and employees in the German forestry and timber industry. WWF-Germany was also involved considerably in some stages of the Standards.

process: formulation of standard: A 'committee of experts' was set up to develop a labelling system for tropical timber and tropical timber products from sustainable sources.

process: implementation of standard: certificates are designed to be awarded to both forestry operations and to countries (in the case of state forests).

"The use of the trademark is only allowed for members of the trademark association. Members are obliged to:
- respect the principles of the trademark association
- give a periodic input-output report on the flow of certified timber
- accept inspections."

what constitutes the standard? ITW uses the ITTO guidelines as the basis for the ITW labelling scheme, since the producer countries themselves have recognised this standard.
ITW is an extremely detailed standard with defined performance criteria and details of monitoring, assessment and third-party auditing. It addresses forestry at the national, regional and local levels and covers sustainable yield, biodiversity and the institutional framework for forestry. The standard allows for different levels of management:
- 'admittance standards' which cover mainly formal requirements, most likely to be applied during a transitional period;
- 'well managed standards' which concern an 'acceptable' level of management;
- 'sustainably managed standards' which refer to the 'best quality' management.

progress to date: ITW is testing the effectiveness of its standards alongside others in a variety of forest environments in 1995. The first test, undertaken at Bovenden in Germany during January

1995 showed the field assessment of detailed external standards to be extremely time-consuming. These preliminary results suggest that the approach taken by ITW will result in costly assessment. More effective appears to be less detailed standards and informed interpretation of these standards by the forest manager and the certifier.

ITW has also been working towards the establishment of a certifying organisation, the non-governmental 'European Working Group on Timber Certification', which involves representatives of NGOs, trade unions, trade and industry. This group first met in February 1995 and is striving to achieve a common position on certification.

position in Figure 2: Standard; certifying body

links with other initiatives: The ITW standard is based on ITTO guidelines.

comments: ITW seeks to set up the certification body for the German and if possible for the European timber market. The EU also sees ITW in this light.

ITW was formed by trade unions, industry and the timber trade, hence has mainly economic interests - this explains why in Germany, except for WWF, practically all the NGOs reject this initiative.

ITW propose terms of reference for a European working group on timber certification, and proposes ITW as the agency responsible for the working group.

ITW has developed a very detailed catalogue of criteria, which are likely to need simplifying.

9. Soil Association: Responsible Forestry Programme

organisation: Soil Association (of the UK), an environmental, non-profit NGO. The Soil Association established an organic food certification scheme 21 years ago to help promote organic production and protect consumers and genuine producers from fraudulent claims. This scheme is the largest in Britain, certifying over 70 per cent of British organic produce and covering some 40 overseas producers.

declared aim/ rationale: The Responsible Forestry Programme (RFP) was started in 1992 to "carry out education and research into responsible timber production and to provide an ethical and well-regulated basis for the certification of timber through the Timber Certification and Labelling System." The timber certification and labelling programme is known as Woodmark (not to be confused with the Forest Industry Council of Great Britain label of the same name, which is not a symbol of independent certification but merely a hallmark to certify GB origin. The FICGB "Woodmark" is also intended to indicate compliance with FCGB regulations.

"The Timber Certification and Labelling System links the producers of timber and timber products from responsibly-managed forests with consumers who wish to buy such products, so encouraging the implementation of good forestry practices. Certification enables producers of timber and timber products from responsibly-managed sources to promote their products and provides an assurance to consumers that their timber purchases have come from a well-managed forest". In addition, the RFP aims to improve company efficiency, information gathering, record keeping and quality control at management and production levels.

proposed use: The RFP proposes that local forestry standards be developed, based on the generic standards. UK standards have already been developed. The System comprises independent inspection of forests and manufacturing centres, evaluation of inspectors' reports, licensing of producers and manufacturers, and regular and spot re-inspections to confirm that Standards continue to be maintained. Woodmark is a performance type of standard.

target group: Producers.

geographical scope: Global.

application to forest type: These standards are generic in that they deal with general forest management worldwide, and are not specific to place or forest type. They apply to natural and modified forests, plantations and timber and timber products. They define the minimum management standards which all forests worldwide should meet.

status: Voluntary

stakeholders involved in preparation of standard: During development of the standard, field testing and consultation took place "with a wide range of organisations from statutory bodies to NGOs" (Rowland, 1994). The Advisory Board, which constantly reviews the Standards, is composed of practising foresters, forestry academics, ecologists, social scientists and representatives of the timber trade.

process: formulation of standard: In 1991, the UK Timber Certification Working Group (comprising environmental groups, foresters and timber traders) encouraged the Soil Association to apply its certification expertise to forests and timber. The principles and criteria were developed from those of the Forest Stewardship Council.
The Responsible Forestry Standards are kept under constant review by an Advisory Board and Standards Committee, and will be revised annually based on experience and new knowledge.

process: implementation of standard: It is intended that local forestry standards are to be adapted

from the generic standards through consultation with relevant forestry authorities and all interest groups. Where appropriate, Woodmark will work closely with local counterparts and organisations, to cooperate in building the foundations of national certification organisations.

what constitutes the standard? The Responsible Forestry Standards comprise six principles, divided into 15 sections, and each of which is qualified by a number of criteria. The six 'Principles of Responsible Forestry' address:

- environmental impact;
- sustained yield;
- land rights;
- local control;
- consent and benefit;
- economic potential; and
- management and monitoring.

