

Dryland Networks Programme

ISSUES PAPER

Village Ecosystem Planning

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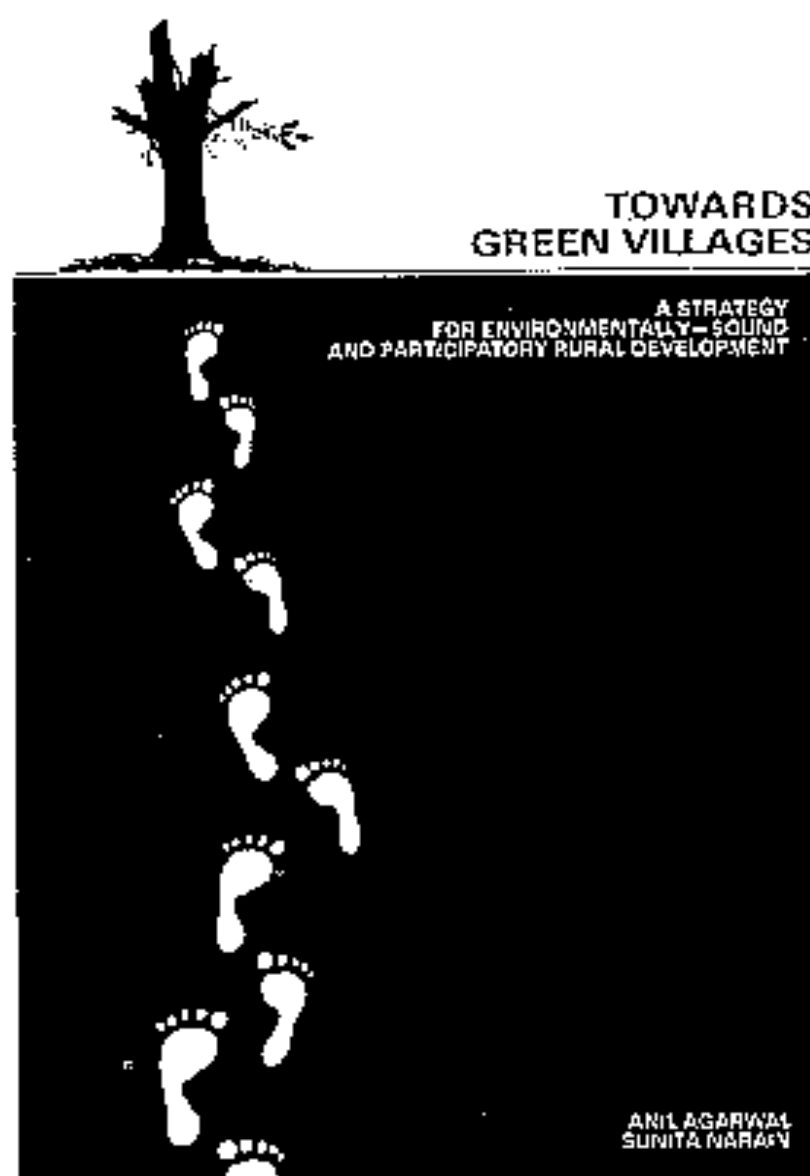
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Village Ecosystem Planning

INDIAN villages are highly integrated agrosylvo-pastoral systems. In other words, each Indian village has its own croplands, grazing lands, and tree or forest lands, and each of these land-use components interact with each other. What happens in one component invariably impacts on the others.

The entire village ecosystem is often held in fine ecological balance. Trees or forest lands provide firewood. This helps villagers to avoid the burning of cowdung, which in turn helps them to maintain the productivity of their croplands where this dung is applied as manure. Simultaneously, trees and crops help to complement the grasslands in the supply of fodder for domestic animals. Grass is generally available from the grasslands during the monsoon period. As grass availability declines with the onset of the dry months, crop residues obtained from croplands and leaf fodder obtained from trees help animals to tide over the critical scarcity period.

