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Urbanization Vol. 1, No. 2 for more details). It also includes additional information on the history of the Chipko movement drawn from Hugging the Himalayas - the Chipko Experience, edited by Shishupal Singh Kunwar.

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The Chipko Andolan: forest conservation based on people's power

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I. INTRODUCTION

THE CHIPKO ANDOLAN has become famous for its work to prevent the destruction of forests. The movement began in the Uttarakhand region of the central Himalayas and has been active throughout the 1970s and 80s. The paper discusses the development of *Chipko Andolan* and its relationship to other community groups within the region. It also looks at the background to the *Chipko Andolan* and the motivation for its work.

II. THE FORESTS OF INDIA

AT LEAST A third of the area in a country should normally be under forests. Only then can environmental problems be solved. In India, forests do not cover even half of the required area, and even the remaining forest area is declining rapidly because of growing industrial and urban demands. Satellite pictures prove that India is losing forests at the rate of 1.3 million hectares a year. These figures are eight times those given by the Forest Department. ⁽¹⁾

Not only are our forests being logged, but forest land is also being used for various "development" projects such as dams, river valley projects, industries, roads and agriculture. Between 1951 and 1975-76, 4.2 million hectares of forest land was used for these projects, despite the fact that forest area per person in India is now only 0.14 hectares. The demand for forest products is increasing geometrically. This is a frightening situation and it shows why it is so important to protect the remaining forest vegetation.

The government itself is a culprit in the exploitation of forests in the name of so-called welfare. Destruction continues in the name of development. Most villagers in the Third World have a lifestyle that is largely dependent on forests. Their daily needs for energy, fodder for animals, and wood for huts and homes are all met by forests. Even today, village people use mainly wood as their source of fuel for cooking. People living in villages and backward areas now have to walk miles to collect wood. In the Himalayan areas of Uttar Pradesh, forests have receded so far away from villages that women have to leave home as early as four o'clock in the morning to fetch wood and they return late at night after long journeys, up and down hills, with a load of 25 to 30 kilogrammes. This problem is becoming more and more acute.

Nobody is paying attention to the warning of Mahatma Gandhi: "Nature has enough for everybody's need but not for everybody's

1. Centre for Science and Environment (1984-85), *The State of India's Environment*.

greed." In this race to obtain raw materials, full use is being made of the earth and its protective elements such as forests and vegetation, and today the situation is such that the forests have almost disappeared from the earth. Because of this, village people not only face acute shortages of firewood, fodder, building wood and raw materials for village industries, there is also the prospect of climatic changes and an increase in the fragility of natural ecosystems, with soil erosion, and air and water pollution posing a threat to humankind. It is now being widely understood that we must not only protect the remaining forests but also bring about a rapid growth of forests worldwide.

Government officials in India claim that their forestry is based on scientific principles. The Forest Department has been talking about forestry science for a long time. But the declining area under forests has made it evident that this forest science has not proved to be very successful for forest conservation. The working plans of forest departments have not proved very practical. This has come to be widely understood over the last 15 years.

III. THE ORIGINS OF *CHIPKO* - THE UTTARAKHAND REGION

ONE RESULT OF the shortcomings of government policy was the birth of *Chipko Andolan* (which literally means the "movement to embrace"; should anyone try to fell a tree, the *Chipko* agitator threatens to hug it). The people of the economically backward Uttarakhand region, situated in the central Himalayas, raised their voice for the first time through the *Chipko* movement, to say that their life and livelihood is mainly dependent on forests. Their relationship with the forests operates on two levels - first, through the maintenance of the ecological balance and second, through traditional practices.

The Himalayan region is characterized by high mountains and valleys, with different types of vegetation, flowers, pastures and glaciers. This is one of the most beautiful areas in the world. It keeps the atmospheric circulation in balance over a large part of the Indian subcontinent. This region also gives rise to the Ganga-Yamuna river system with tributaries such as the Bhagirathi, Alakananda, Sharda and others. These rivers are born out of glaciers. As they pass through forest-covered mountain valleys, they collect water from hundreds of streams before they enter the plains to become the source of life for millions of people. The rainwater from these forests is released gradually over the year to the rivers. The forests help prevent soil erosion and the food system also depends on these forests.

