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The INTACH Environmental Series

CHIPKO

India's Civilisational Response to the Forest Crisis

Vandana Shiva
Jayanto Bandhyopadhyay

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THE INDIAN NATIONAL TRUST FOR ART AND
CULTURAL HERITAGE
71, LODI ESTATE, NEW DELHI-110 003

First impression, 1986

The views expressed in this paper are not necessarily those of the organisations with which the author is associated.

Cover design : PAGE Consultants

Printed at Indraprastha Press (CBT), Nehru House, Bahadur Shah Zafar Marg
New Delhi - 110 002

Forests in India were always central to the evolution of her civilization. Forest-based ashramas (settlements) produced the best scientific research and cultural writings, and India became known as an Aranya Samskriti, or a forest culture. Human understanding of the fundamental ecological utility of forest ecosystems and their economic importance led to trees being treated with respect and veneration. This basic dependence on the existence of forests for human survival was the reason for the worship of trees in almost all human societies. In the Rig Veda, the forest is described as Aranyani, or mother goddess, a deity that takes care of wildlife and ensures that food is available for man. Ashramas and forests, not urban settlements, were recognized as the highest form of cultural evolution, providing society with both intellectual guidance and material sustenance. Forest dwelling saints were given high respect as a recognition of their intellectual capabilities.

India's forest wealth is characterized by a diversity of soil types and climates. Moist tropical evergreen and semi-evergreen forests are characteristic of the western ghats and the north-eastern region. Tropical dry deciduous forests occur in the north and south with sal being the dominant species in the north The Himalayan region has a diversity of moist and dry temperate forests that change into alpine vegetation at the highest altitudes. In each region of India, special attention was devoted to the growth of village forests that contained multi-purpose tree species providing fuel, fodder, fruits, fibre, green manure, etc. The ecological role of forests in soil and water conservation was widely recognized, and the social control on the felling of trees in ecologically sensitive areas such as riverbanks was strictly enforced.

Religious beliefs about trees were woven around their central ecological and economic role in supporting human survival. Forests, like all other vital common natural resources like water, were managed by village communities to satisfy basic needs as well as to ensure sustained productivity. In case of over-exploitation, heavy fines were imposed. If the over-exploitation was done by the pow-

ers that be, common people rose in resistance to save their trees, as was the case of the Bishnoi community which sacrificed 363 lives while resisting the felling of vital multipurpose khejri trees by the axe-men of the King of Jodhpur (Bishnoi, 1986).

Forest conflicts and the Chipko movement

In independent India this mode of non-violent resistance to destructive development was revived as the "Chipko" or "Embrace the Tree" movement in continuity with the Indian tradition of resolving conflicts through non-violent non-cooperation. The conflicts and tension from which the famous Chipko Movement has emerged can be traced historically to the drastic changes in forest management and utilisation introduced in India during the colonial period. Large tracts of natural forests were traditionally maintained through careful husbanding by local communities; village forests and woodlots were also developed and maintained through the deliberate selection of appropriate tree species. Remnants of commonly managed natural forests and village commons still exist in pockets and these provide insights into the scientific basis underlying traditional land management in India (Moench and Bandyopadhyay, 1986).

The colonial impact of forest management undermined these conservation strategies in two ways. Firstly, changes in land tenure, such as the introduction of the zamindari system, transformed common village resources into the private property of newly created landlords, leading to their destruction. The pressure of domestic needs, no longer satisfied by village forests, was therefore diverted to natural forests. Secondly, large-scale felling in natural forests to satisfy non-local commercial needs, such as ship-building for the British Royal Navy and sleepers (railroad ties) for the expanding railway network in India, created an extraordinary force for destruction. After about half a century of uncontrolled exploitation, the need for control slowly became apparent. The formation of the forest bureaucracy and the reservation of forest areas was the colonial response to ensure control of commercial forest exploitation as a means to maintaining revenue. Forest conservancy was directed at the conservation of forest revenues and not at the forests themselves. This narrow

interpretation of conservation generated severe conflicts at two levels. At the level of utilisation the new management system catered only to commercial demands and ignored local basic needs. People were denied their traditional rights which, in some cases, were re-introduced as concessions and privileges after prolonged struggles (Bandyopadhyay, et al., 1984). At the conservation level, since the new forest management was only concerned with stable forest revenues and not with the stability of forest ecosystems, ecologically unsound silviculture practices were introduced. This undermined the biological productivity of forest areas and transformed renewable resources into non-renewable ones (Nair, 1985).

The reservation of forests and the denial of the villagers' right of access led to the creation of resistance movements in all parts of the country. The Forest Act of 1927 intensified the conflicts and the following years, during the 1930s, witnessed widespread forest satyagrahas as a mode of non-violent resistance to the new forest laws and policies.