The standards cover forest management and chain of custody as well as setting out criteria for operations, application, registration and control over the use of the Woodmark label. Some sections relate specifically to plantation forests.

progress to date: Following two years of development, during which time standards were drawn up and inspection and certification procedures tested, Woodmark became operational. Under Woodmark, additional local forestry standards have been drawn up. These address specific silvicultural, social and economic conditions in different countries or geographic regions. This has been achieved for forestry in the UK: Responsible Forestry Standards for the UK were produced in February 1994. By mid-1994 two British woodlands, comprising 157ha, had been certified under the Woodmark name. The Soil Association is now developing its RFP in other countries.

position in Figure 2: The Soil Association is a certifying body. Woodmark is an 'ecolabel' standard.

links with other initiatives: Once FSC's accreditation programme is established, Woodmark will aim to operate under the auspices of the FSC. Woodmark operates its own system of approval for other certification schemes or certified sources in order to permit formal recognition of production areas and products certified by other schemes and so avoid duplication of certification activity. The RFP has a list of approved certification schemes and sources.

comments: By intending to cooperate in building natural certification bodies, and by applying for FSC accreditation, the RFP could work as one 'agent' for FSC in responding to national-level demands to explore the feasibility of certification.

Rowland (1994) points out that the Standards have been centred on concepts of 'good forest management' rather than attempting to define 'sustainability', thus avoiding the range of interpretations of sustainability. "The concept of good forest management accepts that timber production will cause some ecological changes, but that these can be managed and minimised to ensure long-term survival of a healthy forest ecosystem and benefits to local communities and society as a whole."

10. Rainforest Alliance: Smart Wood Certification Programme

organisation: Rainforest Alliance: an international nonprofit organisation based in the USA, and founded to conserve tropical forests. The Smart Wood programme was founded in 1990.

declared aim/ rationale: The aim of Smart Wood is to provide objective third-party evaluation of tropical timber sources and companies, enabling consumers to identify products whose harvesting does not contribute to the destruction of tropical forests. By promoting the use of wood from well-managed forests, Smart Wood aims to encourage the adoption of sustainable forestry practices that meet long term environmental, economic and social objectives.

The Smart Wood Programme is the oldest forestry certification programme. It uses a two tier system, certifying "well-managed" and "sustainable" sources of tropical timber, as well as companies that sell certified wood in raw or finished forms in the US market.

proposed use: Smart Wood is a performance standard. The programme seeks to certify independent forest operators. Official Smart Wood policy is to develop publicly-available and country-specific Smart Wood certification guidelines for all countries where the Rainforest Alliance works.

target group: Producers of wood and wood products

geographical scope: Global. The programme started in the tropics, but in 1994, Smart Wood expanded its scope of operations to include temperate and boreal forest regions in the US and Canada.

application to forest type: All types. There are separate standards for natural and plantation forests.

status: Voluntary

stakeholders involved in preparation of standard: Smart Wood generic forest management guidelines have been developed in consultation with professional foresters, ecologists and social scientists.

process: formulation of standard: Smart Wood generic forest management guidelines were developed in consultation with professional foresters, ecologists and social scientists, and are revised continually. These criteria form the basis of field evaluations.

process: implementation of standard: The Smart Wood 'seal of approval' is awarded to forest managers and loggers who can prove that they are maintaining the forest's capacity to regenerate itself, controlling ecological effects such as soil erosion, and returning the benefits of their business to local residents. Specifically, certified forests are classified according to how closely they adhere to three principles (see below). The standard is general to allow country- and forest-specific interpretation, but where Smart Wood has developed country or region specific guidelines, these supersede the generic guidelines.

what constitutes the standard? Under the Smart Wood scheme, forest assessment is based on three principles:

- maintenance of environmental functions, including watershed stability and biological diversity
- sustained yield forestry production
- positive impact on local communities.

There are two levels of certification: "sustainable" for operations with very strict adherence (ie. evidence in the field) to the principles and guidelines, and "well managed", for operations that demonstrate a very strong operational commitment to them. (It is not stated what a 'very strong

operational commitment' is meant to imply). Forests may also be certified as one of the above but including specific conditions that have been identified for improvement prior to the first annual audit. Once a company or source is certified, random audits may take place at any time, and annual field audits are also conducted. Audits are executed by the Rainforest Alliance.

progress to date: By March 1995, Smart Wood had certified six forest operations in Brazil (59,000 ha), Costa Rica (1,336 ha), Honduras (25,000 ha), Indonesia (2,831,500 ha), Mexico (95,000 ha) and the USA (50,000 ha). It has also certified 19 forest products companies in England, Honduras, Indonesia and the USA. Rainforest Alliance has expanded its certification activities to the boreal forests of the USA and Canada. In addition, the programme launched the Smart Wood Network, a cooperative effort to link regional nonprofit certification organisations throughout the world.