This finely tuned system can be easily split apart. If too many trees were cut for commercial or any other reason or growing population pressures were to force local people to expand their croplands and, thus, reduce the area of the adjoining forest and grazing lands, there would be a growing shortage of firewood and people would be forced to burn cowdung as cooking fuel, leaving little manure to fertilise the croplands, affecting, in the long run, their productivity too. Moreover, as fodder sources decline, animals will starve and will not produce much cowdung anyway. Overall biomass production in the village ecosystem will steadily go down, the system will become increasingly susceptible to the vagaries of the weather (in other words, floods and droughts) and will soon take on the shape of a pseudo-desert. Nearly half of India is today a pseudo-desert.

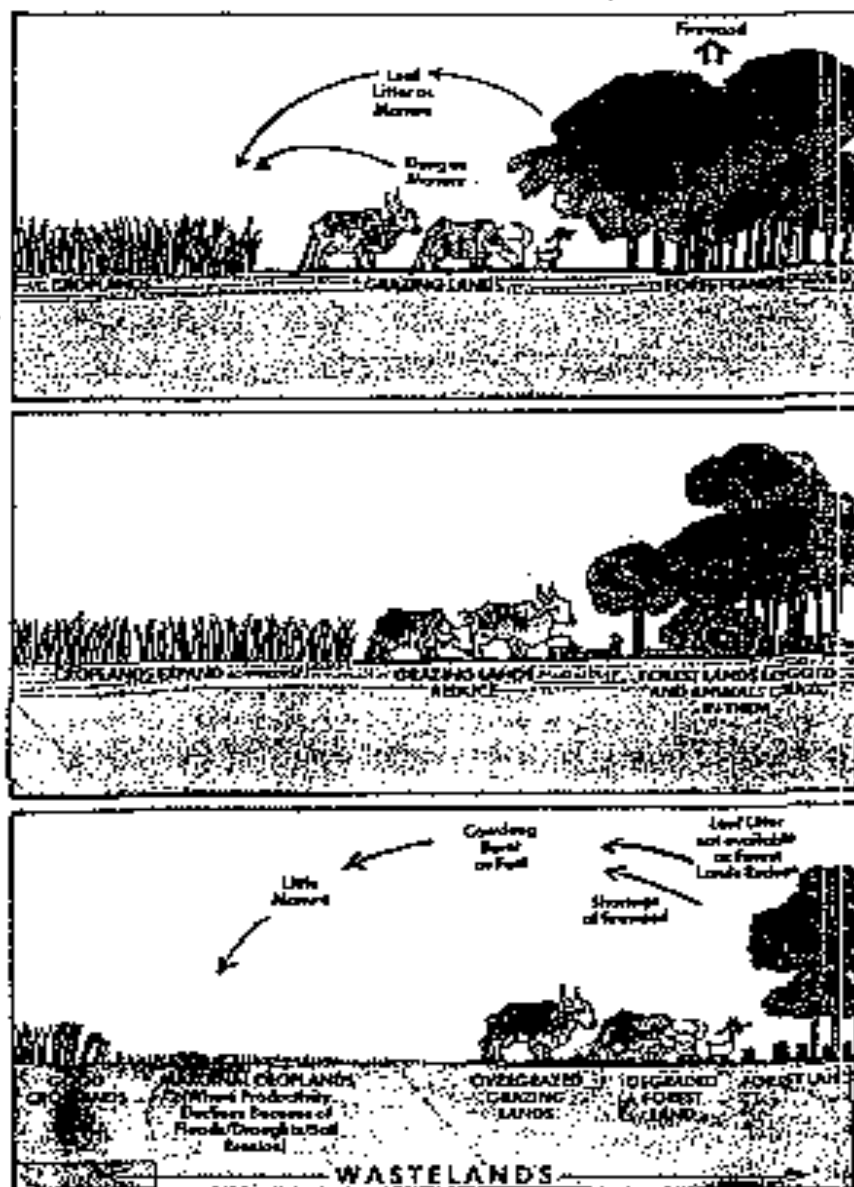
It is not only the various components of the land sub-system that interact with each other. The land sub-system in turn interacts with the animal, water and

energy sub-systems of the overall village ecosystem, and all these sub-systems interact with each other to sustain overall productivity and extend economic and ecological stability. Animals, for instance, not only provide the critical energy input into croplands that is required for ploughing, threshing and other farm operations, they also lend stability to the village economy during a drought period when cropland production is most likely to fail. Similarly, the land sub-system interacts with the water sub-system. When digging ponds and tanks for harvesting water to tide over the dry period, it is equally important to change the land-use of the village ecosystem in a way that the catchment of the tank is protected by trees. Otherwise soil erosion will be excessive and the village community would have to desilt the tank every so often.