Satyagraha: a non-violent mode of conflict resolution

Satyagraha, in the Gandhian view, was the use of non-violent resistance as a political weapon in place of the force of arms. Unlike many other well-known political philosophies, Gandhism has never been seen to be strictly materialist. In the absence of such overt categorization, Gandhian philosophy usually has been assumed to be based on subjective, idealist or moral forces, rather than objective or materialist ones. Accordingly, the most important political weapon used in Gandhian movements, satyagraha, has always been mystified as an emotional force without any materialist base. A closer socio-historical evaluation is needed to demystify the image of Gandhian satyagrahas and to establish the material basis of Gandhian movements such as Chipko.

The power of satyagraha in the form of non-cooperation, has been a traditional mode of protest against exploitative authority in India. In Hind Swaraj, Gandhiji wrote that through satyagraha he was merely carrying forward an ancient tradition : "In India the nation at large had generally used passive resistance in

all departments of life. We cease to cooperate with our rulers when they displease us."

The dominance of the use of moral force was not, however, an indicator of the non-material objectives of these movements. The strong material basis of Gandhian movements becomes clear after a detailed analysis of concrete issues and contradictions, in the settlement of which satyagrahas were taken up. Satyagraha was used by Gandhiji against systems of material exploitation which were the main tools for profit-making by the British, and in which was rooted the material under-development of the Indian people. It was used in Champaran to save Indian peasants from the compulsory cultivation of indigo in place of foodcrops. It was used in Dandi and in other parts of the country to protest against the exploitative Salt Law. It was used to safeguard the interests of weavers who were pauperized by the unequal competition with mill-made cloth from Europe. It was used by forest movements to resist the denial of traditional rights. Unfortunately, inspite of the fact that Gandhian satyagrahas were used to oppose the economic system that created material poverty and under-development, they have usually been described and understood as non-material and spiritual transformations. This common perception of Gandhian movements as unrelated to the material contradictions in society is completely misplaced. The subjective and spiritual nature of the force of satyagraha has systematically been confused with the material and objective contradictions in society against which the force was used.

The concept of class contradiction between the working class and the capitalists has dominated attempts at analysing class relations in contemporary Indian society. Mechanical application of such a view obviously made it impossible for classical analysts to understand the ramification of class conflict beyond the shop floor. Gandhiji has focussed his attention on these more fundamental and severe material contradictions in Indian society since he understood the problem of the invisible and marginalized majority in India. The material basis for the survival of this marginalized majority was threatened by the resource demands of the industrial production system introduced into India by the British. In this manner, without making any claims about being

materialistic, Gandhiji politicised the most severe material contradictions of his time.

From forest satyagraha to Chipko

With the introduction of the Forest Acts of 1878 and 1927, the access and the rights of people to forests were severely encroached upon. The following years witnessed the spread of forest satyagrahas throughout India as a protest against the reservation of forests for exclusive exploitation by British commercial interests, and its concommitant transformation of a common resource into a commodity. Villagers ceremonially removed forest products from reserved forests to assert their right to satisfy their basic needs. The forest satyagrahas were especially successful in regions where survival of the local population was intimately linked with access to the forests, as in the Himalaya, the western ghats, and the central Indian hills. These non-violent protests were suppressed by the British. In central India, Gond tribals were gunned down for participating in the protests. On May 30, 1930, dozens of unarmed villagers were killed and hundreds injured in Tilari village, Tehri Garhwal, when they gathered to protest the Forest Laws of the rulers in Tehri. After enormous loss of life, the satyagrahis were successful in reviving some of the traditional rights of the village communities to various forest products (Shiva and Bandyopadhyay, 1986).

This, however, did not mean that satisfaction of the basic requirements of the people or the ecological requirement of natural processes in the forests replaced the revenue maximizing objectives as the guiding principle of British forest management in India. Furthermore, the objective of growth in financial terms continues to direct contemporary forest management even in post-Independence India with greater ruthlessness, since it is now carried on in the name of "national interest" and "economic growth". The cost of achieving this growth has been the destruction of forest ecosystems and huge losses to the nation through floods and droughts. In ecologically sensitive regions, such as the Himalaya, this destruction has threatened the very survival of forest-dwelling communities. The people's response to this deepening crisis has emerged as non-violent Gandhian resistance: the Chipko

Movement. Beginning in the early 1970s in the Garhwal region of Uttar Pradesh, the methodology and philosophy of Chipko has now spread to Himachal Pradesh in the north, to Karnataka in the south, to Rajasthan in the west, to Orissa in the east, and to the Vindhyas in central India (Bahuguna, 1985).