In March 1995, the Smart Wood Programme joined forces with the Institute for Sustainable Forestry (ISF) to promote sustainable forest management in California. ISF will spearhead Smart Wood certification efforts in the redwood region of California.

position in Figure 2: Rainforest Alliance is a certifying body. Smart Wood is an 'ecolabel' standard.

links with other initiatives: Once the FSC "forms a complete whole, Smart Wood will join the FSC". Smart Wood has applied for accreditation by FSC.

comments: Sips (1994) points out that the criteria are appropriate to the concession level only. Too little attention is said to be paid to the total regional forest area and the national forestry legislation. Furthermore, it is said that criteria have not been elaborated enough into clear requirements.

11. WWF-UK - on Forest Quality

organisation: World Wide Fund for Nature (UK)

declared aim/ rationale: "A way of highlighting and assessing differences between forests, by defining a new set of criteria of forest quality. These criteria could be used to provide a more sophisticated assessment of the state of forests in different regions, and in drawing up strategies for changing management and conservation practices to improve forest quality."

Following a study which showed that, while the area of temperate forest is stable or increasing, its quality is declining, WWF attempted to develop ways of assessing the quality of forests, noting that standards such as the sustained yield of timber, on its own, have little to do with the maintenance of overall forest quality. WWF's study showed that the decline in forest quality was related "specifically to a decline in the environmental and social quality of forests."

proposed use: Assessment of the overall quality of forests.

target group: The WWF exercise has concentrated on the UK so far; no other target group is mentioned.

geographical scope: Global

application to forest type: Natural forests.

status: Advisory.

stakeholders involved in preparation of standard: The draft was developed and discussed by WWF in consultation with "informed people involved in forestry and forest policy from the public and NGO sectors".

process: formulation of standard: The draft document, an attempt to break down forest quality into a number of criteria, was prepared by WWF in consultation with a range of consultants at the Oxford Forestry Institute, World Bank and IUCN. The draft was then considered in a further consultation exercise.

process: implementation of standard: No details are given regarding implementation of this initiative.

What constitutes the standard? Four broad criteria have been used to define forest quality: authenticity, forest health, environmental benefits, and social and economic values. Each is broken up into a number of elements. WWF add that many of the elements need to be fitted into a framework of time and space and identified with certain interest groups - important qualifying conditions eg spatial considerations (local, national or international); temporal issues (whether decisions are taken with a regard for quality for current or future generations). The elements are not all suitable for 'point scoring' or a strictly quantified assessment. They are an 'aide memoire' rather than a complete reference.

WWF note that some of the elements are difficult to reconcile with each other and that a medium-sized forest is unlikely to score highly on all, although it is possible for a forest region, or national forest policy to achieve this.

'Quality' has at least three meanings of relevance here: as a standard, as a characteristic, as a measure of excellence. All these can be imputed from the draft criteria.

progress to date: No progress has been made since the colloquium, but options for further work

have been identified by WWF:

- developing ways of quantifying the various forest criteria in order to use them as a means of assessing the 'qualities' or 'values' of forests
- devising an 'optimal mix' of benefits, so that a good quality forest will be defined as one where no single value can be improved without greater losses of other values
- not attempting to quantify the criteria at all, but using them simply as a stimulus against which forest quality is investigated via interviews and discussions with reps of the various industry, local, conservation and recreational uses of the forest.

position in Figure 2: Although described by WWF as criteria, this initiative presents four principles (or factors) and many criteria (referred to here as 'elements').

comments: Upton and Bass (1995): "An early finding of the WWF research on temperate forests was that conservation issues were less concerned with quantity of forest than with quality. ... There are now moves within the UN Economic Commission for Europe to broaden the scope of surveys to include wider coverage of quality. This is appropriate given the net stasis in quantity of European forests, but considerable stakeholder concern about the loss of many values."

WWF notes that adding up values to reach a concept of 'total quality' is unlikely to provide a useful yardstick for development. 'However, assessment of the various qualities, perhaps without trying to combine or sum them, would give a more accurate picture than one based on areas of land covered or quantities of timber produced.'

12. SCS Forest Conservation Programme

organisation: Scientific Certification Systems. Founded in 1984, SCS is a for-profit, multi-disciplinary scientific organisation. Formerly known as Green Cross, it has developed a series of programmes that provide independent evaluation and certification for environmental and food safety performance. SCS established its Forest Conservation Programme in 1991.

declared aim/ rationale: The Forest Conservation Programme aims to encourage incremental improvements in forest management practices by:

- creating internal management auditing systems
- providing baseline data on existing management practices
- clarifying and facilitating the development of long-term forest management goals
- monitoring the movement towards long term goals through periodic audits
- providing marketplace recognition through a labelling and promotional system.

