THE TIGER AND THE HONEYBEE

- Savyasaachi

What modes of thinking and codes of conduct underline the phenomena of deforestation? Can deforestation be explained by inefficient management of forests or is it a result of the inappropriate use of forest materials? In order to meet the demand for industrial timber, monoculture plantations have destroyed forest diversity; and wildlife sanctuaries and biosphere reserves have enclosed a forest biodiversity to preserve genetic materials required for the manufacture of a variety of industrial products of which seeds and medicine are most valuable.

This mode of intervention attempts to arrest and, if possible, reverse the processes of deforestation. It preserves the abundance and diversity of the forest materials to make them available for industrial production alone. An important prerequisite of this mode is to marginalize forest dwellers and declare that their presence is destructive of forest materials. Forest-dwellers are then displaced and development programmes are implemented to facilitate their rehabilitation. The failure of the accompanying development programmes to provide a large number of people with resources to earn there livelihood, pushes them towards the forest. These people are landless labourers. Where they stand face-to-face with the forest, there is a threshold, the point of contact, the interface, the frontier from where there emerges a social foundation, which makes landless people the most deserving inhabitants of the universe of the forest.

The social and cultural practises they survive by are parallel to those of dominant development programmes. These parallel practises are informed by their experience and perceptions of the forest on a day-to-day basis.

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They are in search, as it were, for a mode of earning a livelihood and the dominant practises deprive them of that mode. The ground for parallel practises, the universe of the forest, is also a living space. The two arms of this mode of scientific intervention, forest policy and land reforms, prepare the ground for the preservation and conservation of forest materials.

The forest policy prepares way to displace forest-dwellers from the forest, and land reforms prepare the way for their resettlement. The forest space, thus freed of the social and cultural perceptions of its dwellers, is transformed into a biosphere reserve. Several plants and animal species are declared endangered, threatened and rare, and therefore become expensive. It is their preservation that directs the management strategy of the reserves.

The question therefore is how can an inquiry be opened up to examine whether this mode of creating biosphere reserves leads to the preservation of the variety and abundance of forest materials? Also, is this the most appropriate perception of the forest?

These questions attempt to explore the ways in which man and nature are interlinked. Can there be a meaning to the history of social formations when it does not attempt to grasp how the presence of man influences an understanding and a transformation of nature? Reciprocally, must not a meaningful history of nature attempt to throw light on an appropriate mode of man's social and cultural presence in nature (and not outside it), which is essential to its preservation in the light of these considerations.

The significance of Simlipal for the geographical region surrounding it is as follows. The Bombay Natural History Society Encyclopaedia reports:

> Simlpal is the meeting ground of the northern and southern flora of the country. There are found animals of the Himalayan as well as those inhabiting the southern reaches of the Nilgiri mountains.

The Orissa Environment Society report that:

> Simlpal stands as a barrier to monsoon currents passing into the Gangetic plains. Orissa gets its rainfall from the Bay of Bengal. As low pressure over the Bay of Bengal passes north of Balasore and strikes Meghasan - the highest point in Simlipal - the monsoon current is diverted to the south-west and crosses Gonasika range in Keonjhar, Pal-Lahada, Madadaneha range of Bonai and passes westwards to the Barapahar-Gandharmardana range. Had there been no Simlipal Meghasan range, Orissa would have been a desert tract like Rajasthan.
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> Simlipal is at the northern tip of the Eastern Ghats. These hill ranges give rise to several perennial rivers. Most of these rivers are used for irrigation in Mayurbhanj, Keonijhar and Balasore districts. (Bose 1985; Sahu 1985).

Emphasizing the Overall impact Simlipal on the ecology and economy of the region, it is stated:

> Simlipal holds the life of eastern Orissa: if depleted of forest growth it would expose the rocky pleads to radiate immense heat and create a hot atmosphere which would heat up the monsoon-bearing winds to go higher and higher and thus deprive the entire eastern Orissa from monsoon rains (Bose 1985).

Reports suggest that the management of Simlpal under Project Tiger is neither commensurate with its significance for the region nor with its internal Constitution.