Indian peasants have always understood these inter-relationships and it is not surprising to find that Indian farmers are not just simply practitioners of agriculture but a mix of agriculture, animal care and silviculture which requires the intensive use of croplands as well as of the grazing lands and forest lands adjoining the village. And as a community, Indian villages have been great water harvesters, possibly the best in the world.

What India desperately needs today is the holistic enrichment of each of its village ecosystems. By holistic we mean an approach in which attempts are made to increase the productivity of all the components of the village ecosystem — from its grazing lands and forest lands to its croplands, water systems and animals — and in a way that this enrichment is sustainable. Current rural development efforts are extremely fragmented, they focus mostly on agriculture, and often the efforts are contradictory and counter-productive. For instance, the people who build ponds and tanks do not want to do anything about getting an appropriate land-use implemented in the village to protect the catchment of these tanks. Those who look after animal husbandry or promote dairying operations pay little attention to

CHANGES IN LAND USE LEADING TO CREATION OF WASTELANDS



The complex land-livestock-vegetation system of Indian villages is held in fine balance in which various sub-systems interact and support each other.

There have been dramatic changes in our land-use leading to an ecological imbalance. Crop lands have expanded onto grazing and forest lands. Reduction in the area under grazing lands has meant too many animals on the remaining grazing lands and their overexploitation, turning them into wastelands. To find fodder, animals now graze heavily in forest areas. Whenever a forest area is logged, grazing animals suppress all regeneration and the logged forest area steadily turns into yet another tract of wasteland. As the tree cover declines and ecological imbalance grows, there is also a decline in agricultural productivity and non-irrigated croplands are exposed to increasing floods, drought and soil erosion.

increasing fodder supply. The only way to end these fragmented approaches is to promote integrated village ecosystem planning.

Why Integrated Village Ecosystem Planning must be at the Village level ?

This type of planning can be attempted only at the village-level, village by village, and not at any higher level, either at the level of a district, an ecosystem or a state. There are two important reasons for this. Firstly, there is an enormous diversity in Indian village ecosystems. No entity, even if it be at the level of a district, can plan for each Indian village. Even within one overall ecosystem, village agroecosystems can vary greatly from one another. Within the narrow confines of the high Himalaya, village ecosystems have considerable similarities but they also have considerable differences. If we take a village at the bottom of a valley and a village situated up the slope of the same mountain, we will find that their land-use systems differ greatly. Plans for the ecologically-sound development of each of these village ecosystems will necessarily differ and the planning process must be such that it allows for suitable solutions to be found to accommodate these differences. This can be achieved only if the planning was to be undertaken at the micro-level of a village and not at any macro-level.

Secondly, this stupendous task of planning for every Indian village can be achieved, rapidly and judiciously, only if it is participatory. It can be assisted by government bureaucracies but cannot be done by it. Despite the fact that migration to towns has led to an erosion in villagers' interest in their immediate environment, experience shows that villagers still relate well to their immediate village ecosystem — their croplands, their grazing lands, their tree and forest lands, their animals and their ponds and tanks. And it is at this level, they can act most easily and readily, given the appropriate framework for action.

Villagers also relate to their overall ecosystem. A *patwari* is culturally conscious of the fact that he or she belongs to the Himalaya. A person from the desert also is culturally conscious and proud of the desert culture. But villagers cannot get together to participate effectively in the planning of the entire Thar or the entire Himalaya. We have not found any successful case where even a few villages situated in one microwatershed have got together to plan for the ecosystem of their watershed. Participatory planning is most feasible and effective at the level of the village. District planning or planning at any other level must support and encourage this village-level, grassroots planning process

and not supplant it. Otherwise participation cannot be assured and biomass regeneration plans will remain ineffective.