The Forest Conservation Programme is a third-party forest management certification programme designed to distinguish and recognise 'well-managed' forest operations in which timber products are produced in a manner that sustains the timber resource, maintains the forest ecosystem, and meets minimum financial and socio-economic criteria.

proposed use: Provision of uniform guidelines for assessing the relative sustainability of forestry operations worldwide and an independently verified basis for potential marketplace claims. The SCS Forest Conservation Programme is a performance standard.

target group: Producers of timber.

geographical scope: Global.

application to forest type: All forest types. There are separate standards for natural and plantation forests.

status: Voluntary.

stakeholders involved in preparation of standard: Regional stakeholder meetings (will be) held to solicit comments on the programme.

process: formulation of standard: *

process: implementation of standard: A set of procedures has been developed for each of forest assessment, chain of custody procedures, and labelling.

what constitutes the standard? There are 3 programme elements:

- timber resource sustainability
- forest ecosystem maintenance, and
- financial and socio-economic considerations.

Each has a pre-established set of base criteria, from which the team decides upon a working set of evaluation criteria, before an evaluation starts. Separate elements and criteria have been developed for national forest management and for evaluation of plantation forests.

A feature of this standard is that it uses scoring to assess forest organisations, and the resulting certificate is graded for each programme element based on this score.

progress to date: To date 6 forest areas have been certified, totalling 590,350 ha in the US, 33,000 ha in Mexico, and 3,900 ha in Costa Rica.

position in Figure 2: Scientific Certification Systems is a certifying body. The Forest Conservation Programme constitutes an 'ecolabel' standard.

links with other initiatives: "SCS intends to be consistent with any credible international standard setting body that attempts to establish international standards for evaluating sound forest management practices. This could include FSC, ISO and any other organisation that may fill this role." (Ghazali and Simula, 1994). SCS is seeking accreditation to FSC.

The auditing system produced by SCS have been developed independently, almost like a separate standard, but it conforms to FSC standards.

13. Canadian Standards Association Sustainable Forestry Management System

organisation: Canadian Standards Association (CSA). This is Canada's largest integrated standards development and conformity assessment organisation.

declared aim/ rationale: The CSA developed a Sustainable Forest Management (SFM) system to "provide a consistent national framework that considers and integrates the multiple environmental, economic, and social values of Canadian forests." It grew out of the need to provide assurances that Canadian forests are being managed to acceptable standards. The Canadian Council of Forest Ministers set the goal of the SFM system as "to maintain and enhance the long-term health of our ecosystems, for the benefit of all living things both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations."

proposed use: The framework is designed to be used for developing, implementing, assessing and certifying an SFM system. The guidance document is a first step towards providing the forest industry with a means of demonstrating its adherence to standardised SFM practices. The CSA standard follows an environmental management system format.

target group: Forest industry. The system is being developed specifically for use with individual forest operations.

geographical scope: Canada.

application to forest type: covers both natural and plantation forests. The CSA state that the "requirements listed [in the guidance document] relate to all environmental, economic, and social aspects of SFM".

status: Still in draft form. Voluntary.

stakeholders involved in preparation of standard: "The CSA SFM system was developed in an open, inclusive, and consensus-oriented process" - including producers of forest products, governments, academia, aboriginal peoples and NGOs as well as scientific and technical experts.
The Canadian Pulp and Paper Association provided support and financial assistance for development of the standard. Environmental groups such as WWF were invited to participate in the process of formulating the standard, but withdrew from the process, objecting to the lack of threshold performance levels in the standard.

process: formulation of standard: The SFM system was prepared using the format of the Environmental Management System established by the ISO, in order to adopt a 'continuous improvement' approach that is favoured by industry in general as a means to building up towards higher standards. But it does also have some performance standards based on principles and criteria concerning the essential environmental, social and economic values agreed by the Canadian Council of Forest Ministers (CCFM) at the beginning of 1995. (Such criteria were based on the CCFM's interpretation of the Montreal Process).

process: implementation of standard: To comply with the CSA standards the LFMU must demonstrate firstly, that its management system is in conformity with the standard; and secondly, that the level of environmental and social performance achieved by the management system on the ground complies with the specified principles and criteria. Certification of the SFM system only applies to a defined forest area - ie. an organisation could be certified for some forests it manages, but not others. Third-party, independent audits are required by auditors accredited by the Standards Council of Canada.

There are three essential inputs to an SFM system which can be audited: the current state of the

forest, stakeholder input related to the forest, and the management goals and objectives for the forest. These three inputs dictate how the components of a SFM system are applied.

what constitutes the standard? The CSA recommends the framework of national criteria and indicators of SFM approved by the Canadian Council of Forest Ministers in 1995. The framework includes six criteria and associated indicators reflecting the essential environmental, social and economic values related to Canadian forests. The criteria are:

- conservation of biological diversity
- maintenance and enhancement of forest ecosystem condition and productivity
- conservation of soil and water resources
- forest ecosystem contributions to global ecological cycles
- multiple benefits to society
- accepting society's responsibility to sustainable management.

These criteria are specific elements of the principles, which include:

1 an open and transparent process for stakeholder participation
2 a requirement for clear focus an planning
3 identification of criteria and indicators based on those produced by the CCFM
4 allocation of sufficient resources to achieve SFM objectives
5 a requirement to continuously measure, monitor and assess performance, and
6 continuous review of and improvements to the SFM system.