A disruption in this interrelated system will result in a direct impact on the food and water systems of the people. On the one hand, forests are central for maintaining a balance in the physical environment. On the other, the focal point of the ecological system - the human being - is directly dependent on the forests. Various products such as firewood and timber, grass, vegetables, honey, medicinal herbs and fruits come from forests, and agriculture and animal husbandry are also dependent on forests. For these reasons, the ecological balance and traditional human relations with forests are so intertwined that it is difficult to view them separately.

In the last three decades, the heavy destruction of forests has

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degraded not only the natural environment but also the daily life of villagers. There was discontent among the people with regard to deforestation prior to the 1960s, but they received their biggest shock in this decade, when trees were cut on a large scale. This increased the intensity of the 1970 flood in the Alakananda river, which swept away six bridges, 16 footbridges and 25 buses. Hundreds of people and animals died. In 101 villages, 604 houses and 500 acres (202.3 hectares) of crops were destroyed. Roads were blocked. In Srinagar (Garhwal), 100 kilometres from Chamoli, the ground floor of the Indian Telephone Industries building was flooded and a six-foot layer of silt deposited there. Similarly, 300 kilometres away, the Upper Ganga canal was silted two to three metres deep for a length of ten kilometres. The canal was closed and crops in an area greater than 380,000 hectares were affected. More than Rs ten million was spent on desilting the canal and several million rupees worth of direct and indirect damage took place. The exploitation of forests only yielded an income of Rs 1 million over the entire decade. Despite this, exploitation of forests for commercial purposes continued and no thought was given to stopping it or reducing its rate.

In the end, a committee of experts under Dr Virendra Kumar, following the *Chipko Andolan* in Reni, agreed that the issues raised by the villagers were scientifically correct, and forestry based on so-called forest science was wrong. The Forest Department's working plans, prepared and supported by its technical experts, were thus challenged by ordinary village people and proved wrong. This brought the *Chipko Andolan* to the notice of environmentalists and the government, and today it is known in many parts of the world. The *Andolan*, which started by saving the forests, continues to insist on the need for conservation of forests and draws the attention of the government to it.

In his broadcast to the nation in January 1985, Prime Minister Rajiv Gandhi, keeping in mind the need for forests and wastelands development, announced: "The increasing decline in forests is bringing upon us various environmental, social and economic dangers. This trend will have to be stopped. I propose the immediate establishment of a National Wastelands Development Board which will meet the target of afforesting 5 million hectares of wastelands with fuel and fodder trees. We will start a people's movement for afforestation." This is a clear indication of the need to begin afforestation.

Although the Forest Department has come to acknowledge the *Chipko* movement, it has not been able to develop a forest conservation and development policy based on these principles. This is why there is no correlation between the actual statistics of afforestation and those on paper. Despite all the rights, privileges, means and technical knowledge available to the Forest Department, the survival rate of trees planted by them is far lower than for those planted by the people's will and power. The main reason for this is that government programmes make no attempt to seek the participation of people in practical ways. We even find cases where the people oppose official afforestation and forest conservation efforts. If the people are not taken into the government's confidence and their aspirations not taken into account in the development of the very forest on which their lives are dependent, they do not respond to these programmes. On the contrary, all programmes thrust upon the people are rapidly leading to disputes over land and the villagers are refusing to co-operate.

No plan for afforestation can succeed without people. Those living next to forests must love and respect these areas

IV. AFFORESTATION AS A PEOPLE'S MOVEMENT

THE CHIPKO ANDOLAN believes that the development and conservation of forests is not possible simply by making laws or passing prohibitory orders. A survey of Asian forests clearly reveals that their degradation is the direct result of government policies.

On the one hand, the government's forest conservation policy allows the sale of forest produce in international markets and metropolitan centres at competitive prices. On the other, people living in forests have lost their rights. We must recognize the fact that forests are a basic need - villagers cannot be separated from their forests. Even if we forget all the other needs that forests meet for the moment, we cannot stop people from cutting firewood until appropriate, simple, cheap and acceptable alternative means for cooking can be found. We will have to plant many more trees than are being consumed. Gobar gas plants (producing biogas fuel from the anaerobic decomposition of organic matter) can be established as an alternative to the use of firewood. In the same way, wherever adequate water sources are available, a series of micro-hydel units (miniature hydroelectric stations) could be set up in the mountains.