Goals of Integrated Village Ecosystem Planning

The most important goals of village ecosystem planning for biomass regeneration will have to be :

- 1) enhancement of the total natural resource base of the village ecosystem;
- 2) production of basic biomass needs of the village community on a priority basis; and,
- 3) equity in the distribution of biomass resources.

Thus, any village-level plan to be both sustainable and equitable would have to be a matrix of solutions which keeps in mind the specific natural resource base of the village, its biomass needs and its social structure.

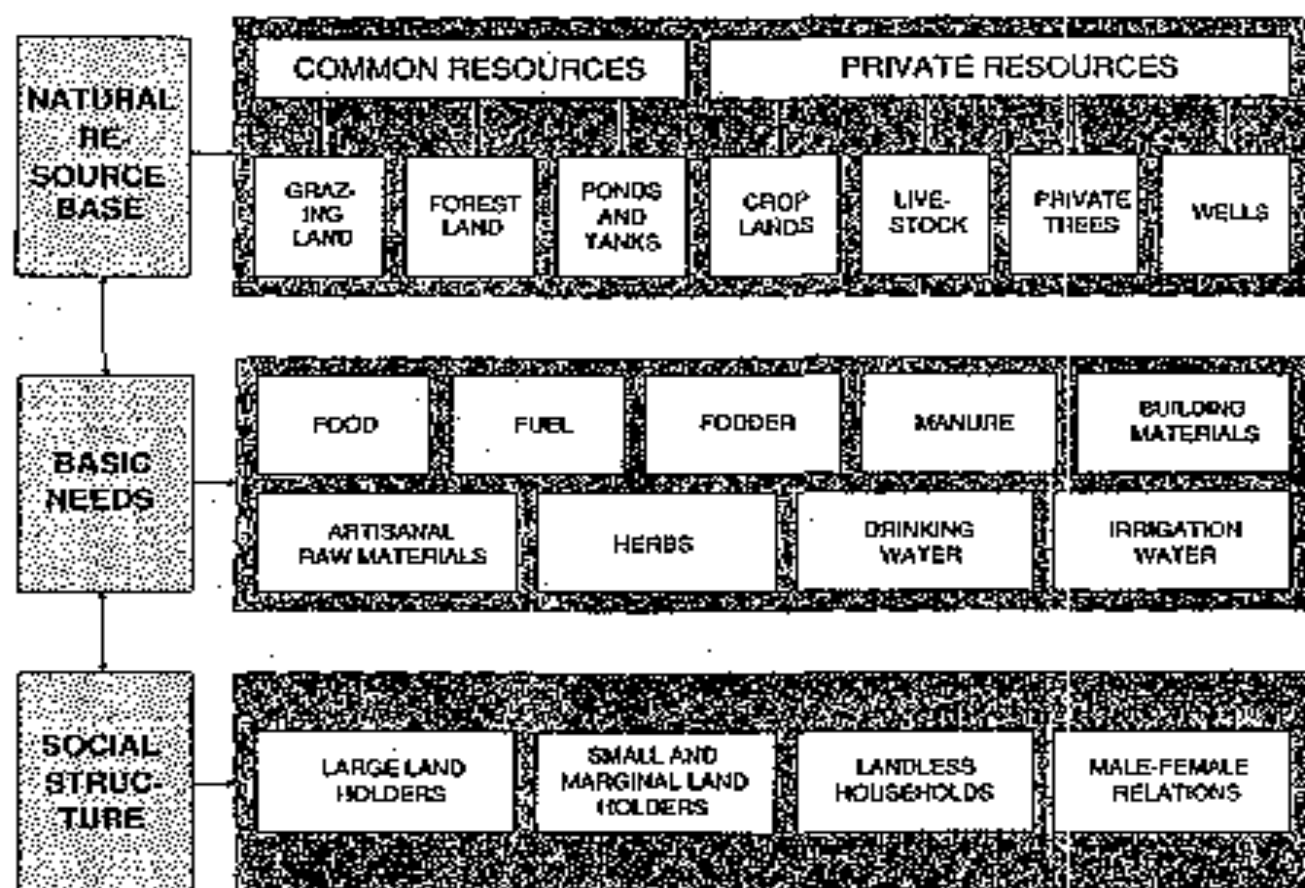
For planning and management purposes, it is not enough to sub-divide the natural resource base merely in ecological terms. It will also have to be sub-divided in legal terms, that is, in ownership terms. For instance, an ecological classification of the land sub-system of a village would divide its land resources into croplands, grazing lands or forest and tree lands. But a legal classification of the same natural resource base would divide it into private property, community controlled property (panchayat lands) and government controlled property (revenue and forest lands). Undoubtedly, these two classifications are interrelated. Croplands are invariably private property, grazing lands are generally panchayat lands and revenue lands, and forest lands are generally government lands owned and managed by the forest department. But a strategy which aims to help villagers to improve the productivity of their private croplands will be a totally different one from a strategy that aims to help villagers manage and improve the productivity of their common grazing and forest lands.

