

The Role of Tribals in the Conservation of Biodiversity

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Abstract: *This paper describes the significant role of Tribal people who have conserved the biodiversity in and around localities of their natural habitat since the beginnings of civilization. Plants are conserved by these ethnic and indigenous people that serve as a source of wild edible food in the form of roots, tubers, rhizomes, seeds, fruits and as agricultural and horticultural plants. Some of the indigenous cultivars conserved by these ethnic people are used in agricultural cultivars improvement programmes to increase productivity and incorporate traits for increasing resistance against different pests and diseases. Many of the plants conserved by ethnic people are used as antidotes for snake bites and scorpion stings, for setting bone fractures by traditional healers, for curing wounds or arthritis, or as abortifacients and as cures for menstrual problems, etc. Plants are conserved in abandoned sites of shifting agriculture by tribals and also in sacred groves as in situ conservation of biodiversity and ecological restoration. In this paper, we look into the relationship that exist between four tribal communities viz. the Kondh, Poraja, Gadaba and Bonda of the Koraput region with their natural resources. Eucalyptus globulus Labill., when introduced into the tribal ecosystem is rejected by the community and so is Acacia auriculiformis A.Cunn ex Benth., while another tree Pterospermum acerifolium Willd. when introduced is readily accepted by the community. A new water reservoir makes fish readily available to the community and the community incorporates the new resource into their culture. The Bonda spare a few tree species from the axe while clearing the forests for shifting cultivation. The possible philosophy behind these actions is discussed.*

Keywords: Tribals, Bio-Diversity, indigenous people, situ conservation

1. Introduction

Sustainable management of natural resources has become a key issue for survival of life on earth. Ecological degradation and loss of biodiversity pose a serious threat to sustainable development. In recent times, indiscriminate human exploitation of natural resources and over population coupled with the continuous grazing of (under) productive cattle population pose the greatest threat to species and ecosystems. Many valuable species have reduced to an alarming number and at times disappeared from the scene. Natural hazards owing to their adverse impacts, also contribute to the loss of biodiversity. Thus, an urgent need has been felt to conserve the gene pool involving a mix of in situ as well as ex situ strategies. (**In-situ conservation**, the **conservation** of species **in** their natural habitats, is considered the most appropriate way of **conserving biodiversity**. **Ex-situ conservation** is the **preservation** of components of **biological diversity** outside their natural habitats). The problem of with environment. Unless, we understand clearly the relation between man and nature, it may not possible to find a plausible solution to environmental issues confronting man, or threatening human survival. Environmental issues represent several different perspectives and each thinker interprets them from his vantage point. Human beings are not alone living on planet earth. We live among a multitude of plants, animals and inanimate natural objects. Our interaction with the non-human forms of life and with the environment as a whole raise a variety of moral questions such environmental ethics is closely connected with the relation between man and nature, especially man's relation as:

- 1) What moral obligation do humans have with regard to the environment?
- 2) Is it not morally wrong to pollute the soil, water and air?

- 3) Are humans morally obliged to preserve the natural environment, endangered plant and animal species, and the wilderness?
- 4) Do humans have a moral duty to future generations to conserve natural resources?
- 5) What kind of moral obligation do humans have to the non-human forms of life?
- 6) Do beings and things of the non-human world have intrinsic value or worth?

Man-Nature Relation:

The concept of the man-nature relation constitutes the basis for any philosophy of life. From a historical and evolutionary stand point we can identify three different patterns of human attitudes in relation to man and nature.

- 1) Man under nature
- 2) Man over nature
- 3) Man with nature

1. **Man under nature** attitude was prevalent among the prehistoric and primitive tribes. The primitive man identified himself as a part of nature ; dependant on nature for his survival; lived like a slave of nature; subservient to the domineering forces of nature; survived at the mercy of hidden and immutable laws of nature; accompanied by a general inability to transform nature with the simple and rudimentary tools technology available to him.

2. **Man over nature** attitude evolved gradually from its previous stage. Along with a rapid growth in man's knowledge of science and technology, he conceived nature as something to be conquered and exploited for his benefit. He forced nature to work for himself and exploited it to an unprecedented extent to fulfill his ever-expanding desires and needs. As a result of man's mastery over nature, he no longer regards himself as a slave of nature, rather master of nature.

Volume 9 Issue 3, March 2020

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3. **Man with nature** attitude has evolved as a reaction to the disastrous consequences of the exploitation of nature in its previous stage whereby, man realized himself to be an integral part of nature, that is, a member of the biotic community, which includes all animate and inanimate things of the ecological system including water, air, and earth. Man becomes aware of the fact that human beings are not alone living on this planet, but they are living among a multitude of animals, plants and inanimate objects on earth. Hence, he felt that any irresponsible damage done to the biotic community has its disastrous consequences on the survival of human existence.

Tribals:

Orissa has the second largest tribal population in India. As many as 63 tribal communities inhabit the state of Orissa and this diversity provides ample scope for ethno biological studies. Botanical Survey of India has done pioneering studies on the tribes of Orissa during (1970-71). Since then, a number of ethno botanical studies have been carried out on the various tribal communities of Orissa. Of the 63 tribal communities inhabiting the state, the Kondh, Poraja, Gadaba and Bonda of the Koraput region, still to a great extent, retain their traditional life style. Tribals are the people who live in forest and that is the basic reason they are so closely related to them. Forests are the only means of their survival and the only source of energy to their survival. They not only consider the forest as one of the most important part of their life but the whole environment per say. Tribals are the people who are backward in nature and lives on the basic elements provided by the nature. Even today they have sunlight as the basic source of light and energy and what the other light they know is that generated from fire. The word electricity is even not known to many of the tribes. This is the reason they consider every part of environment from trees to rivers as very important part of their life as they are the only means of human survival as per their understanding. The quantum of importance given to environment is not limited here they have given the environment as to the status of god and they worship trees, sun rivers, air and land. They even protect the environment considering it as their responsibility towards the lord of the human race.