In 1969, the General Assembly of the International Union for Conservation of Nature prepared the ground for setting up Project Tiger, which was launched in April 1973. Since then, several tiger reserves have been created, of which Simlipal is one. The Project Tiger sanctuary is organized into three concentric circles. At the centre is the core area; surrounding it are the buffer zone and the periphery. In the core area, wildlife is to be given complete protection. In the buffer area commercial forestry operations, modified to meet the requirements of wildfied conservation are permitted. The periphery is the transition zone between the reserve and the outside.

The National Commission on Agriculture (1976) prohibited grazing and collection of minor forest produce from the core area. The principal impediments for the creation of this 'core' were identified to be forest dwellers. A survey conducted in 1991

points that the shifting of village from the tiger reserve under Project Tiger had been accepted by the central and state governments.

The objectives of this relocation were to provide better opportunities to the residents of these villages, since they were deprived of such basic facilities as communication, education and medicine. In Simlipal, there were 223 households distributed over nine villages. Of these, 93 were Ho, 68 Munda, 45 Kharia, 9 Bahudi, 7 Santal and 1 Makhud household (Alexander et al. 1991). These forest-dwellers are unwilling to be relocated. They have faced difficulties ever since Project Tiger designated the core area concept. Tigers have become a nuisance; the frequency of their intrusion into villages has increased, as has the presence of poachers. And when they damage property or cause injury to human beings, the forest department protects the tigers, not the people!

There is no assessment of how the condition created by Project Tiger open the forest to destructive practises, Further, it is not known whether the quantity of forest produce needed by forest-dwellers for their subsistence harms the forest. Neither is it certain that education and infrastructure support for displacements of forest-dwellers will reduce their dependence on forest produce; nor whether severing their relation with forest and inducting outsiders to manage will lead to its preservation.

The core area where wildlife is to be protected is in fact open to reckless exploitation. In collaboration with forest officials, poachers kill animals for tusks, hide and other exotic foods. Also, their methods harm the forest. For instance, trees are sprayed with insecticides to kill elephants, and tigers are killed when they are young as their coats are in good condition. An inventory of such methods would enable us to estimate the actual harm done to the forest by poaching. As regards biodiversity, available information draws attention to the uneven distribution of wildlife and its concentration in the core area, which attracts poachers, creates conditions for a population imbalance, disrupts processes of self-regeneration in the forest and implicates forest-dwellers.

The buffer area, intended to provide ecological and environment support for the biodiversity in the core area, has in fact become the launching ground for poachers. The commercial forestry permitted in this area has not been regulated and modified to the needs of the core area. It has been reported in this regard that :

> The Simlipal Forest Development Corporation was set up in 1980 with the sole purpose of scientific management and commercial exploitation superceded scientific management beyond carrying capacity. There was pressure to ban tree cutting from 1982 (Patro and Misra, 1985).

> Interference by forest department with natural plant community and introduction of exotics on large scale will destroy the biosphere of Simlipal and usher in a new plant climax and wildlife community ....Indiscriminate cutting of Sal trees..... by the Forest Development Corporation results in reduced production of biomass and timber wealth.....

Frequent floods in Burabalang, Salandi, Baitarani (rivers flowing through Simlipal) are indications of denudation of Simlipal forest and results in loss of life, property and sand casting of fertile agricultural land (Sahu 1985)

The commercial collection of minor forest produce has affected the food chain and the balance of population and this has impoverished the forest-dweller. It is pointed out that commercial forestry has inhibited wildlife from coming into the buffer area. On the contrary, it has created conditions for outsiders to get a strong foothold in the area and operate in the core area. For instance, the Sahu family living in Gurgudia is reported to monopolize the collection of minor forest produce from the core area. This family has encouraged settled rice cultivation and in the process has acquired land, which has marginalized forest-dwellers.

The living condition of forest-dwellers in the buffer area is exemplified by the Hill Kharias. The government wants them to begin rice cultivation in the hope that it will wean them away form the forest, but the Kharias refuse to be seduced by these efforts. They have no faith in government-sponsored development programmes, which provide them with subsidized homes and infrastructure equipment like ploughs and cattle. These implements are of no use to the Kharias because they are not taught methods for rice -- cultivated rice cannot be a staple diet and even those who cultivate rice maintain that it cannot be a substitute for food-gathering.

The house is a brick and cement structure covered by a tin roof; two small rooms are not large enough to make a home. It looks more like a punishment cell and shows disrespect to the people for whom it is made. In the summer months, the interior of these houses become over-heated as a result of which the Kharia families live under trees. Those who live closer to the core area are affected by the road opened for poachers by such development programmes.