Experience in India has clearly shown that as far as private croplands are concerned, farmers readily adopt any package that promises them a good return and is within their economic means. But how do we get the people to care for their commons? Why do people, who suffer from such acute shortages of biomass, not plant all the trees and grasses they need on the available common lands ?

The Alienated Commons

The biggest problem lies in the alienation that the modern state has created amongst village communities

COMPONENTS OF A VILLAGE ECOSYSTEM MANAGEMENT AND IMPROVEMENT PLAN



A Village Ecosystem Management and Improvement Plan will have to be developed keeping in mind the natural resource base of the village, its basic needs and its social structure. It is important to take the social structure into account as some groups in the village may depend more on its common resources and the village ecosystem improvement plan should be such that it safeguards their access to the commons.

towards their commons. Before the advent of the modern state, grazing lands, forest lands and water bodies were mostly common property and village communities played an important role in their use and management. The British were the first to nationalise these resources and bring them under the management of government bureaucracies. In other words, the British initiated the policy of converting *common property resources* into *government property resources*.

This expropriation has alienated the people from their commons and has started a free-for-all. Today even tribals, who have lived in harmony with forests for centuries, are so alienated that they feel little in felling a green tree to sell it off for a pittance. Repeatedly we have been asked by tribal groups, what is the point in saving the forests, because if they don't take them first, the forest contractors would take them away. The desperate economic condition of the poor, made worse by the ecological destruction, has often left them with no other option but to survive by cutting trees. Unless people's alienation from their commons can be arrested and reversed, there cannot be any regeneration of common lands.

Why is people's participation in the regeneration of common lands so crucial?

To answer this question it is important to understand the key obstacle to environmental regeneration. *India's ecology is such that any piece of land, left to itself, will soon get converted into a forest except in a few desert districts of Western Rajasthan and in the upper reaches of the Himalayan mountains.*

The birds and the wind are excellent and extremely powerful disseminators of seeds, which human beings can never hope to match. Unfortunately, the natural regeneration that is taking place is being constantly suppressed. The main agent for this suppression is India's vast stock of domestic animals.

In a country like India where agriculture and animal husbandry are closely intertwined activities, the animal pressure is extremely high. India with just a fortieth of the total land area of the world, supports more than half its buffaloes, 15 per cent of its cattle, 15 per cent of its goats and 4 per cent of its sheep. Continuous grazing not only suppresses all regeneration of trees, but also steadily reduces the productivity and the quality of the grasslands. In fact, this is why vast tracts of India have today come to be called wastelands.

The use of the word 'wasteland' by the government to describe degraded lands has conjured up an image of vast tracts of land that are lying totally unused and barren. On the contrary, no piece of land in India can lie barren and degraded for a long time — India's

COMMON PROPERTY RESOURCES
can be
Government Property Resources
OR
Community Property Resources.

BUT PEOPLE WILL REACT TO THEM
DIFFERENTLY.

They will care for the
latter but not for the former.

ecology would automatically turn it into a forest — unless it is constantly overused or misused. In other words, all 'wastelands' have intense users.