Legacy of forest movements in the Garhwal Himalaya

Forest resources are the critical ecological elements in the vulnerable Himalayan ecosystem. The natural broad-leaved and mixed forests have been central in maintaining water and soil stability under conditions of heavy seasonal rainfall. They have also provided the most significant input for sustainable agriculture and animal husbandry in the hills. Undoubtedly, forests provide the material basis for the whole agri-pastoral economy of the hill villages. Green leaves and grass satisfy the fodder requirement of the farm animals whose dung provides the only source of nutrients for food crops. Dry twigs and branches are likewise, the only source of domestic cooking fuel. Agricultural implements and house frames require forest timber. Forests also provide large amounts of fruit, edible nuts, fibres and herbs for local consumption.

During the nineteenth century a third demand was placed on these forest resources of Garhwal. In 1850 one Englishman obtained a lease to exploit all the forests of the Kingdom of Tehri Garhwal for the small annual rental of Rs. 400. Under his axe several valuable *deodar* and *chir* forests were clearfelled and completely destroyed (Raturi, 1932). In 1864, inspired by his flourishing timber business, the British rulers of the north-western provinces took a lease for 20 years and engaged him to exploit the forests for them. European settlements, such as Mussoorie, created new pressures for the cultivation of food crops, leading to large-scale felling of oak forests. Conservation of the forests was not considered. In his report on the forests of the state, E.A. Courthope, IFS, remarked: "It seems possible that it was not mainly with the idea of preserving the forests that government entered into this contract" (Raturi, 1932). In 1895 the Tehri State took the management of forests into its own hands when they realized their great economic importance. Between 1897 and

1899 forest areas were reserved and restrictions were placed on village use. These restrictions were much disliked and utterly disregarded by the villagers, and led to cases of organized resistance against authority (Raturi 1932). On March 31, 1905 a Durbar Circular (No. 11) from the Tehri King announced modifications to these restrictions in response to the resistance.

The modifications, however, failed to diffuse the tension. Small struggles took place throughout the kingdom, but the most significant resistance occurred in 1907 when a forest officer, Sadanand Gairola, was manhandled in Khandogi. When King Kirti Shah heard about the revolt he rushed to the spot to pacify the citizens (Bahuguna, 1976).

The contradictions between the people's basic needs and the State's revenue requirements remained unresolved and, in due course, became sharper. In 1930 the people of Garhwal began the non-cooperation movement, mainly around the issue of forest resources. Satyagraha to resist the new oppressive forest laws was most intense in the Rewain region. A massive protest meeting was organised at Tilari. The King of Tehri was in Europe at that time; in his absence, Dewan Chakradhar Jayal crushed the peaceful satyagraha with armed force. A large number of unarmed satyagrahis were killed and wounded, while many others lost their lives in a desperate attempt to cross the rapids of the Yamuna. While the right of access to forest resources remained a burning issue in the Garhwal Kingdom, the anti-imperialist freedom movement in India invigorated the Garhwali people's movement for democracy. The Saklana, Badiyargarh, Karakot, Kirtinagar and other regions revolted against the King's rule in 1947 and declared themselves independent panchayats. Finally on August 1, 1949, the Kingdom of Tehri was liberated from feudal rule and became an integral part of the Union of India and the State of Uttar Pradesh.

The heritage of political struggle for social justice and ecological stability in Garhwal was strengthened in post-Independence India with the influence of eminent Gandhians, such as Mira Behn and Sarala Behn.

The Chipko Movement is historically, philosophically and organisationally, an extension of traditional Gandhian satyagrahas. Its special significance is that it is taking place in post-Independ-

ence India. The continuity between the pre-Independence and post-Independence forms of this satyagraha has been provided by Gandhians such as Sri Dev Suman, Mira Behn and Sarala Behn. Sri Dev Suman was initiated into Gandhian satyagraha at the time of the Salt Satyagraha. He died as a martyr to the cause of the Garhwali people's rights to survive with dignity and freedom. Both Mira Behn and Sarala Behn were close associates of Gandhiji. They both moved to the interior of the Himalaya and established ashrams there. Sarala Behn settled in Kumaon, and Mira Behn lived in Garhwal until her departure for Vienna due to ill health. Equipped with the Gandhian world-view of development based upon justice and ecological stability, they contributed silently to the growth of woman power and ecological consciousness in the hill areas of Uttar Pradesh. The influence of these two European disciples of Gandhiji on the heritage of struggle for social justice and ecological stability in the hills of Uttar Pradesh has been immense, and they generated a new breed of Gandhian activists who provided the foundation for the Chipko Movement. Sunderlal Bahuguna is prominent among the new generation of workers deeply inspired by these Gandhians. Influenced by Sri Dev Suman, he joined the Independence movement at the age of 13. Now, at nearly 60, he is strengthening the philosophical base of the Chipko Movement from the Gandhian view of nature. The rapid spread of resistance in the hills of Uttar Pradesh and its success in enforcing changes in forest management was also largely due to the awareness created by folk poets, such as Ghanshyam Raturi, and the grass-roots organisational efforts of a number of activists, such as Man Singh Rawat, Chandi Prasad Bhatt, Dhoom Singh Negi, etc. Bhatt, who later became very well known through his work, was inspired by Bahuguna to leave his job as a booking clerk in a transport company and join full time social activity. Bahuguna met Bhatt in 1960 in Nandprayag when he (Bahuguna) was making a trip through Uttarakhand to spread Gandhi's message there.