Each component of the system is subject to audit procedures which assess their conformance with the principles and criteria above.

progress to date: Working draft documents were produced in February 1995. The 'guidance document' (Z808) presents the set of guiding principles for planning, starting improving, communicating and carrying out the other elements of a SFM system. A separate document (Z809) gives the specification of the system; a third (Z809A) provides details of monitoring, assessment, third-party auditing and accreditation of auditing bodies.

The CSA standards aim to incorporate the merits of a systems approach to forestry, as defined by an EMS, and which sets an acceptable level of performance through specified principles and criteria of SFM. The first forests are expected to be certified by the end of 1995.

position in Figure 2: Standard. The CSA standard is an environmental management system type of standard. It also includes a set of principles, criteria and indicators based on the Canadian Council of Forest Ministers' interpretation of the Montreal Process.

links with other initiatives: The CSA initiative is designed so that the Principles and Criteria could be made compatible with an acceptable internationally defined standard.
The CSA set of standards for SFM are an example of a model which is designed to fit in with ISO practices and allows for improvement over time within a defined and assessed environmental management system. Indeed, the CSA (with Australia) had proposed a global ISO forestry initiative (turned down by ISO, which did not wish to see a multitude of industry-specific EMS standards).

comments: The CSA guidance document points out that, to deal with challenges arising from scale of ownership, application of the SFM system to the woodlot sector requires an approach that combines the commitment to SFM at two levels, one applying to individual properties, and the other applying to the regional/ landscape level. (Thus a simple management plan is needed at the individual level, and planning capacity and implementation strategy at the regional level).

Upton and Bass (1995) note: "Many environmental groups, who generally support the FSC, interpret the absence of any recognition of the FSC in CSA standards as a sign of hostility. They are also

concerned that the essential values agreed to by the CCFM allow for too loose an interpretation and, therefore, provide an inadequate assurance that the standard's prescribed management system will reach the required level of performance - ie. that the management system approach allows for too little improvement over too much time. ... In practice, there appears to be little difference in the scope covered by the FSC and the CSA. It remains to be seen whether the accreditation rules for certification bodies will provide greater assurance that the essential values agreed to by the CCFM will be interpreted adequately. In the meantime, the CSA's contribution of using an EMS framework to deal with the site specific nature of forestry operations should be acknowledged."

The CSA standard has been dominated by business and industry interests and accused by some NGOs of failing to involve full participation of a wide range of stakeholders.

14. Indonesian Ecolabelling initiative.

organisation: Indonesian Ecolabelling Institute (LEI): establishment of the institute was initiated by the Indonesian government. It is envisaged that LEI "will be an independent, [institute], and not another government agency nor subsumed under the Ministry of Forestry or any [other] Ministry..". The preparation for establishment of LEI is conducted by a working group known as the Indonesian Ecolabelling working group, which will dissolve as soon as LEI is established.

declared aim/ rationale: "The working definition of sustainable forest management within the LEI's working group scheme are basically these three dimensions:

- sustainability of the forest production function
- sustainability of the ecological function of forest
- sustainability of the social and cultural functions of the forest."

Since these are closely related, they are not separated as criteria: integrating the three also avoids the occurrence of multiple assessment for an indicator.

proposed use:

target group:

geographical scope: Indonesia.

application to forest type: The Ecolabelling Institute is giving priority to criteria and indicators for the management unit. "However, it is realised that these criteria and indicators cannot be detached from those to be applied to performance appraisal of the government bodies."

status: Draft: the current draft was submitted to CIFOR for field testing.

stakeholders involved in preparation of standard: The Indonesian Ecolabelling Working Group has been "engaged in dialogue with various parties both nationally and internationally" since its inception. "Such dialogue enables the group to set the foundation for being an independent institution. The group is working hard to be accepted by various organisations both domestically and internationally. As an independent institution LEI has to stand on neutral ground and should not be swayed by either the government's or the private sector's interests."

process: formulation of standard: Draft principles and criteria of sustainable forest management were reviewed following an international conference supported by FSC. "In addition, discussions with various stakeholders held in March 1995 have contributed significantly to the improvement of the criteria and indicators... The revised draft .. is being tested by CIFOR." Improvements to the criteria and indicators will be presented to stakeholders at the next local stakeholders consultative meeting.

process: implementation of standard: The Ecolabelling Working Group has started to define the valuation of the field assessment, and has designed a training programme for assessors.

what constitutes the standard? Five criteria of sustainable forest management have been developed for the management unit:

- clear and secure land tenure
- production and forest regeneration
- financial rentability of the management unit
- the efficiency of forest resource utilization
- professional management

Criteria are subdivided into a number of 'key elements', which are in turn determined by variables. Each variable has a number of associated indicators.
Similar criteria are being developed for sustainable forest management at the national level.

progress to date: *

position in Figure 2:

links with other initiatives: "In developing both the criteria and the institutional arrangement the working group takes as reference the frameworks and the guidelines from ITTO, FSC, and to a certain extent ISO 14000 standards. It has also taken into consideration the requirements of the National Standard Council of Indonesia as well as other domestic schemes such as the initiatives taken by the Environmental Agency."

comments: [Indonesian Ecolabel Working Group. 1995] The initial focus on sustainable forest management is "based on the underlying assumption that the forest sector has the urgent need for such criteria and indicators as the tropical forest condition in Indonesia carries global repercussions."