Therefore, all new plantations and grasslands have to be protected from animals, especially if the biomass that is sought to be grown is browsable, that is, biomass capable of meeting the crucial need of fodder. But since all common lands have intense users, any attempt to enclose a patch of degraded land, will be strongly resented by the people, however underproductive it may be at the moment, for fear of loss of grazing land and sources of firewood. And all such attempts will be subverted by the poor unless — and this is crucial — they are fully assured that the biomass which is grown inside those enclosures will meet their felt needs on a priority and equitable basis.

Wrong Trees or Dead Trees

If people's support does not exist, then either the survival rates will be extremely poor, or non-browsable plants like eucalyptus will continue to be planted — a technical fix for a social problem. In fact, both the above things are happening today. Over 90 per cent of all the tree seedlings being planted today under official programmes are non-browsable. The major species being planted are eucalyptus, pine, teak, *Prosopis juliflora*, *Acacia auriculiformis* (Australian acacia or akashmoni) and casuarina and all are non-browsable. Despite this the survival rates are extremely poor.

Between 1980 and 1988, the state forest departments of India claim that they together distributed over 2000 crore seedlings. Given that India has about 5,70,000

**WHILE OFFICIAL FIGURES SHOW HUGE
FORESTS EMERGING,
THE EARTH REMAINS BARREN AND
DEGRADED.**

Between 1980 and 1987
the government has officially afforested
7.9 million hectares of land — an area
equal to the size of Assam.

THIS IS CLEARLY FAR FROM THE TRUTH.

villages, we should have over 35,000 new trees per village today. It is rare to find this large number of new trees in any Indian village.

In any case what good are such plantations during periods of drought? During the acute 1987 drought, the vast social forestry plantations of Gujarat, which mainly consisted of eucalyptus, could do nothing to meet the fodder crisis. Fodder had to come all the way from Punjab.

In fact, India's afforestation programmes have become a travesty for employment creation. It was probably Keynes, the famous economist, who once said that unproductive employment can easily be created. Simply dig a hole in the ground, fill it up with earth and dig it up again and keep doing this. Afforestation is exactly such an exercise today. Dig a hole in the ground, put a seedling in the middle and fill it up with earth. The seedling will soon die and we will start digging up the earth again. *Official figures show huge forests emerging while the earth remains barren and degraded.*

The same will happen to any major programme to dig ponds and tanks until the villagers are prepared to protect their catchments. They will soon silt up and new programmes will be needed to dig them again.

The upshot of all this is that *ecologically vital but fragile rural resources like trees, grasses, ponds and tanks cannot be created and maintained by any bureaucracy, it can be done only by the rural people.* Every year nearly half of India is planted by plants of wheat, rice, maize and other crops, which are equally fragile rural resources, but they do survive because of the extraordinary effort made by the rural people to ensure that they survive. If all farms in India were to be managed by the Central

and State Krishl Bhawans, there can be no doubt that Indians would starve. Then why should forests and grasslands be managed by the bureaucracy?

That people must be involved in afforestation is now widely accepted. But how is this to be done?

Privatisation or the Community Way?

There are two basic ways of dealing with this problem. The first approach would be to take a cue from the successes that have taken place in promoting biomass production on private croplands. Let us also privatise the common lands and then provide the beneficiaries with a technical and financial package which promises to get them a good income and we can be sure they will come for it.

The best government programmes we have seen are based on the principle of privatising the commons. Various state governments have developed programmes to lease revenue as well as forest land for afforestation. In all these schemes, the basic approach is to give ownership rights to a few families either to the land itself or to the produce from the land. These families will then have a vested interest in the protection of the trees.

**THE TWO APPROACHES
TO ECOLOGICAL ENRICHMENT**

- PRIVATISATION OF THE COMMONS
- RETAIN THE COMMONS AS COMMONS

THE PRIVATISATION APPROACH

1. West Bengal Social Forestry Programme
2. Tree Patta Scheme
3. Social Security Schemes

THE COMMONS AS COMMONS APPROACH

1. Sukhamajri and Nada villages near Chandigarh
2. Chipko plantations in Chamoli
3. Brahmana ka Verda village near Udaipur
4. Afforestation cooperative in the Bhal area of Gujarat
5. Ralegan Shinde village in Ahmednagar
6. Village of Seed

There are several such afforestation schemes in the country, like the Tree Patta Scheme in different states in which a family is leased the trees but not the land. Some states like Maharashtra, Madhya Pradesh and Rajasthan have adopted a scheme called the Social Security Scheme in which government forest land is leased to a poor family for afforestation. The family is then given a monthly stipend for five years for afforesting and protecting the land. And every year the family gets an additional one or two hectares to plant and protect, taking the total leased area to 15 to 20 hectares over time. The beneficiary family has full rights over the grass and all other produce from the trees, except timber which it shares with the forest department.

