



TOWARDS GREEN VILLAGES

**A STRATEGY
FOR ENVIRONMENTALLY—SOUND
AND PARTICIPATORY RURAL DEVELOPMENT**

**ANIL AGARWAL
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Centre for Science & Environment

To

The villagers of Bached, Bemru, Reni, Khonoma, Sukhomajri, Nada, Bhinasar, Hariyakheda, Seed, Gopalpura, Ralegan Shindi, Deuli, Golana and many others — from whom we have learnt so much and so freely.

But most of all to Mahatma Gandhi who, we are sure, would have loved to visit these villages today.

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Preface

This paper began nearly seven years ago. It was in 1982, while working on the first report on the State of India's Environment, we became conscious of a desperate need for an urgent and nationwide effort to meet the cooking energy needs of the poor. It was clear that the government's efforts are restricted to the supply of some kerosene and LPG, which mainly meet the cooking energy needs of the urban people. On the other hand, the rural poor largely depend on biomass resources like firewood, cowdung and crop residues and of these, firewood is drying up fast. The result is an inhuman work burden on women. For us and for all concerned citizens' this has to be totally unacceptable. Cooking energy, as a human need, is only next in importance to food and drinking water. Indeed, it is almost a fundamental right.

Soon after the 1982 report was published by the Centre for Science and Environment (CSE), we got involved with the deliberations of the Advisory Board on Energy which had just been set up by the government to frame national policies in the area of energy. Its first chairman himself pointed out that the domestic energy sector posed the most intractable problems. Dr. Kamla Chowdhry, an old associate of CSE, became a member of the Board and tried to get us involved with the discussions within the Board. We offered to prepare a review paper on cooking energy consumption patterns in India. It was while preparing this paper we found that almost no energy expert had cared to find out who suffered most from the so-called (and much discussed) rural energy crisis. This was an important question because indeed if there were some energy-poor and some energy-rich in the villages, then any national effort would have to be preferentially directed towards the energy-poor.

Though there was hardly any data to answer this question, it was obvious that access to biomass-based cooking energy was dependent on either access to or ownership of two basic resources: land and cattle. Cattle provide cowdung to their owners and those who have land own at least a few trees and some crop residues. Those who have no land need access to trees on community or government land. Thus, cooking energy shortages will obviously be most acute amongst land-

less or near-landless households, especially in areas where forests have disappeared. And where forests do exist, there are acute tensions with forest officials. Access to commons is not always easy for the poor.

It also became clear to us that since the cooking energy problem is a biomass problem, it took on different patterns in different ecosystems of India. It is not merely associated with forests but it is also intimately associated with agriculture. Cooking energy shortages are most acute in those areas where forests have disappeared but where agriculture is also very poor. On the other hand, in Punjab, though the forest cover is extremely small, cooking energy supply is relatively good. High agricultural productivity generates a high quantity of crop residues which leads to well-fed cattle and high quantities of cowdung.

Simultaneously, our surveys of India's efforts to spread biogas plants, improved chulhas and other cooking energy-related technologies told us clearly that these technologies can never play a major role in increasing cooking energy supply. The only major way to meet cooking energy shortages is to plant trees on a massive scale. And in any case, trees have to be planted on a massive scale to reverse the growing ecological imbalance. Our visits to the afforestation camps organised by the Chipko Movement in Chamoli made us also conscious of the need for tree fodder. The massive droughts of 1985, 1986 and 1987 reinforced this concern. Since land is limited, we began to understand that it is not possible to grow firewood species and fodder species separately. We should grow, as much as possible, only multi-purpose species.

Thus, our entire set of studies in the field of cooking energy left us with three clear conclusions: one, that when dealing with biomass-related issues it is vital to think in terms of the ecological and social dynamics of each ecosystem; two, that cooking energy and other biomass-related shortages that affect the poor can be met only if the commons can be regenerated; and, three, that the involvement of the poor on a preferential basis is vital in the regeneration of the commons if their needs are to be met.