Of all these alternatives, afforestation is the simplest. It will not just solve the energy crisis but will also help to maintain the ecological balance and control the ravages of soil erosion, landslides and floods. Humankind will be liberated from the threat of ecological destruction that it faces today.

Chipko believes that the only way out is to create an awareness based on people's education. No plan for afforestation can succeed without people. Those living next to forests must love and respect these areas. Their interests must coincide with those of the forests themselves. All this will only be possible when the economic interests of people are associated with the forests. They must realize that forests are the basic foundation of their current living standards, and that their survival will be at stake once the forests disappear.

In the Himalayas and all those areas where the pivot of the family is the woman, women must be made partners in the protection and development of forest wealth. Women are more sensitive towards forests because, in these areas, they have a more direct relationship with them. The *Chipko Andolan* has always seen women at the forefront of the struggle.

V. DEVELOPMENT OF PEOPLE'S CONSCIOUSNESS

THE MOUNTAIN PEOPLE had experienced problems for many decades: they lacked farmland and jobs and had suffered under the government's oppressive forestry policy. Despite the people's dependence on land, the government restricted their use of huge areas, auctioning off the trees to lumber companies and industries from the plains (a practise they inherited from the British colonialists). Because of these restrictions and an ever-growing population, the mountain women had to walk hours each day just to gather fuel and fodder.

Box 1: Six Principles of *Chipko*

Chipko activists have prepared a six-point memorandum of demands. This memorandum asks the government to undertake the development and conservation of forests in tune with both the needs and expectations of the people living in and near forests, and with the needs of the forests themselves.

- 1. It is important to understand what the forest itself wants. The *Chipko* volunteers believe that in a particular geographical situation, only specific trees and vegetation should be grown, so that appropriate needs for fertilizer, soil, water and energy can be met. Until the forest is able to take care of its own survival, it needs the support of human beings for its protection. Even more important is that there should be a detailed analysis of the social and economic conditions of the people living in the forest areas. It is axiomatic that only people living near forests can establish a practical and harmonious relationship with the forest - no-one else can do it. The traditional relationship of the local people with their forests should also be carefully observed. Detailed analysis on these issues will help establish the type of forestry required.**
- 2. The *Andolan* demands that areas affected by landslides and soil erosion, or where forest areas are crucial for conservation of water resources, should be identified and reserved.**
- 3. The minimum needs of people living next to the forests, who have been customarily using them for their survival and their village economy, should be established and the administration should be such that these rights are exercised easily by them.**
- 4. The contractor system should be completely stopped in forest conservation, development and exploitation and, instead, people living in forest areas should be organized to undertake all these activities.**
- 5. Trees which are of use to villagers should be planted near the village so that village people do not need to go into the reserved areas.**
- 6. Village industries should be set up, based on minor forest produce, to enable the local population to find jobs and to reduce migration from villages.**

In 1962, the border war between China and India broke out and this brought drastic changes to the Uttarakhand. Although the region was not involved in the fighting, the Indian government became conscious of all of its borders with China. The region was identified for rapid economic development and road building began throughout the area. Towns grew and migrant workers arrived from the plains. Forest operations increased as new roads brought remote forest areas within easy reach of the contractors and lumber companies.

But the mountain people did not benefit from this development. The construction work was awarded to the contractors from the plains who brought with them their own skilled workforce. The mountain people were paid very little for only menial labour. In response to this, some local workers from Gopeshwar and surrounding villages organized a labour co-operative with 30 full-time and 700 part-time members. The co-operative bid for some road

contracts and carried these out successfully, paying its workers twice what they would have received from outside contractors. But the co-operative started to have problems in obtaining sufficient work and, refusing to bribe the government officials, decided to stop building roads.

The workers formed a new organization, the *Dasholi Gram Swarajya Sangh* (now the *Dasholi Gram Swarajya Mandal* - Dasholi Society for Village Self-Rule; Dasholi is the administrative district centred around Gopeshwar). The purpose of the *Mandal* was to start small industries based on the resources of the forest, and its first project was a small workshop making farm tools for local use. The workers began bidding in government auctions for forest lots and won several contracts. Within a few years the number of full-time workers had grown from 30 to over 200. But they soon faced unfair competition from the large lumber companies who overbid on the lots and then made up their profits by illegally cutting trees.