The competition between the private and public sectors of the forest industry has pushed out the forest dwellers. Further, the creation of a core area has invited the private sector to prepare grounds for deforestation. The two sectors collaborate to practises a method of resource extraction whose rhythm and speed are not commensurate with the rhythm and speed of forest self-regeneration. A faster rate of extraction impoverishes without allowing for replenishing. This is a particular example of how human intervention, over a passage of time, has accentuated discontinuities in nature, only to impair the process of self-regeneration and render irreversible the overall degradation of the forest.

There is, therefore, a need to recover and make intelligible a principle of interaction between forest and man together in one living space. What is this on account of? The forest-dwellers recognize a life-force which flows through the forest, through its food-chains and life-cycles, from which all the elements of the forest, including man, draw nourishment. They are careful observers of food chains and life-cycles, and of the origins, development and demise of the individual and collective social life of the varied materials in a forest. The forest-dwellers' social and cultural life makes them keen observers of aspects of the forest.

Development programmes, when they attempt to train forest-dwellers for the market, damage this habit of observation. In areas within the proximity of the market place, such detailed knowledge of plants and trees is known only to a few. In areas away from the market there exists a tradition of sharing information and observations of the forest, sitting around a fire at night, when people return home. The forest-dwellers' search for food is simultaneously a study of the forest.

Forest-dwellers, in whichever part of Simlipal they are situated, continue to rely on their skills of food gathering. Under conditions created by the management of Simlipal forest produce is not easily available for subsistence a sign of over-extraction. The forest-dwellers resist collection before the product is fully mature. However, in their impoverished condition, created by Project Tiger, they now collect before it is time to do so: for this remains their only means for survival.

The circumstances created by Project Tiger interferes with the life-cycle of plants, disrupts the food chain and prepares the ground for deforestation. For instance, premature collection of resin from tree trunks and honey from hives disrupts their natural cycle, breaks food-chains and impairs the process of self-regeneration. In this context, it has been observed that there is a dissonance between natural and artificial divisions of the Simlipal reserve. There is thus a change in micro-climate. For instance, the Project Tiger reserve forest is getting moister while the buffer area managed by the Forest Development Corporation is getting drier' (Sahu 1985)

The forest-dwellers complain that over the past decades the condition of the forest has deteriorated. According to them a sure sign of deforestation is the depletion of subsistence forest produce, particularly tubers and honey from the standpoint of which they construct a view of the forest. They are of the view that, among other things, timely production in substantial quantity is indicative of the health of the forest. This differs from the dominant view where the tiger is the core species. It is embedded in the forest-dwellers experience of living in the Simlipal forest.

According to the Hill Kharias, there are several honey reservoirs in Simlipal. These are called *mahu bhandars*. The are spread evenly, cutting across the core, buffer and the periphery areas. Traditionally, each of these reservoirs has been taken care of by Kharia families who collect honey form these *bhandars.* They point out that only a decade ago, Simlipal was famous for the quantity and variety of honey. Lamenting the loss of honey, an elder said, 'these days honey-bees live in the city'.

From this parallel standpoint, the forest is a work place. The work done here involves production of nectar and its plural aromas, all of which contribute to the being both food and medicine, honey is an essence. It is made from nectar which is filtered and absorbed through numerous food-chains and life-cycles. The survival of all species is essential to the production honey. The work processes in nature (food chains and life-cycles) do not exist independent of each other. Accordingly, survival of the fittest does not mean the elimination of the less sturdy species.

On the contrary, it is in the nature of things in a forest to ensure the fitness of all as far as possible, and to ensure the production of honey. In this perception, the tiger has an important role to play -- it protects the forest from intruders who disrupt the production of nectar, aromas and honey. The interdependence of living being in any ecosystem is such that no one species is dispensable. Thus, it may be stated that a forest rich in honey production must correspondingly be rich in plant diversity. The Kharias maintain that the absence of a honey-bee can affect plant diversity in a forest as well.

There are several reasons for the decline in honey production. Of these, commercial forestry is one. The most wanted commercial product is the sal *(Shorea robusta)* tree. A description of the deforestation due to the cutting of sal trees illustrates ecological processes that sustain a healthy forest: high in its canopy, dense in its undergrowth, rich in diversity and abundant in its plant and animal species, the sal tree ecology is protects by the religious tradition of the Hill Kharias.