Anatomy of the current phase of the Chipko movement

The Chipko Movement is the contemporary expression of a continuing heritage of peaceful resistance by the people of Uttarakhand. The Gandhians in the post-Independence period had organised themselves in 1961 under the coordination of Sarala Behn, into an Uttarakhand Sarvodaya Mandal. The Sarvodaya movement in the 1960s was organised around four major issues :

(i) organisation of women
(ii) fight against alcohol consumption
(iii) fight for forest rights
(iv) establishment of local, forest-based small industries

While the fight against alcohol consumption provided the platform for the organisation of the women, the increasing conflict over forest products between the local and non-local industries provided the rallying point for popular protest during the 1960s. In 1968 the people in Garhwal renewed their resolve to fight for the forests, in a memorial meeting at Tilari.

The organisational platform of women was thus ready by the 1970s, and this decade saw the beginning of more frequent and vocal popular protest on the rights of the people to protest and utilise local forests. In 1972 Swami Chidanandji of Rishikesh undertook a month-long tour to bless the people in their struggle. He co-related the spiritual message of Indian culture with the scientific ideas of western ecology which had emerged after the Stockholm conference. 1972 saw the most widespread organised protest against commercial exploitation of Himalayan forests by outside contractors, in Purola, on December 11, Uttarkashi on December 12 and in Gopeshwar on December 15. It was during these protest meetings that Raturi composed his famous poem describing the method of embracing the trees to save them from felling. :

Embrace the trees
Save them from being felled;
The property of our hills,
Save them from being looted.

While the concept of saving trees from felling by embracing them is old in Indian culture, in the context of the current phase of the movement for forest rights in Uttarakhand, this popular poem written in 1972 is the earliest documentary source of the now famous term, "Chipko". In the year 1973 the tempo of the move-

ment in the two centres, in Uttarkashi and in Gopeshwar under the organisational leadership of Raturi and Bhatt, became very high. During a meeting of the villagers and the Sarvodaya Mandal in Gopeshwar in April 1973, the first popular action to chase away contractors took place spontaneously in the region, when villagers demonstrated against the felling of ash trees in Mandal forest. After this success Bahuguna and his colleagues immediately started a march in Chamoli district, following the axe-men and encouraging people to oppose them wherever they went. Later in the year, in December 1973, there was a militant non-violent demonstration in Uttarkashi participated in by thousands of people. In March 1974, 27 women under the leadership of Goura Devi saved a large number of trees from a contractor's axe in Reni. After this, the government was forced to stop the private contract system of felling and in 1975 formed the Uttar Pradesh Forest Corporation to do the job. This was the first major success of the movement and marks the end of a phase in itself. (An important factor for creating public awareness in this success was the padayatra. In 1974 the famous Askot to Arakot march and the 1975 march of women activists like Vimala Behn, Radha Behn, Shashi Behn and others, are important.)

Bureaucratisation, however, could not replace a civilisational response to the forest crisis. The ecological limits to forest extraction were hardly estimated and recognised even by the Corporation. The problems associated with ecological destruction were accentuated leading to increased hardship for the women who were responsible for the collection of fodder and water. During the next five years Chipko resistance occurred in various parts of the Garhwal Himalaya. It is very important to note that it was no more the old demand for higher allocation of forest products to local industries but the new demand for ecological control on forest resources extraction to ensure supply of water and fodder, that was being aired. In May 1977 Chipko activists in Henwal Valley organized themselves for future action. In June 1977 a meeting of all the activists in the hills and intellectuals like Sri D. D. Pant, held in the Ashram of Sarala Behn, further strengthened the movement and consolidated the resistance to commercial fellings as well as excessive tapping of resin from the *chir* pine. In the

Gotars forests in the Tehri range the forest ranger was transferred because of his inability to control the illegal over-tapping of resin. Consciousness was so high that, in the Jogidanda area of Saklana range, the public sector corporation, Garhwal Mandal Vikas Nigam, was asked to regulate its resin-tapping activity.