Next, the co-operative tried buying and marketing herbs. Herbs had previously been sold to people living in the plains by traders who made outrageous profits on the resale. The *Mandal* paid much higher prices to the gatherers and even forced up the prices paid by other traders. Then the workers set up a processing plant to make resin and turpentine from pine sap - this was one of eight plants being set up in the area with the help of the federal government.

The floods in 1970 gave a new and critical dimension to the work of *Dasholi Gram Swarajya Mandal*. The *Mandal* workers organized a relief operation, reaching mountain villages marooned by the flood. During this operation they talked to the villagers about the likely causes of the flood, and made their own observations. It became clear that the chief cause was the clear-cutting of mountain slopes by the lumber companies. Clear-felled mountain slopes meant that the soil on the slopes was washed away by the rains or fell in landslides. Much of this soil was deposited in the river, raising its bed and forming temporary dams which then burst under pressure.

Clear-cutting was the main problem but there were other causes. Road building often resulted in landslides because proper construction methods were not used. And the mountain people themselves, unable to get access to large areas of the forest and unaware of the effects of their actions, had bared many slopes by overgrazing and gathering.

The contracting system became the first target of DGSM. It was demanded that the local people should have the first right over their forest wealth and should be associated with forest management.

The *Chipko* movement was born one morning in March 1973. A team of representatives and contractors from a sports factory reached Gopeshwar to cut ash trees which had been allotted to them by the State Forest Department. (Not long before, the DGSM had been refused permission to fell trees in a nearby forest for the manufacture of agricultural implements in its local workshop). The villagers courteously gave the contractors accommodation in their rest house, as there was no other in the village, but told them they should not try to cut the trees. The contractors, however, persisted with their intentions. At the village meeting in the evening, one villager argued that "a mother saves her child from the tiger by hugging the child to her breast, to take upon herself the wrath of the tiger." The people at the meeting resolved to cling to the trees to prevent them from being cut.

Some weeks later, the contractors returned to Gopeshwar with a

marked allotment from the Forest Department. As soon as the villagers of Gopeshwar learnt of this, they marched to the Mandal village with drums and songs, gathering more people along the way. When they reached the forest with the marked trees, they held a rally of about 100 people. A confrontation ensued and the agitators hugged the earmarked trees to foil the contractors. Confused, the contractors retreated.

The Forest Department offered to let the *Mandal* workers have one tree in return for allowing the contractors to cut their full quota. This was refused and the Department increased the offer but the *Mandal* workers were unwilling to allow the company its quota despite being promised access to more trees. The company's allotment was seen as a symbol of an unjust forest policy that cared more about outside business than about the people who lived in the forest. Finally, the government gave in, the company's permit was cancelled and the trees assigned to the *Mandal* instead.

Later the same month, the *Mandal* workers learnt that the same contractors had been offered trees in Phata forest, another part of the district. The villagers formed an action committee which organized a continuous watch over the approach to the forest. The contractors, who were at the site, observed these preparations and, after a few days, once again retreated from the area. However, their permit was valid for six months and, in December, the contractors returned with a new strategy. Representatives from the company visited the villagers, threatening them with the law if they tried to stop the tree felling and claiming that the *Chipko* leaders were only looking for bribes from the company. The *Chipko* leaders called a meeting and invited the contractors to present their viewpoint. The agents tried to intimidate the people with threats and insults but the villagers remained firm in their resolve to protect the trees.

As the meeting ended, word spread that the government was to show a movie in a nearby town. Many villagers and *Chipko* workers went to see it but, on arrival, found the film had been cancelled. The mountain buses had stopped running by that time and the people remained overnight in the town. The next day, on their return to the village, they heard that workers with axes and saws had gone into the forest. Immediately, the villagers organized a march. As they approached the area of the forest where the trees were being cut, the contractors' workers ran away leaving five fallen ash trees. The villagers were determined that the company should not remove any timber. Immediately, they set up a round-the-clock watch. The contractors tried to take the trees and to continue felling but were forced to retreat by the people. A week later their permit expired, before they had removed a single tree.

The *Chipko* movement reached a climax when women in the village of Reni became involved in a dramatic way. Months after a second major river flood, the Forest Department announced the auction of almost 2,500 trees in the Reni forest overlooking the Alakananda River. *Chipko* workers went and talked to the villagers, explaining how the trees could be saved. The government auction took place in January 1974. The *Chipko* workers tried to warn the government and lumber companies both about the danger to the region from floods and landslides, and about the resistance of the *Chipko* workers, but they were ignored. The trees were sold and the *Chipko* workers waited in Reni for the first timber workers to enter the area.