The inclusion of the regenerative processes and products of the forest in the Kharia way of life is also a way of keeping an eye on the well being of the forest. The forest-dwellers integrate the forest in their way of life --social, cultural or religious. This is best seen in the case of the sal tree. Sal wood is known as *daru* meaning God. This nomenclature extends to wood from other trees as well. Sal is placed in the centre of a *zabeera,* a sacred grove situated at one end of a village where human intervention for livelihood is taboo. Here, forest-dwellers in Simlipal as in other forests of central India propitiate this tree when it begins to flower.

Sal is reported to be indigenous to Simlipal. It is a predominant species in this forest, although it is not found in large number elsewhere in Orissa. This is sufficient ground for forest-dwellers to believe this plant to be sacred. It is a naturally germinating plant and can survive by itself, depending on no other plant for growth. The seeds mature while they are attached to the mother plant and begin to germinate as soon as they fall on the ground. These two qualities make the sal tree auto ecological.

The gummy latex secreted from the trunk of the sal tree forms an aromatic resin, which is burnt to identify the atmosphere of any sacred event --thus making it a special occasion. The latex attracts the honey-bee, which finds the tall tree appropriate for housing its hive. The sal flower provides more nectar than other forest flower. Moreover, the sal provides shelter and is the primary host for the silkworm. These multiple uses of the sal are guarded within the boundaries of the *zaheera.* However, outside it, forest-dwellers eat sal seeds; use its wood for construction; its latex for driving away mosquitoes; its leaves to make cups and plates to serve and eat from; and its flower for curing diahorrea and dysentery.

Commercial forestry has destroyed the practical uses associated with sal. It has created a market for all the forest produce generated from the sal tree. The cutting of sal trees in large numbers (larger than the number reproduced) has forced honey collectors to take beehives from short trees. In these hives, honey production is low as they are

prematurely taken and because the bees are disturbed by the close proximity of human being.

The collection of sal seeds, it is reported, reduces the quantity of food material for herbivores and saprophytes. Accordingly, the population of rodents, squirrels, mole rats, porcupine, hare and rabbits begins to decline. This in turn, impacts the population of reptiles that feed on these herbivores. Further, the collection of sal and *tendu* leaves affects the activities of saprophytes. In the forest, the principal sources of organic matter are the leaves, stems, fruits and seeds of trees. Reduction in the quantity of leaves affects the humus layer which is getting thinner in Simlipal. This, in turn, affects the growth of mushroom and toadstool. With a decrease in mush-rooms, people in Simlipal look for wild animals for their protein nutrition (Sahu 1985). These, the Kharias say, are also on the decline.

In the overall situation that emerges, the detritus food-chain, which orders the processes of self-regeneration, is disturbed. These processes operate on the ground at the level of the flower. The ecological processes that are ordered around the sal tree begin with the detritus food-chain. The organic matter which falls on the ground is food for micro and other organisms, which are food for predators (small carnivores). The process of decomposition contributes to the self-regenerating quality of the forest. This is the beginning of a detritus food-chain. At the ground level, its operation is less dependent on direct solar energy and more on the influx of organic matter produced in other systems -- the life-cycle of living species.

In a very basic way it creates conditions for the production and reproduction of the green vegetable plant world. This is the base for grazing food-chains --herbivores and the carnivores eating these herbivores. This is one development of a detritus food-chain--through it the carnivores eating these herbivores. This is one development of a detritus food-chain--through it the self-regeneration of different species in the forest ecosystems. The detritus food-chain also generates active reproductive materials (flowers), which ensure the production of nectar and honey under the guidance of the Queen bee. The Queen is fertile and all males of its community are drones and worker bees. The nectar is a self-regenerative material, worthy of propitiation, being both food and medicine.

In contrast to the process of decomposition, which is operative at the ground level of the height of a flowering plant, where direct solar energy is necessary for growth. The honey-bee is at the top of this ecological pyramid which begins with humus and continues to the production of nectar, which is processed into honey. This ecological process stands in contrast to those structured by the herbivores and carnivores of a grazing food-chain. Their honey-bee is part of a process that produces the materials on which the diversity of animals in a forest depend. Therefore, to place any other .....at the top of a food-chain is considered to open the doors to a .....standing and mismanagement of the forest. This wrongly position.....food-chain in its method and strategy for preservation and conservation of a forest.