15. Preliminary Criteria for Environmental Certification of Swedish Forestry

organisation: Swedish Society for Nature Conservation and the World Wide Fund for Nature Sweden.

declared aim/ rationale: The overall aim is to adapt forest management to biological and ecological demands. Furthermore, the objectives deal with multiple use of forest resources and the relationship between forestry and the Sami people and local populations (Olsson, 1995).

Certification requires the forest manager to "strive for fulfillment of" eight objectives concerning:

- maintenance and restoration of natural productive capacity and ecological process
- avoidance of damage to other ecosystems
- use of renewable, recyclable, non-harmful substances
- use of best available logging and transport technology
- promotion and preservation of biological diversity
- respect for the culture, economic requirements and traditional rights of indigenous and local peoples, and to benefit local employment
- consideration of 'other human uses' of the forest and forest products, including wild foods and recreation
- willingness to discuss management of the forest with other stakeholders.

proposed use: Certification of forestry in Sweden. The criteria set a number of environmental standards for Swedish Forestry, focusing on modifying forest management practices and protecting important habitats in order to maintain biodiversity in the Swedish forest landscape.

target group: Forest owners in Sweden.

geographical scope: Sweden

application to forest type: All forest types in Sweden.

status: Preliminary until the criteria and the Swedish certifying body are accredited by the Forest Stewardship Council (currently under review by the FSC).

stakeholders involved in preparation of standard: World Wide Fund for Nature (Sweden) and the Swedish Society for Nature Conservation.

process: formulation of standard: The criteria are presented as an 'agreement' - drawn up by WWF (Sweden) and the Swedish Society for Nature Conservation, and to which forest owners seeking certification are required to commit themselves - which is based on the following considerations:

- the importance of forestry and forest industry to Sweden;
- that all utilisation of forest resources must be based on preservation of the ecosystems' long-term productive capacity;
- that very little primary forest remains in Sweden, hence preservation of natural processes and biological diversity must to a great extent be incorporated into forest management - requiring the re-creation of 'natural forest structures';
- protection and restoration of large forest areas in national reserves and national parks;
- the need for further study of ecosystem dynamics and use of environmental impact assessment.

The criteria will be evaluated after a couple of years in operation and subsequently revised, if needed to reach the objectives.

process: implementation of standard: In order to achieve the standard, a forest owner is committed to strive towards the eight objectives.

what constitutes the standard? 21 criteria, which the forest manager "pledges to observe" as regulations, apart from what is required by law. The criteria are detailed; in brief they address:

- conservation of certain habitats
- set aside of at least 5% of the productive area for biodiversity conservation
- management for promotion of biodiversity
- reforestation on land other than grazing or certain cultivated areas
- use of chemical pesticides and herbicides
- balance of soil minerals and nutrients
- construction of logging roads
- removal of deadwood
- maintenance of at least 10% of the stand as deciduous trees
- natural features, cultural and historical values
- balance of age structure of stand
- regeneration of coniferous forest
- maintenance of special habitats and buffer zones
- control of drainage ditches
- soil scarification
- burning of areas for fire-dependent biodiversity
- reforestation with indigenous species
- cooperation with indigenous and other local residents

progress to date: Preliminary criteria were developed in 1995.

position in Figure 2: A country specific standard, developed from the FSC Principles and Criteria.

links with other initiatives: WWF Sweden and the SSNC aim to have the criteria and the Swedish certifying body accredited by the FSC.

comments: Olsson (1995) notes that Greenpeace criticises the criteria for being weak on several points eg. that the use of fertilisers is not banned, that some radical soil scarification methods are allowed and that the demands for leaving trees and buffer zones at stand level loggings are insufficient.

16. AF&PA Sustainable Forestry Principles and Implementation Guidelines

organisation: American Forest and Paper Association, which represents 425 forest and paper companies and related trade associations and organisations.

declared aim/ rationale: The stated objective of AF&PA members is to "achieve a much broader practice of sustainable forestry throughout the United States. In this way they will perceptibly improve the performance of member companies, and will set new standards for the entire forest industry as well as for other landowners".

The Principles and Guidelines constitute the AF&PA "members' commitment to sustainable forestry and the measures by which the public can benchmark this commitment." AF&PA views these Principles and Implementation Guidelines as the latest of many steps in a progressive evolution of United States industrial forestry practices. Through this step AF&PA members seek to meet the needs of humanity for essential wood and paper products while protecting and enhancing other forest values".
The underlying premise of the Principles is continuous improvement.

proposed use: Advisory guidelines: adoption by members is done in the same way as an industry code of practice. No independent verification is envisaged.

target group: All members of the AF&PA, who account for about 95 per cent of the paper production, 65 per cent of the solid wood production, and 90 per cent of the industrial forest land in the US.

geographical scope: USA.

application to forest type: The Principles are applicable to company-owned forests and to forest management operations conducted by member companies on tracts owned by private individuals.