A week later the government made a surprise announcement. It

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would pay the villagers for the land taken for military purposes after the war with China. The villagers had been waiting for this money for 14 years and immediately the village men rushed off to the nearby town of Chamoli to collect the money. The same day, *Chipko* workers and students were detained at Gopeshwar and Joshimath to meet officials of the forest departments bordering Reni. Later that morning, a bus with contractors and Forest Department officials was driven towards Reni forest.

Undaunted by the number of men, the women of Reni, led by their head, Gaura Devi, an illiterate lady of 50, barred the way to the forest, singing: “This forest is our mother’s home, we will protect it with all our might.” They told the lumberjacks: “If the forest is cut, the soil will be washed away. Landslides and soil erosion will bring floods, which will destroy our fields and homes, our water sources will dry up, and all the other benefits we get from the forests will be finished.” The women confronted the men and blocked the path to the forest.

Over the next month, rallies were held at this site and a constant watch was maintained over the forest. The campaign received widespread publicity and there was pressure from other parts of India for the protection of Reni forest. Eventually, the government responded by setting up a committee of experts to investigate the situation. Two years later, the committee made its report. It agreed with the *Chipko* movement that the forest was a sensitive area and that no trees should be cut in any part of a large section of the Alakananda watershed. The government responded to the report by banning the felling of trees in an area of over 450 square miles (1,200 square kilometres) for ten years. The women of Reni had successfully saved 2,451 trees from the Reni forests.

Likewise, in 1975, 200 women from Gopeshwar waged a struggle against the district authorities to save their oak trees. From December 1977 to March 1978, a movement was started at Chacharidhar to protect 10,000 trees in the catchment area of Gagas. In January 1978, the women of Bhyundar village, situated in the lower reaches of the world-famous Valley of Flowers, successfully resisted the felling of their forest to provide fuel for Badrinath temple. They went into the forest to protect it, braving heavy rain. On February 16th 1978, at Damargarh in Chamoli district, the auctioning of the trees was stopped. Similarly, on January 25th 1979, the marking of trees in three compartments in Chamoli district was stopped. On November 23rd 1979, the DGSM threatened to resort to *Chipko* tactics at Jolla Kalyari in the catchment area of the Pinder river. On January 16th 1980, commercial felling was stopped after DGSM activists, officials from the Forest Department and the local people collectively surveyed the area.

The *Chipko Andolan* has made forest administrators realize yet another weakness in their planning: the fact that women are never involved in forest protection. In February 1980, the women of Dungri-Paitoli villages, situated in an extremely remote region of Chamoli, launched *Chipko*. They asked the district authorities a simple question: “When we undertake all the work related to forests, why was our opinion not taken when it was decided to auction these forests?” In this village, the village councillors, who were all men, had unanimously surrendered their oak forest to the government. The area was to be converted into a potato farm; the government’s Horticulture Department had also, without using any intelligence, made plans to cut down the forests. But the Dungri-Paitoli women saved them. The women of Dungri-Paitoli village sought the help of

Box 2: The Chipko Philosophy

The ecological issues in the *Chipko* movement are vital, but *Chipko* is still more than an ecology movement. The main goal of the movement is not to save trees but to ensure the right use of the forests. The movement continues to press for a complete remaking of forest policy. Besides the protection of sensitive mountain slopes, the movement demands that the resources of the mountain forests benefit the mountain people by providing jobs and supplying survival needs. And the movement insists that the mountain people be given an active part in managing their own forests.

The *Chipko* movement does not want to save all the benefits of the forests for the mountain people. The *Chipko* people respect the needs of those in the plains for the products of the Uttarakhand forest but they insist that even those needs can be better met if the forests are managed by those who live among the forests and care for them. For, in the end, the issues of ecology and community rights to resources are closely intertwined. In the Uttarakhand - as often elsewhere - outside control of resources has meant their irresponsible use and gradual destruction.

Source: "Chipko: North India's Tree Huggers", Mark Shepherd in *Hugging the Himalayas - the Chipko Experience*, edited by Shishupal Singh Kunwar.