All this definitely clarified the problem but it made the solutions far more complex. They were no longer as simple as they seemed to be in the 1970s: dig a few holes, plant a few saplings and get a lot of trees. Environmental management was clearly a far more complex task.

These conclusions also flew in the face of the ongoing experience with afforestation in the mid-1980s. Social forestry was, firstly, getting trees back mainly on private land and not the commons. And, secondly, it was all non-fodder species being planted like eucalyptus. There were hardly any multi-purpose Indian species to be seen.

What then was the way ahead?

Our first — and immature — response was to see the answer in a land reforms type solution. "Give a few hectares each of the remaining commons to the landless to protect, care for and use". This idea of 2 hectares of common land for every landless family also sounded like the making of a very good political slogan. We even discussed this issue in the second citizens' report on the State of India's Environment published in 1985 with some amount of excitement.

But soon we realised this was a mistake. As long as there were poor people in India who lived off the land, the commons would provide them with the last sources of survival. As long as the commons are there, the poor can hope to keep a few goats at least. And given India's growing population and the fact that the numbers of the poor are definite to swell, it would be criminal to privatise the remaining commons. Thus, the commons had to be regenerated while retaining them as commons. The problem now looked even more difficult. We told the National Wastelands Development Board, which had been formed by then, that we disagreed with its tree patta type schemes but we really did not have a well-thought out alternative scheme. And with Samaj Parivartana Samudaya in Karnataka, we went to the Supreme Court against the handing over of the commons by the Karnataka government to the corporate sector to undertake afforestation, which we saw as really the most anti-social strategy for afforestation.

Simultaneously, we decided to see for ourselves actual grassroots experiences in environmental regeneration in the hope that this may show us the way forward. Over the last five years, we have travelled far and wide to hundreds of villages in India from Pondicherry in the South to Ladakh in the North, to Gujarat in the West and Nagaland and Mizoram in the East. Several villages we have visited repeatedly over the years to see them change and grow. Our friends in the voluntary sector have exposed us to over a hundred village meetings in different parts of India. We have posed the problems to the villagers, told them of the experiences of other villages, and discussed their reactions with them. We do not know how many villagers we were able to enrich but we definitely helped ourselves immensely with these dialogues.

While the villages of Uttarakhand, which we had been visiting for a long time, had already brought to us the importance of involving women, the village of Sukhomajri gave us the concept of a village ecosystem. It was in Sukhomajri that we realised that people see their natural resource base as an integrated ecosystem. The common resources of ponds, tanks, nalas, forests and grazing lands are important because they support the private resources of livestock and agricultural lands. The villagers do not need to be told about the importance of the commons. They know it well and are willing to manage them but they must first be assured that the benefits will go to them and not the government or a contractor. And they will gladly manage the commons jointly if they know that they will get a fair share. Sukhomajri is working because it has a contractual agreement with the forest department that it will get most of the benefit from the results of its protection efforts.

We also learnt at Sukhomajri and other villages like Ralegan Shindi that the starting point in many cases has to be water and not trees. Once a small water harvesting system has been built and an equitable system has been developed to share the water, only then the village community will get interested in protecting the catchment of its water system by controlled grazing and planting trees and grasses. Slowly one thing will lead to another and the village community will start managing its entire village ecosystem. Thus, village ecosystem planning has to be holistic and not fragmentary as is the case today. The wastelands authorities are interested in trees but not in water. And those who are interested in water are not interested in trees and, in any case, think only big and not small. Can one change a system of governance that is so sectoral and fragmented — and indeed which is true not only of the Indian government but of bureaucracies almost everywhere?

It was in Seed really that we learnt a lot of what is said in this paper. Because it was here that we found a unique situation in which the poor villagers had the legal right to determine what they wanted to do over their common lands. And indeed their self-imposed land-use plan was something that we had never seen elsewhere. It is true that the women of Uttarakhand, Sukhomajri, Nada and so many villages are trying to do the same but in each case they have the government to deal with. But Seed alone has the legal right to do what it wants.