status: All AF&PA members were required to agree to adhere to the Sustainable Forestry Principles by 1 January 1996. From that date, compliance with the Principles and Guidelines will be a condition of continued membership in AF&PA. Whilst mandatory only for AF&PA members, at the state level contractors and loggers will also be encouraged to take courses, along with AF&PA mebers, on the implementation of "Sustainable Forestry Initiatives" (SFIs) and "Best management Practices" (BMPs).

stakeholders involved in preparation of standard: A forest industry task force was established, comprising company executives, resource managers, loggers, and Association staff. However, it is perceived by some as an industry standard developed with little input from other stakeholders. The AF&PA has established an accountability procedure and invites public scrutiny.

process: formulation of standard: In 1992, the AF&PA commissioned an independent public opinion firm to improve industry's understanding of the sustainable resources issue. Extensive interviews with forest industry executives, politicians and representatives of groups influential in setting public policy showed a significant difference between industry's leadership and members of the other groups in their perception of the forest and paper industry. In an effort to improve the forest industry's credibility, industry executives embarked on a campaign calling for proof-of-performance initiatives in which industry's assertions of its environmental commitments would be accompanied by appropriate and measurable behavioural changes. As part of this campaign, the executives challenged their employees, through the AF&PA, to develop a programme for managing forest resources that would improve sustainable production. This led to the start of the Sustainable Forestry Initiative.

AF&PA commissioned an extensive nationwide focus group and telephone survey research to assist

in the programme's development, and found that the concept of third party involvement would significantly enhance the public's perception of industry commitment to behavioural change. The public opinion research identified several aspects of forests or forest practices as particularly important and showed how the public rated the forest industry's performance on each. Following this intensive public opinion research, a nationwide task force of more than 60 representatives from member companies, affiliated state and regional forestry associations, and logger associations drew from research results and presented the first draft proposal in May 1994. The draft was field-tested in the summer of 1994. In 15 regional workshops, the task force solicited comments and criticism on the draft as well as proposals and suggestions for improving it from those individuals who would be responsible for implementation: field foresters, procurement personnel, loggers, and consulting foresters. The workshops were also used to underscore the need for such a programme. During this period the draft was also circulated for comment to selected state and federal agency personnel, conservation organisations, academics, and others in the forestry community. The task force reviewed the feedback and revised the proposal for approval by the AF&PA Board of Directors in autumn 1994.

process: implementation of standard: 1995 is the 'implementation year' for AF&PA members, during which time they are required to develop the programmes and practices necessary for adherence to the objectives and measures contained in the Principles and Guidelines. The AF&PA are also informing the broader forestry community (forestry and logging associations, state and federal agencies, academia, professional and conservation organisations, consulting foresters, and private and public sector technical assistance programmes) of the programme and soliciting their assistance. A number of national forestry associations have expressed support to the Sustainable Forestry Initiative.

"..implementation guidelines will be most effective if they are tailored to the unique forest conditions at the regional, ownership, or site level. For this reason, AF&PA member companies will individually or collectively - at the site, state, or regional level - adopt performance measures that are most appropriate for the given forest condition, even if they are different from those [given in the guidelines document], provided they are fully consistent with or exceed the spirit and intent of the objectives stated.."

what constitutes the standard? Broad objective statements, which establish the measuring criteria, with supporting performance measures, to implement the give general principles. The Principles for Sustainable Forestry cover five areas:

- sustainable forestry
- responsible practices
- forest health and productivity
- protection of special sites
- continuous improvement

The implementation guidelines for *sustainable forestry on AF&PA members' forests* are encompassed in nine objectives, each with a number of 'performance measures' . The objectives address:

- 'broadening the practice of sustainable forestry' through scientifically, environmentally and economically sound practices;
- prompt reforestation;
- protection of water quality through use of EPA approved Best Management Practices;
- enhancement of quality of wildlife habitat;
- minimisation of visual impact;
- attention to lands of ecological, geologic or historic significance;
- contribution to biodiversity;
- continual improvement in forest utilisation;
- 'prudent' use of forest chemicals.

Quantified performance measures are stated for clearcut size (not to exceed an average of 120

acres - 50 hectares), and for elapsed time for regeneration after harvest (2 years for artificial regeneration, 5 years for natural).

The implementation guidelines for *sustainable forestry by AF&PA members in the procurement of wood and fibre from loggers and other landowners* are set out under a tenth objective (again with a number of performance measures) which addresses:

- 'broadening the practice of sustainable forestry by further involving non-industrial landowners, loggers, consulting foresters and company employees who are active in wood procurement and landowner assistance programmes.'