DGSM to protect their oak forest. On February 9th 1980, the women threatened to launch the movement and on February 18th, the forest felling was stopped. The following month, forest felling was banned.

Recently, 200 women of Bached village intervened to stop the logging of 1,600 trees in the Thantri forest near Gopeshwar which were being felled to meet the fuelwood needs of towns. The women said that even if these dead trees were cut, it would lead to soil erosion because of logging practices, and their own hearths would remain cold.

The threat to "hug the tree" has turned out to be so potent that, until now, in each of their confrontations with forest officials and contractors, except in one solitary case, the *Chipko* agitators have been able to get their way merely by stating their threat. These confrontations have been further followed up by protest fasts, and women and student demonstrations in all important hill resorts in Uttar Pradesh. The state government has conceded a wide variety of demands, despite the large annual revenue it earns from forest auctions. A committee was set up to assess the extent of damage that past policies have already done to hill forests, so as to decide whether further forest auctions should take place. Tapping of resin from pine trees has been banned in several valleys for at least a year, and the felling of oak and rhododendron has been banned over the entire state for an indefinite period.

Chipko has always insisted that all those who talk about the welfare of humankind while talking of forests must also think of the welfare of those living near the forests. The alienation of people living near the forests will not help save the forests and the adverse effects of deforestation will have to be suffered by all living beings. Integrated programmes for forest dwellers must be formulated, recog-

nizing them as the lead actors in bringing about ecological harmony.

Since 1975, the *Chipko* workers have not only been protecting forest slopes but they have been restoring bare ones as well. In 1978, they planted about 100,000 trees, covering 1,200 acres (480 hectares). Through this work, they discovered the trees and planting techniques which work best in the region. The *Chipko* workers are also trying to develop methods of forest farming for their region, both to conserve the forest and to create employment.

VI. EXPERIENCES OF DASHOLI GRAM SWARAJYA MANDAL

THE DASHOLI GRAM *Swarajya Mandal* (DGSM), the mother organization of the *Chipko Andolan*, has been successful in understanding the psychology of the villagers. Other than its participation in the *Chipko* movement, the DGSM has been active in making villagers understand the importance of forests and in seeking their active participation in afforestation and conservation.

It organized a series of ecocodevelopment camps in the areas seriously affected by landslides and soil erosion in the Alakananda watershed in the Central Himalayas. These camps prepare the villagers psychologically to recognize the importance of forests as the foundation of their future growth, without which all their economic, social and traditional values would be at stake. Once they come to accept this, the villagers participation is automatic.

Under the leadership of the DGSM, dozens of camps are organized every monsoon and winter, in which people participate with great keenness. Educational discussions are held and people donate their labour to plant trees. The impact of these activities has steadily spread from one village to another. Women are the main participants as well as scientists, young people, students and voluntary workers.

The camps begin with local songs dealing with forest protection and discussions on local problems and their solutions. All participants take part. Voluntary labour is an important aspect. Drums and various local instruments are played while the people work. They go to the tree planting sites singing and shouting slogans. Barren land lying waste around the villages is greened by planting trees, chosen by the village women, to meet local needs. Plants are given water and compost. During the five to ten days that the camps last, the village has a festive atmosphere. Women from distant villages also participate and learn from each other's experiences.

The survival rate of saplings is high, over 80 per cent, and in some cases as much as 95 per cent. This is because the villagers take pride in these trees and take care of them collectively. The forest, once protected, begins to provide fodder in just six months. This is then distributed, according to local custom, after consulting every family. There is thus no dispute nor any recourse to law. In the same way, improved *chulhas* (stoves) to save energy and reduce smoke are being built in village homes as part of a people's movement. Women play a major role in these camps. Women's organizations in villages often remain very informal. Programmes have not been thrust on them from above. In some places, these organizations are extremely active and have tackled the problems of basic needs such as fuelwood and fodder.

DGSM encourages people's participation and sometimes provides technical and some financial assistance. The volunteers educate people through these camps and try to get the decisions taken by the people implemented. These experiences have given DGSM workers a good insight into the environmental history of the region. It is with this understanding that the volunteers encourage the people to become self-reliant on the basis of their own experience. As an experiment, DGSM has started promoting agro-forestry as a means of improving soil and water conservation in two dozen villages along the Alakananda river and its tributaries. This area was most affected during the 1970 flood and wild animals always destroy crops there. DGSM has encouraged people living in these watersheds to protect their fields with stone walls, at very little expense. Walls are constructed at a short distance from the fields and in the space between walls and fields, grass and fuel, fodder and fruit trees are planted, with their use being determined by the villagers. Crops have been saved from wild animals and villagers have reaped the benefit of their labour.