Among the numerous instances of Chipko successes throughout the Garhwal Himalaya in the years to follow, are the instances in Adwani, Amarsar, Chanchnidhar, Dungari, Paintoli and Badiyargarh. The auction of Adwani forests took place in October 1977 in Narendranagar, the district headquarters. Sunderlal Bahuguna undertook a fast against the auction and appealed to the forest contractors and district authorities to refrain from auctioning the forest. The auction was undertaken despite the expression of popular discontent. In the first week of December 1977, the Adwani forests were scheduled to be felled; large groups of women led by Bachhni Devi came forward to save the forests. Interestingly, Bachhni Devi was the wife of the local village head, who was himself a contractor. Chipko activist Dhoom Singh Negi supported the women's struggle by undertaking a fast in the forest itself. The women tied sacred threads to the trees as a token of their vow to protect them. Between December 13 and 20 large numbers of women from 15 villages guarded the forests, while discourses on the role of forests in Indian life based on ancient texts went on non-stop. It was here in Adwani that the ecological slogan, "What do the forests bear? Soil, water and pure air" was born.

The axe-man withdrew only to return on February 1 1978 with two truckloads of armed police. The plan was to encircle the forests with the help of the police in order to keep the people away during the felling operation. Even before the police reached the area the volunteers of the movement entered the forest and explained their case to the forest labourers who had been brought in from distant places. By the time the contractors arrived with the policemen each tree was being guarded by three embracing volunteers. The police, having been defeated in their own plan and seeing the awareness among the people, hastily withdrew before nightfall.

In March 1978 a new auction was planned in Narendranagar.

A large popular demonstration took place against it and the police arrested 23 Chipko volunteers, including women. In December 1978 a large felling was planned by the public sector U.P. Forest Development Corporation in the Badiyargarh area. The local people instantly informed Bahuguna who started a fast unto death at the felling site on January 9, 1979. On the eleventh day of his fast Bahuguna was arrested in the middle of the night and taken to jail. This act only served to further fire the commitment of the people. Folk poet Ghanashyam Raturi and priest Khima Shastri led the movement, as thousands of men and women from all the villages around joined them in the Badiyargarh forests. The people remained in the forests and guarded the trees for eleven days, when the contractors withdrew. Bahuguna was released from jail on January 31, 1979.

The cumulative impact of the sustained grass-roots struggles to protect the forests was a re-thinking of the forest management strategy in the hill areas. The Chipko demand for the declaration of Himalayan forests as protection forests, not production forests, was recognised at the highest policy-making level. The late Prime Minister, Mrs. Indira Gandhi, after a meeting with Bahuguna, recommended a 15-year ban on commercial green felling in the Himalayan forests of Uttar Pradesh.

The moratorium on green felling gave the Chipko Movement breathing time to expand the base of the movement; Bahuguna took up his 4780 km. arduous Chipko Foot March from Kashmir to Kohima to contact the village people in this long Himalayan range and to spread the message of Chipko. At the same time the activists found it opportune to spread the movement to the other mountain areas of the country.

While Bahuguna extended the base of the movement, Bhatt in Gopeshwar took the path of consolidation in his region through large scale planting of trees with the involvement of the people. In an area where the planting of trees has traditionally been a social programme, the new wave of tree planting brought in by the Chipko Movement has opened up great possibilities for ecological and economic rehabilitation. As a result Bhatt's work is recognised by all as a case of highly successful tree planting, compared with the official programmes.

The ecological foundation of Chipko

Both the earlier forest satyagrahas and their contemporary form, the Chipko Movement, have arisen from conflicts over forest resources, and are similar cultural responses to forest destruction. What differentiates Chipko from the earlier struggle is its ecological basis. The new concern to save and protect forests through Chipko satyagraha did not arise from a resentment against further encroachment on the people's access to forest resources. It arose from the alarming signals of rapid ecological destabilisation in the hills. Villages that were self-sufficient in food had to resort to food imports as a result of declining food productivity. This in turn was related to the reduction of soil fertility in the forests. Water sources began to dry up as the forests disappeared. The so-called "natural disasters", such as floods and landslides, began to occur in river systems which had hitherto been stable. The Alakananda disaster of July 1970 inundated 1,000 sq. km. of land in the hills and washed away many bridges and roads. In 1977 the Tawaghat tragedy took an even heavier toll. In 1978 the Bhagirathi blockade resulting from a big landslide above Uttarkashi caused massive floods across the entire valley.