Implementation guidelines for *AF&PA member companies for public reporting and involvement in the practice of sustainable forestry* are covered in two objectives:

- public reporting of members' progress in fulfilling their commitment to sustainable forestry
- provision of opportunities for the public and the forestry community to participate in the AF&PA membership's commitment to sustainable forestry

The implementation guidelines for *AF&PA public policy goals for sustainable forestry on all private and public land in the US* are presented as a number of subheadings, similar to the 'performance measures' presented under each objective:

- increase forest growth, quality, diversity and productivity by practising sustainable forestry
- help to implement appropriate ecosystem management on federal lands
- reduce the risk and occurrence of wildfires
- promote and utilise integrated pest management
- encourage forest health and productivity research
- encourage continuing education
- recognize excellence
- protect the ability of all private landowners to manage their forestland in a sustainable manner.

progress to date: The principles and guidelines were approved by the AF&PA Board of Directors in October 1994. It is anticipated that new objectives and criteria will be established as implementation proceeds. The AF&PA has not ruled out making a sustainable forestry logo available to members in good standing once its Sustainable Forestry Principles are in place.

position in Figure 2: Standard

links with other initiatives:

comments: Frankel (19**) comments: "How much of departure from business-as-usual the AF&PA document represents remains to be seen. It has the flavour of a compromise document that has tried to stake out progressive turf while getting buy-in from conservatives. [This] perhaps helps explain the document's vagueness and the considerable operational latitude it grants member companies. Much will depend on how the principles are actually implemented."
This 'vagueness' and 'latitude' is shown, for example, in the 'special sites' principle which requires companies to manage lands of special significance "in a manner that takes into account their unique qualities". The vice president of AF&PA states that this does not explicitly require member companies to keep old-growth forest off-limits.
However, the Implementation Guidelines do indicate a commitment to sustainability of the entire ecosystem rather than the much more limited 'cut one, plant one' version of sustainable forestry.
Despite the findings of AF&PA's survey - that the concept of third party involvement would enhance public perception of industry commitment to behavioural change - there are no apparent requirements for third-party auditing and no details for how monitoring or assessment should be carried out; hence determination of compliance is left largely to internal self-regulation. However, members are encouraged to include credible third parties in providing advice and confirming company annual reports.

17. Shell/WWF Tree Plantation Review Guidelines

organisation: Shell International Petroleum Company Limited (SIPC), and World Wide Fund for Nature, UK (WWF).

declared aim/ rationale: "These guidelines identify issues to consider when planning and managing environmental and social aspects of plantation enterprises. They address the factors to be taken into account in planning a plantation; the measures needed to optimise the benefits; possible difficulties which may be anticipated; and ways in which management may be modified to meet changing circumstances."

"These guidelines are a contribution to the debate on the environmental and social acceptability of tree plantations for wood production. ..This publication is not a statement of policy from either WWF or SIPC. It is the outcome of a collaborative review from diverse perspectives."

proposed use: These are advisory guidelines. "The guidelines relate specifically to the environmental aspects (both natural and human) of plantation forestry. They focus on those basic principles and implementation practices which will help to ensure that plantation projects are both socially desirable and environmentally sound as a consequence of careful and comprehensive planning, enlightened management practices and continuing monitoring and refinement."

"It is assumed throughout that the decision to proceed with any plantation enterprise makes economic sense at the national level and than financial viability is a pre-condition at all stages. The guidelines concentrate, therefore, on measures to ensure that the enterprise is both socially desirable and environmentally sound."

target group: Planners of new plantation projects and managers of existing plantation projects

geographical scope: Global.

application to forest type: Plantations.

status: "SIPC will itself recommend the field-testing of the guidelines in the development of new plantation projects and will also recommend their consideration to management of existing Shell Forestry Companies." The guidelines are written in terms of recommended actions and were disseminated in an advisory/ information document to the industry, government and environmental/ social NGOs.

stakeholders involved in preparation of standard: Consultants from the Oxford Forestry Institute, WWF, SIPC, King's College London, IIED, the Institute for Terrestrial Ecology, the UK Forestry Commission, and independent consultants.

process: formulation of standard: The guidelines for 'best practice' were drawn from a set of eleven study reports in the Tree Plantation Review. The study reports address the history, roles and need for plantations, physical and social issues, environmental planning and management.

process: implementation of standard: The guidelines are intended for universal application and are thus expressed in general terms. "In practice, it will also be necessary to develop specific guidelines according to local circumstances".

what constitutes the standard? Seven principles, concerning:

- need for guidelines
- need for plantations
- social and business responsibility

- local involvement
- sustainability
- site selection and security
- environmental management

The guidelines are presented in five sections, concerning:

- social environment
- natural environment
- planning
- environmentally sound plantation management systems
- monitoring and auditing the natural and social environment

Each section is subdivided into a number of issues.

progress to date: All Shell projects are "encouraged" to implement the Guidelines, according to Shell's Non-Traditional Business section (Richardson, pers comm, September 1995). Shell also knows of many examples of corporations using the material. For example, the Corporacion Chilena de Madera requested permission to translate the majority of the guidelines into Spanish, for use throughout the Chilean plantation industry.

position in Figure 2: Set of principles.

links with other initiatives: For guidelines relating more specifically to technical and economic aspects of forestry planning and management practices, the document refers the reader to "other sources such as ITTO".

comments: The premise of these guidelines is ways to build on current best practice. As such, they are operationally sound. They are in no sense a political document, which means that they have been able to address practice comprehensively, but equally means that few parties feel a strong commitment to them.