Soil erosion around the fields has also been prevented. Villagers who had to journey miles to fetch grass for their animals can now obtain it near their own fields. This is a matter of great satisfaction to them and this programme is being taken up with great enthusiasm in other villages too.

In many places, villagers themselves have come forward to take up such programmes. Impressed by the success of these rural people's participation, Dr M S Swaminathan, former member of the Planning Commission, suggested that the government should also assist in these programmes: thereafter, the Planning Commission provided funds. In recent years, the Department of Environment has also been funding ecodevelopment camps.

This experience makes us say with confidence that people are keen to take part in development work. But they have to be prepared for it. It has been a great weakness of our planning that we have not been able to develop and use the willpower of the people.

VII. CONCLUSIONS

SOCIETY MUST BECOME a partner in forestry. Governments must realize that the human pressure on forests has increased so much that forests have disappeared near human settlements (see Box 3). Forest lands are lying barren, while people have to go far into government forests to meet their needs. People want to be liberated from this situation and want forests of their own, into which they can go as a matter of right. They do not want to fight all the time or be humiliated.

Programmes should be such that every village - and if possible, every family - can have trees of its own. The government controls the forests around many villages. Such forests should be taken away and handed over to village communities. The money allocated for village forests should not be given to government departments but to village councils and voluntary agencies situated in the villages. Every four or five villages should have a Forest Department worker who can assist the villagers to meet their needs.

It is also important that those varieties of plants be provided which match local needs and ecological conditions, and that afforestation is taken up as a people's movement. Planning will have to

Box 3: Environmental Degradation in India and the Search for Fuel

"Energy surveys in the country show that in an average semi-arid village, a woman walks as much as 1,400 kilometres a year - the distance from Delhi to Calcutta - to collect firewood alone. . . The situation is much worse in hill and mountain regions such as the Himalayas and in the arid regions of Rajasthan and Gujarat.

"As firewood becomes scarce, people scrounge around for cow dung - a valuable source of manure which literally goes up in smoke. But today even cow dung is scarce.

"Given the energy crisis, people improvise in a thousand different ways to collect this very basic need of cooking energy. In many places, crop residues such as *arhar* sticks and cotton sticks are being used increasingly for fuel. But with a difference. Crop residues, unlike most trees and weeds, are a private resource. . . And today they are being used as a bargaining counter by the landed. In Jalna district in Maharashtra, where cotton sticks are an important fuel, we were told that landowners had refused to increase farm wages by threatening to stop giving the free supply of cotton sticks to the labourers. In many other places today, crop wastes are given in place of wages.

"With the original vegetation gone, new weeds are taking over the ground. . . In tribal Bihar, *Lantana* is stored for use as fuel. But the *Lantana* shrub is so thorny that cutting it is no easy task; it lacerates the hands of the poor person who has to collect it, driven by the need to use it.

"In West Benegal. . . the devastation is so complete that even walking miles does not help. So people have no option but to burn leaves. Every morning, women walk to the nearby forest and literally sweep the ground with brooms to collect every single fallen leaf to take home. But these bundles of leaves, after hours of back-breaking work, will disappear in cooking just one meal. Leaves are such poor quality fuel that women are forced to shove in leaves every minute to keep the fire going. The situation. . . is so bad that we found a four-month old plantation. . . being swept clean by young girls.

"As the environment degrades, women have to spend an extraordinary amount of time foraging for basic household needs such as fuel, fodder and water. It does not matter whether they are young, old or pregnant. There are no Sundays or holidays. It is a job which takes place, day after weary day, year after weary year."

Source: "Between Need and Greed - the wasting of India; the greening of India" (1987), Anil Agarwal in *The Fight for Survival - People's Action for Environment* edited by Anil Agarwal, Darryl D'Monte and Ujwala Samarth, Centre for Science and Environment.

be undertaken at the village level itself, so that people participate in forest conservation in a practical way.

Today, the impact of deforestation on the ecological balance is not restricted to a particular area or country. This is a worldwide problem. It can be solved only with the participation of the common person.