The dependence of the insect population on plant diversity is both food and habitat specific. The honey-bee is placed at an important noble centre of this food-chain. It interacts with all the tiers of the forest and collects nectar from a variety of plants. The honey-bee can therefore be used to monitor the health of a forest. With its help it is possible to identify deforestation before it gets too late. A forest with abundant honey must therefore have the following properties: a high canopy, having grown through a 3-4 storey structure of a forest; dense undergrowth; and a rich diversity of flowering plants providing an important source of nectar. Finally, there must be continuous water supply.

In a healthy forest, honey-bees, of which there are several kinds, gather nectar from flowers distributed over different stories of a forest. This is their territory of operation. They prefer not to be disturbed in their work of honey production. Some are more sensitive to human sounds, such as tiger-bees. Accordingly, they make their hives in high places, like tall trees, on rocks and stones on top of hills, between crevices, or inside tree trunks. These living spaces are normally shaded and in proximity of water sources.

Under the dominating Project Tiger regime, the programme to preserve the biodiversity of Simlipal forest aims to make raw material available for the production of a variety of industrial goods. The processes in nature that produce and reproduce these raw materials are understood to centre around a species -- the tiger -- and in an area designated as the core.

This mode is centralized and undemocratic, for not only does it marginalise people who are familiar with the forest on a day-to-day basis, it also marginalises plant and animal species which are not directly needed for industrial production. The biodiversity in a forest is arranged in a hierarchical order depending on its requirement. The most privileged species are labeled 'endangered', or 'rare'. From the standpoint of industrial production they are 'rare' and therefore, the most expensive. Second, in order are the minor forest products. The rest of the plant and animal kingdom is part of the general forest until such time as their use is discovered and their need felt. This mode, as we have seen, sets in processes of deforestation. The greatest disadvantage of this mode is that it does not have an index internal to it to identify the onset of this process.

A parallel mode of preservation and conservation for biodiversity is suggested by the Hill Kharias. According to this mode, the programme to preserve biodiversity aims to make available raw material for the production of honey and to sustain processes that will maintain and sustain a healthy forest. Only subsequently can demands for raw materials for industrial production become important. In this mode, the material is ensured along-side the processes for the production of honey.

This mode is decentralized and segmentary in so far as different *mahu bhandars* in different places in Simlipal are taken care of by different Kharia families. Their knowledge of the plant and animal kingdom derives from their day-to-day experience of living in a forest and from their mode of gathering food. They are acquainted with its seasonal variations. In their view, endangered species are those that are important for

their subsistence and for the health of a forest. Some of these species die last when deforestation sets in. They are auto ecological. This mode enables a close watch over the process of self-regeneration of a forest. For instance, depletion of honey production immediately shows that there is a disturbance in life-cycles and food-chain processes in a forest.

According to the dominant mode of preservation, the tiger stands in opposition to the honey-bee, such that the preservation of one is at the expense of the other. A parallel mode on preservation, on the other hand, places the tiger and the honey-bee within a larger ecological framework; the emphasis rests on the symbiosis of their relationship, which in turn determines the overall preservation of the forest.

To better understand the phenomenon of arresting it, it is necessary to revise perceptions of biodiversity to accommodate a broader understanding of the impact of a particular species on the impact of a particular species on the totality of the forest. There is need to strengthen the processes which encourage a day-to-day interaction between plant and animal. The dominant mode needs to be dissolved not only because it distances the plant from the animal world, but also because it prevents the understanding of the forest as a dynamic, interactive ecosystem.

It is of little value to attempt to free forests of human intervention. The protectionism that this mode propounds only creates an illusion of non-interference. The self-defeating character of this enterprise is given in the unalienable relation of man to nature: man is as much a part of nature as nature is of man. Under protectionism, man only transforms his relation to the forest, and in the direction of destruction of both. The question that remains is: What mode of relation to the forest, in particular, and to nature as a whole is appropriate to the well-being and end ..... of both?

NOTE

* The discussion in this paper is based on field investigations undertaken in Simlipal in 1992-93. This was part of a larger study on changing relations of 'Man and Forest'. It was undertaken in collaboration with The Universe, a non-government organization based in Cuttack, Orissa.

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