The state of West Bengal, which has a successful social forestry programme, has combined its afforestation programme with its ongoing programme of land distribution. Poor, landless families are granted pattas for plots of government land, but as these lands are usually highly laterised and degraded, afforestation agencies encourage them to plant trees instead of growing crops, which is usually impossible. These poor families have carefully protected the afforested land and ensured the survival of trees.

This approach has major problems. In a densely populated country like India the privatisation approach effectively reduces access to the commons for a large number of village people while giving control to a few members of the community. There is not enough land to benefit all the poor people on a private basis. There will always be some poor people who will be left out. Given that these lands are vital for the survival of the poor landless and marginal farmers who use the lands for fodder, fuel, grazing and other subsistence needs, they will be adversely affected by the reduction of common lands.

In Rajasthan, we found that the beneficiary family of the government's Social Security Scheme had become a target for those in the community who could no longer benefit from the privatised commons. Under the Social Security Scheme, the forest department had given forest land to a landless family for afforestation. The family had protected the area which was extremely degraded and in the height of the 1986 drought had even harvested grass from the plot. But the family faced intense antagonism from the rest of the villagers who could no longer use this land for grazing. The family had been excommunicated from the village community and could not participate in community functions like marriages or festivals. We can expect similar resentment wherever the commons are already under heavy pres-

sure and scarce, and further privatisation is permitted to undertake ecological regeneration.

In the plateau region of West Bengal which covers Midnapore, Purulia and Bankura, the people face an acute energy and fodder crisis. Women take brooms to the forest to sweep the forest floor to collect leaves and twigs for burning. Land is mostly privatised but there are many marginal and landless farmers whose only source of energy is from the common lands. The state has very little revenue land left. This intensifies the use of forest land by the villagers and their animals. The state government enthused by the response to the farm forestry programme was even considering leasing degraded forest land to private families for protection. The degraded forest area in West Bengal is around 0.65 million hectares and even if two hectares of forest land was allotted to each family to grow trees, only 4 per cent of the total rural families would benefit while the remaining people, all dependent on these lands, would lose out. This situation would obviously create immense conflicts.

The second, and admittedly more difficult, option is to retain the commons as commons and manage them by organising and mobilising village communities to develop the commons as a community enterprise. This is socially and ecologically the best option but obviously difficult. This, however, is not to say that it cannot be done. The best efforts in the country to manage the environment show that this is indeed possible but provided the following three principles of control, unity and equity are observed:

1. The commons must be brought under the control of the village communities. This will mean divesting government agencies of their control over the common lands through changes in legislation. Though this does not necessarily mean transfer of ownership.