The over-exploitation of forest resources and the resulting threat to communities living in the forests have evolved from concerns for distribution of material benefits to concerns for distribution of ecologically-generated material costs. At the first stage, the growth of commercial interests resulted in efforts to exclude competing demands. The beginning of large scale commercial exploitation of India's forest resources created the need for a forest legislation which denied village communities access to forest resources. The forest satyagrahas of the 1930s were a result of the Forest Act of 1927 which denied the people access to biomass for survival while increasing biomass production for industrial and commercial growth. The growth imperative, however, drove production for commercial purposes into the second stage of conflict which is at the ecological level. Scientific and technical knowledge of forestry generated in the existing model of forest management is limited to viewing forests only as sources of commercial timber. This gives rise to prescriptions for forest management which are manipulations to maximize immediate

growth of commercial wood. This is achieved initially by the destruction of other biomass forms that have lower commercial value but may be very important to the people, or have great ecological significance. The silvicultural system of modern forestry embraces prescriptions for destruction of non-commercial biomass forms to ensure the increased production of commercial biomass forms. The encouragement given to replacement of ecological valuable oak forests by commercially valuable conifers is an indicator of this shift. Ultimately, this increase in production may be described as mining of the ecological capital of the forest ecosystem which have evolved over thousands of years.

The contemporary Chipko Movement, which has become a national campaign, is the result of these multidimensional conflicts over forest resources at the scientific, technical, economic, and especially the ecological levels. It is not a limited conflict over the local or non-local distribution of forest resources, such as timber and resin. The Chipko demand at one stage was for a bigger share for the local people in the immediate commercial benefits of an ecologically destructive pattern of forest resource exploitation. It has now evolved to the demand for ecological rehabilitation. Since the Chipko Movement is based upon a perception of forests in their ecological context, it exposes the social and ecological costs of short term growth-oriented forest management. This is clearly seen in the slogan of the Chipko Movement which claims that the main products of the forests are not timber or resin, but soil, water and oxygen. With appropriate social control, the basic biomass needs of food, fuel, fodder, small timber and fertiliser can, in the Chipko vision and the Garhwal practice, be satisfied as positive externalities of biomass production, aimed primarily at soil and water conservation to stabilise the local agri-pastoral economy.

The Chipko Movement has been successful in forcing a ban on commercial green felling in the hills of Uttar Pradesh at altitudes above 1000 metres, in stopping clear-felling in the western ghats and the Vindhyas, and in generating pressure for a national forest policy which is more sensitive to the people's needs and to the ecological development of the country. Unfortunately, the Chipko

Movement has often been naively presented by vested interests as a reflection of a conflict between "development" and "ecological concern", implying that "development" relates to the material and objective bases of life while "ecology" is concerned with non-material and subjective factors such as scenic beauty. The deliberate introduction of this false and dangerous dichotomy between "development" and "ecology" disguises the real dichotomy between ecologically sound development and unsustainable and ecologically destructive economic growth. The latter is always achieved through destruction of life-support systems and material deprivation of marginal communities. Genuine development can only be based on ecological stability which ensures sustainable supplies of vital resources. Gandhi and later his disciples, Mira Behn and Sarala Behn, clearly described how and why development is not necessarily contradictory to ecological stability. Conflict between exploitative economic growth and ecological movements like Chipko are never an obstacle to the process of development. On the contrary, by constantly keeping ecological stability in focus, they provide the best guarantee for ensuring a stable material basis for life for all.

Chipko and the scientific basis of forestry

In the final analysis the dichotomy between "development" and environment boils down to what development is and how scientific knowledge is generated and used to achieve it. This dichotomy is very clear in the two slogans on the utility of the Himalayan forests, one emanating from the ecological concepts of Garhwali women, the other from the sectoral concepts of those associated with trade in forest products. When Chipko became an ecological movement in 1977 in Adwani, the spirit of public interest ecological science was captured in the slogan :

What do the forests bear?
Soil, water and pure air.

This was a response to the commonly accepted partisan science based slogan :

What do the forests bear?
Profit on resin and timber.

The insight in these slogans represented a cognitive shift in the evolution of Chipko. The movement was transformed qualitatively from being based merely on conflicts over resources in involving conflicts over scientific perceptions and philosophical approaches to nature. This transformation also created that element of scientific knowledge which has allowed Chipko to reproduce itself in different ecological and cultural contexts. The slogan has become the scientific and philosophical message of the movement, and has laid the foundations of an alternative forestry science, oriented to the public interest and ecological in nature. The commercial interest has the primary objective of maximising exchange value through the extraction of commercially valuable species. Forest ecosystems are therefore reduced to the timber of commercially valuable species. "Scientific forestry" in its present form is a reductionist system of knowledge which ignores the complex relationships within the forest community and between plant life and other resources like soil and water. Its pattern of resource utilisation is based on increasing "productivity" on these reductionist foundations. By ignoring the system's linkages within the forest ecosystem, this pattern of resource use generates instabilities in the ecosystem and leads to a counterproductive use of natural resources at the ecosystem level. The destruction of the forest ecosystem and the multiple functions of forest resources in turn hurts the economic interest of those sections of society which depend on the diverse resource functions of the forests for their survival. These include soil and water stabilisation and the provision of food, fodder, fuel, fertiliser, etc. Forest movements like Chipko are simultaneously a critique of reductionist "scientific" forestry and an articulation of a framework for an alternative forestry science which is ecological and can safeguard the public interest. In this alternative forestry science, forest resources are not viewed as isolated from other resources of the ecosystem. Nor is the economic value of a forest reduced to the commercial value of timber. "Productivity", "yield" and "economic value" are defined for the integrated ecosystem and for multipurpose utilisation. Their meaning and measure is therefore entirely different from the meaning and measure employed in reductionist forestry. Just as in the shift from Newtonian to Einsteinian physics, the meaning of "mass" changed from a velocity-independent to a velocity-dependent term, in a shift from reductionist forestry to ecological forestry, all scientific terms are changed from ecosystem-independent to ecosystem-dependent ones. Thus, while for tribals and other forest communities a complex ecosystem is productive in terms of herbs, tubers, fibre and genepool, etc., for the forester, these components of the forest ecosystem are useless, unproductive, dispensable. Two economic perspectives lead to two notions of productivity and value. As far as overall productivity goes, the natural tropical forest is a highly productive ecosystem. Examining the forests of the humid tropics from the ecological view, Golley (1975) has noted:

> A large biomass is generally characteristic of tropical forests. The quantities of wood especially are large in tropical forests and average about 300 tons per ha. compared with about 150 tons per ha. for temperate forests.

However, in partisan forestry, the overall productivity is not important. It looks only for the industrially useful species and measures productivity in terms of industrial biomass alone. As Bethel (1984), an international forestry consultant states, referring to the large biomass typical of the forests of the humid tropics :

> It must be said that from a standpoint of industrial material supply, this is relatively unimportant. The important question is how much of this biomass represents trees and parts of trees of preferred species that can be manufactured into products that can be profitably marketed...By today's utilisation standards, most of the trees, in these humid tropical forests are, from an industrial materials standpoint, clearly weeds.

With these assumptions of partisan forestry science, wedded to forest industry, large tracts of natural tropical forests are being destroyed across the third world. The justification is increased productivity but the productivity is only one-dimensional; overall there is a productivity decrease. The replacement of natural forests in India for eucalyptus plantations has been justified on the grounds of improving the productivity of the site. However, it has been a partisan view of productivity in the context of pulp-

wood alone that has been projected as a universally applicable measure or productivity. What has been called the 'Eucalyptus Controversy' is in reality a paradigmatic conflict between an ecological public interest forestry and a reductionist partisan forestry which only responds to industrial requirements. While natural forests and many indigenous tree species are more productive than eucalyptus in the public interest paradigm, the reverse is true in the partisan paradigm of forestry. The scientific conflict is an economic conflict over *which* needs and *whose* needs are more important. In such paradigmatic conflicts, dominant scientific assumptions change not by consensus but by replacement. Which paradigm will win and become dominant is determined by the political strength backing the paradigms.

One Movement: two methodologies?

The philosophical confusion generated by taking sectoral growth as synonymous with development has permeated movements like Chipko, too. In the absence of any philosophical clarity on the issues involved, journalistic writings have described it as a clash of personalities within the movement. Increasingly, there are mentions of a "split" in the Chipko Movement and growing tension between the two "streams" — one supposedly headed by Bahuguna and the other by Bhatt.

Undoubtedly, there are serious fundamental differences as well as some similarities between the philosophical standpoints of these two very important Chipko activists. Bahuguna believes that development, as practiced today in official programmes, is going to be unsustainable if ecology is not seen as an imperative. Accordingly, ecological rehabilitation of the Himalayan regions, the source of the major rivers, has become his first priority. The material foundation of economic development, as Bahuguna believes, cannot be divorced from the productivity of ecological endowments and their stability. Thus, Bahuguna believes that economic development in the Himalaya must be based on expansion of trees and not on agriculture. On the other hand, Bhatt strongly favours the introduction of a modern development package in these regions. (Lokayan, 1985). He firmly believes that the acceptance of the present modes of resource utilisation

with a new emphasis on the location of manufacturing activities in the hill areas and a strengthening of their raw material base will lead to development and fight against poverty (Bhatt 1980).