After Seed, we no longer saw the problem as one of grasses, trees, cooking energy, ecosystems or natural regeneration, it became one of open village-level institutions, laws and financial frameworks, and a system that creates self-reliance rather than dependence.

Seed, Nada, Bemru and a host of other villages also taught us about the inter-settlement tensions that can occur when villagers protect the commons, which are today free access

areas and used freely by several settlements. And Khonoma in Nagaland, Binasar in Rajasthan and Sabu in Ladakh made us aware of the richness of traditional knowledge and culture which had been borne out of years of observation and experimentation to find ways to live with, and indeed optimise, the resources of our land. After this, in each trip, we found this knowledge all around us, which in many senses is the true treasure of India and its most endangered common property resource today.

What we have learnt from all these villages, we have put together in this paper. In one sense, this entire journey has taken us back to the Chipko Movement, which was the very source of our environmental awareness nearly 15 years ago. Our paper merely repeats the Chipko argument that the forests and commons may belong to the government legally but morally they belong to the villagers who live next to them. As the Chipko activists then said, "you can cut the forests only over our dead bodies". Even when the Chipko Movement entered the phase of afforestation it had to continue its satyagraha. Chandi Prasad Bhatt would tell the Mahila Mangal Dals to plant trees on and protect any patch of barren land they wanted to do so near their village. They would not wait to get any government approval. "Let us see which forester has the courage to stop us from planting trees and protecting nature", he would always hold forth. In Sukhomajri and many hundreds of other villages, voluntary agencies have had to wait to get government permission and many have never got it because of a lack of clear policy on the subject. Thus, both environmental protection and environmental regeneration today demands a satyagraha as the Chipko experience shows.

The supreme irony behind our entire paper is that nearly 15 years after we became conscious of environmental concerns, we are, at the intellectual level, presenting nothing more than an elaboration of Gandhiji's concept of 'village republics'. Some may even say it is not even an elaboration. Our search for the solutions to India's growing environmental crisis has repeatedly taken us back to Mahatma Gandhi.

Maybe even a decade later we will still be rediscovering the veracity of the teachings of the venerable old man.

In the true Gandhian spirit, we would like to offer this paper to its reader not as a challenge to the Central and State governments of India, but as a challenge to the people of India. Gandhiji never challenged governments, he always challenged the people. If indeed the environmental crisis and the associated development crisis is to be met, then it is the people of India who will have to meet the challenge. Rameshwardas, the Gandhian social worker who has spent a lifetime in Seed, has a telling story. When Vinoba Bhave first came to the area in the 1950s, he had told Rameshwardas that Indian villages have food self-reliance but now it was necessary to move towards self-reliance in other aspects of life. Rameshwardas has since committed a lifetime to this task. But nearly thirty years later, he finds that even food self-reliance has gone. Worse, even the wherewithal for food self-reliance — water in the wells, for instance — has gone. With the Aravalis now a totally barren range of hills, Seed has never seen such a shortage of water in the wells and nalas and such acute scarcity of fodder. No government is capable of dealing with this crisis. It can at best help the people to help themselves. We hope the reader will not only share our excitement but will also partake in it by spreading the message of village democracy. There can be no other way to green the land.

It would be churlish of us not to thank all these who have so patiently taught us and talked to us over the years. But it would be impossible to list them all here. The number of villagers from whom we have learnt is legion. The number of activists who have spent time with us is very long. Therefore, while asking for the forgiveness of all those whom we have not listed here but who remain deeply embedded in our heart and minds, we would nonetheless like to thank those who have been our most abiding friends, namely, Chandi Prasad Bhatt, Kamla Chowdhry, Rameshwardas, Madhav Gadgil, Mohan Hirabai Hiralal, N.S. Jodha, Anupam Mishra, P.R. Mishra, Madhu Sarin, N.C. Saxena and K. Sivaramakrishnan.