**KEY PRINCIPLES
FOR
AFFORESTING
THE COMMONS AS COMMONS**

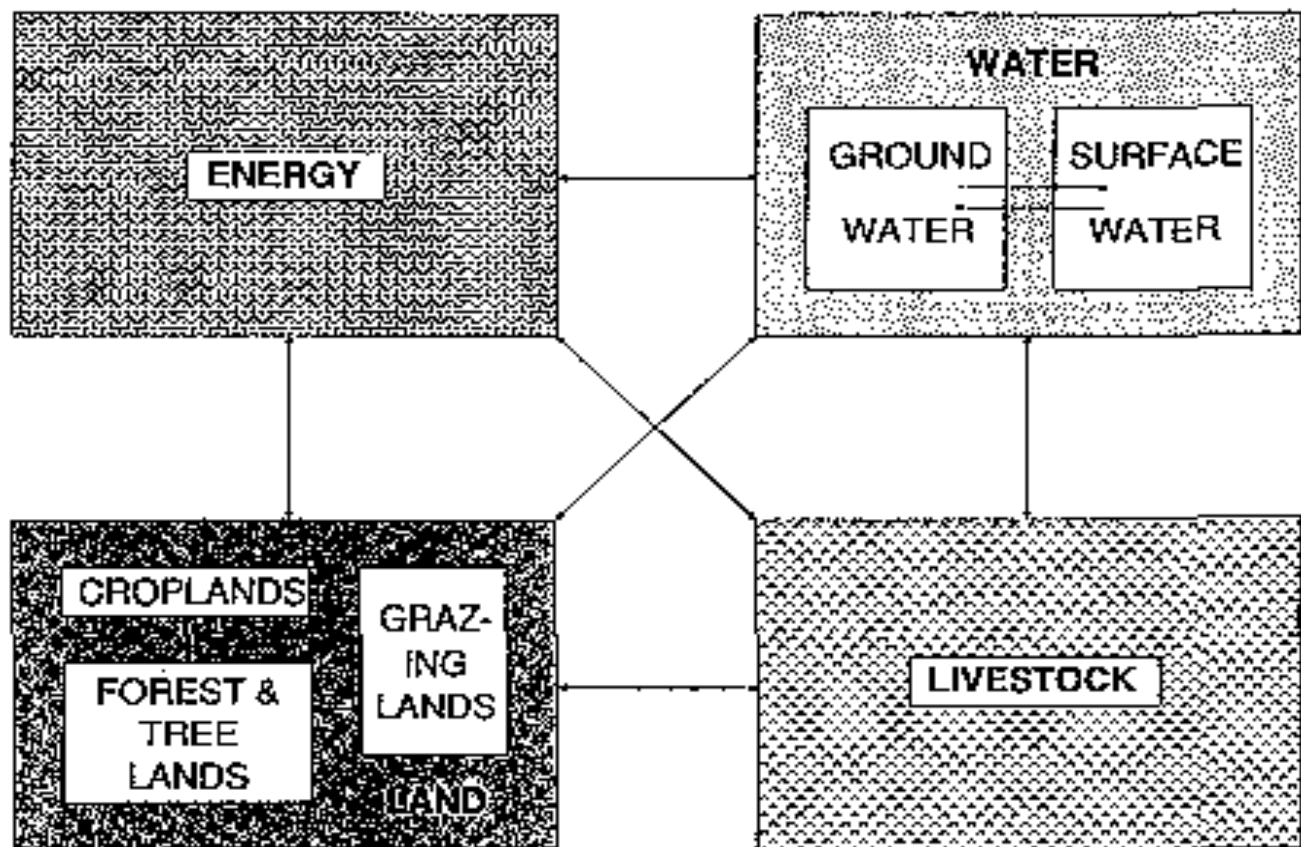
- **CONTROL** by the community
- **UNITY** within the community
- **EQUITY** in the distribution of the produce

2. *The entire community must be involved in the protection of the commons under its control. If only a section of the community is involved in the protection of a patch of the commons, then that section of the community must have clear control over a definite patch of the commons. In other words, the legal situation must be clear and whichever group controls a portion of the commons, it must control it completely and protect it jointly. If only a few members of a group are left to protect a common resource against the wishes of the rest, they will fail. It does not matter whose goat enters the protected patch, the damage will be the same. All have to keep their animals away.*

3. *All the members of a group will protect a common resource only if all of them know that they will benefit from the resource equally.*

These principles of control, cooperation and equity may sound difficult to implement in practice. But the experiences of voluntary groups across the country show that given the right leadership and the suitable legal framework for community action, villagers will come together to protect and manage village resources. This paper sets out the institutional, legal and financial framework in which this may become possible — the glorious chance for India to become green, improve the standard of living for its people, and revive the dying community spirit.

THE COMPLEX INDIAN VILLAGE ECOSYSTEM



An Indian village is a complex land-livestock-vegetation system in which the land sub-system, the water sub-system, the livestock sub-system and the energy sub-system, all interact with each other. The purpose of village ecosystem plans should be to bring about an holistic enrichment of the entire village ecosystem without destroying the synergy between the various sub-systems.