This model explains poverty as the absence of processing industries and recommends solutions in technology transfer. Poverty is seen by Bhatt as having a technological solution, in contrast to Bahuguna who sees its solution in the ecological rebuilding of the productivity of natural resources. For Bahuguna, material benefits arise from lowering ecological costs due to resource destruction and increasing the productivity of natural and man-made systems. For Bhatt, material benefits are not directly realised in the conservation of essential ecological processes. The instruments of production do not include nature and its ecological processes, and productivity is defined as the classical concept of industrial management, through the technological productivity of labour alone. In this respect Bhatt's model is easily subsumed by the dominant development paradigm with environmental adjustments. The development prescription is, that with the help of modern scientific knowledge, the instruments of production are improved and the standard of living is raised (Bhatt, 1980; Bhatt and Kanwar, 1982). In short, the difference between the two Chipko activists is not unexpected and is universally faced as the difference between deep ecology and environmentalism. It is a difference that is inevitable in any serious ecology movement and has nothing to do with personalities. The programme of ecological development as propounded by Bahuguna requires a serious change in the consumption patterns and the reorganisation of interest groups in society. Bhatt's programme however, can be realised within the present social structure and is commonly known as "eco-development". The second major difference between them emanates from their work strategies which are complementary, not contradictory. Bahuguna believes in spreading the idea of ecological development in all parts of India since his model requires a fundamental change in public opinion and political alignments at the national level. He has not been a "grass-roots activist" in the narrow sense of the term though he has created grass-roots activists in all parts of the country. Bhatt, who himself is the best example of such activists generated by Bahuguna, on

the other hand, believes in concentrating on his region of influence and working towards consolidation. This has its own positive side. The issue of awareness at the national level and the question of a new ideology of development based on ecological stability is much less prominent in Bhatt's immediate programmes. It is based on the hope that one successful example may open the floodgates of similar projects elsewhere. Bahuguna, on the other hand, has decided on activating people in all parts of the country. This difference between the nature and modus operandi of the two activists has often been naively differentiated as populism and activism in the popular media. At deeper levels it opens up issues of the philosophy of development, technology policy, democratic values, self-help and survival strategies, concepts of productivity and efficiency, etc., which are of extreme significance in development concepts and need serious analysis. These conceptual issues assume tremendous importance in an era in which huge amounts of financial resources are being handled through non-government organisations which are fast becoming the new managers of old development programmes (Rahnema 1985). The self-reliance, decentralisation, sacrifice and involvement of voluntary action, guided by the concept of a fundamentally new development, are becoming so rare that the debate on these two philosophies of nature and political action becomes central to the larger debate on development.

Chipko and the ecological imperative

Utilisation of natural resources, as a part of planned development, has been classically guided in India by the concept of maximisation of growth in the short term. This maximisation is based upon increasing the productivity of labour alone. Gandhi critically articulated the fallacy of increasing labour productivity independent of the social and material context; his followers in the Chipko Movement continue to critically evaluate restricted notions of productivity. It is this concern with resources and human needs that is contained in Bahuguna's well-known slogan, "Ecology is Permanent Economy." The urgency to establish a new economy of permanence based on ecological principles is created with each environmental disaster in the Himalayan region,

which spells destruction throughout the Ganga basin. Chipko's search for a strategy for survival has global implications, for what it is trying to conserve is not merely local forest resources but the entire life-support system, and with it the option for human survival. Gandhi's mobilisation for a new society, where neither man nor nature is exploited and destroyed, was the beginning of this civilisational response to a threat to human survival. Chipko's agenda is the carrying forward of that vision against the heavier odds of contemporary crises. Its contemporary relevance, and its significance for the future world, is clearly indicated in the rapid spread of the ecological world-view throughout the whole Himalaya, following the historical 5,000-km trans-Himalaya Chipko foot-march led by Bahuguna, and subsequently through other vulnerable mountain systems such as the western ghats, central India and the Aravallis.

Since the ecological crises threaten survival irrespective of the industrial status of societies, the philosophical significance of re-directing development onto an ecologically sustainable path relates to the industrialized north as much as to countries of the south. The is why the ecological strategy of Chipko finds new application in the people's movement in European countries such as Switzerland, Germany and Holland. The spreading of the message of an alternate world-view is crucial to the creation of a sustainable world, particularly in the context of a highly integrated global economic system. The ecological world-view of Chipko, which is a civilisational response of India, provides a strategy for survival not only for tiny villages in the Garhwal Himalaya, but for all human societies threatened by environmental disasters.

Paper commissioned for the UN University Conference on 'The Ganga-Himalaya Problem', Mohonk Mountain Centre, New Paltz NY (USA) April 4—11, 1986.

THE TILARI DECLARATION OF THE PEOPLE OF TEHRI GARHWAL

May 30, 1968

From ancient times forests have been the foundation of our cultural and material life. We reaffirm our birthright to draw sustenance and livelihood from forests while protecting them.

From time to time, our forest rights have been violated through brute force leading to a disintegration of our cultural and economic life. Sometimes the mirage of petty reforms and privileges has been put before us. But it is our firm belief that our happiness and prosperity are based on a harmonious relation between our forests and ourselves. This relationship must be allowed to continue forever.

Today, we remember the martyrs of Tilari and offer homage to them. Their peaceful and non-violent movement and sacrifices give us a timeless inspiration to protect our forests and forest rights. We, therefore, vow to declare today as Forest Day and renew this pledge.

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