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Village Ecosystem Planning

INDIAN villages are highly integrated agrosylvopastoral 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

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 *pahadi* 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.

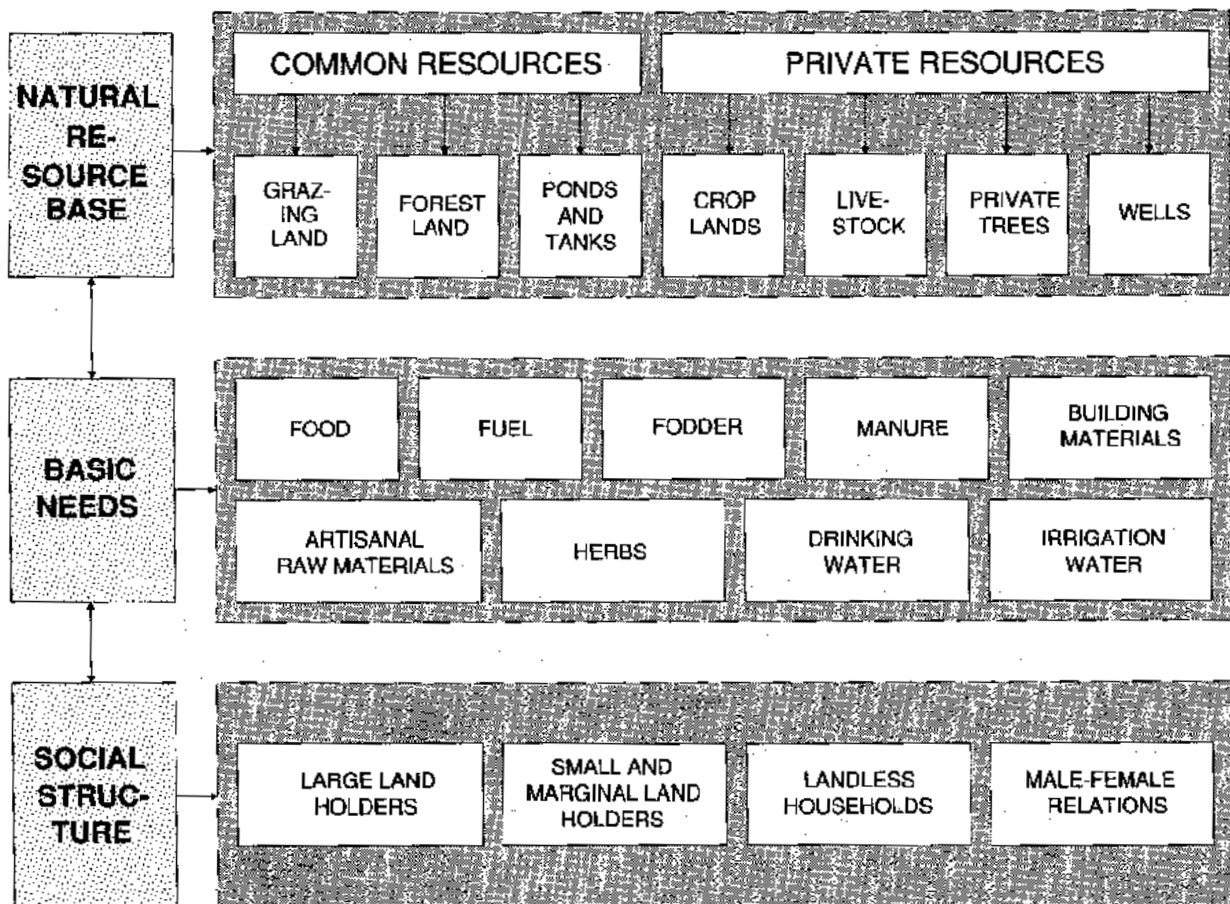
For planning and management purposes, it is not enough to sub-divide the natural resource base merely in ecological terms. It will also have to be sub-divided in legal terms, that is, in ownership terms. For instance, an ecological classification of the land sub-system of a village would divide its land 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