1) Self-Sufficiency in Food and Farming

Despite the introduction of modern techniques in agriculture, many states and farmers suffer from low productivity. And the ones that produce a sufficient quantity use a heavy dosage of fertilizers and pesticides doing little good to human health.

The traditional farming methods of Adivasis have been successfully feeding their communities without the use of harmful substances. For example, Adivasi farmers in Sangabadi village of jeypore block practice the “*utera*” system. They save seeds from the previous harvest, sow several seeds at the same time, use animals to fertilize land and involve zero use of chemicals. In addition, mixed farming helps to recover the loss by failure of one crop.

Smt. Kamala Pujari, a tribal lady of Patraput Village, 15km from Jeypore, near Boipariguda, Koraput District, Odisha, has been preserving local paddies. Till now she has preserved hundreds of indigenous varieties of paddy.

Conserving paddy and promoting organic farming is not a pastime for her. After getting into this, she mobilized people, arranged group gatherings, and interacted with people to shun chemical fertilizers. She called many people to join with her and knocked door to door from village to village. Her efforts were successful and farmers in Patraput village and neighboring villages gave up chemical fertilizers. Without having any basic education, Kamala has preserved 100 types of paddy to date. Ms Pujari has collected endangered and rare types of seeds such as paddy, turmeric, tili, black cumin, mahakanta, phula, and gphantia. She is also known for having persuaded villagers in her area to shun chemical fertilizers and adopt organic farming for better harvest and soil fertility. She is an inspiration for the upcoming generations.

Born into a poor family in a tribal-dominated village in Koraput district, Odisha, Kamala Pujari has always been fascinated with traditional paddy seeds. This led to her cultivating paddy in her land so that she could preserve these grains for further germination. Over the years, Kamala has successfully preserved hundreds of indigenous paddies, and has also collected several endangered and rare types of seeds including paddy turmeric, tili, blackcumin and mahakanta.

Often called “preserver of paddy seeds”, Kamala’s efforts were recognised on a national level when President Ram Nath Kovind conferred her with the Padma Shri on March 16. When asked how she felt about the nomination she told The New Indian Express, I have a little knowledge of the award and the purpose for which it was given to me,”

This isn’t the first time Kamala has been recognised for her hard work and dedication. Prior to this, she had received several awards, including ‘Best Women Farmer’ by the Odisha state government in 2004. A love for farming Kamala was always dedicated to traditional farming, and learnt basic farming techniques from the MS Swaminathan Research Foundation in Jeypore, Odisha. The Foundation also helped Kamala form a seed bank along with a few other women from her village. After her training was over, Kamala went on to encourage other people and fellow farmers to stop using chemical fertilisers. She and a few of her fellow villagers formed groups and went from door to door, spreading awareness about organic farming in nearby villages. Her efforts showed result as farmers in Patraput village and neighbouring villages in Nabarangpur district gave up chemical fertilisers. Kamala went all the way to Johannesburg to participate in a workshop on organic farming organised by MS Swaminathan Foundation. She was applauded by participants from across the world, who appreciated her efforts towards organic farming, reports. In 2018, the Odisha State Planning Board, led by Chief Minister Naveen Patnaik, added Kamala as one of its members.

2) Ethno medicine

Indian pharmaceutical industry is worth 27 billion dollars and is the third largest in the world, by volume. Increasing diseases have led to an increase in the advancement of medicines and technology to cure diseases. But these medicines contain chemicals and have harmful side-effects. The occurrence of side-effects is a big drawback in the

health industry and masses are suffering from it. This is yet another field where Adivasis stand out with their use of ancestral plant-based medicine. Ethno-medicine is the belief and practice relating to health and diseases, which are products of indigenous cultural knowledge of the particular communities. The Bonda involve the use of herbs, plants and roots of some trees for healthcare. They have distinct ways of treating different diseases using a variety of herbal medicines. Their medicines are used to cure some common diseases such as fever, malaria, jaundice, etc. If we inculcate the use of this practice in our system of healthcare, minimizing the use of chemical-based medicines and choosing ethno medicines can be a good alternative to the recurring diseases among masses.

3) Associating the Self with Nature's Elements

We know forests are sacred to Adivasis and they have a co-existential relationship with nature. They associate their existence with land. This is not only because agriculture is their primary profession, but also they think of nature as their "mother" i.e. a divine entity. The land is their pride.

Nature is personified in different tribal literatures as different beings. They have emotions. They measure happiness of the self in terms of nature. For example, the Bonda tribes measure their happiness by cattle, crops, and children. One example that depicts the devotion adivasis hold towards nature is that of the Bonda. They are the ethnic Adivasi community of Koraput. Their principle god is the "Kanta bausuni" whom they consider as the creator of the universe. He is believed to control life and death. In Bonda culture, god resides in the Saja tree and this is why it is most sacred to the community. They ensure complete protection of the tree and use it for ceremonial purposes. Associating nature with human emotions can help us develop a bond with them so that we start respecting nature and stop draining the environment of resources in the long run.

Adivasi may be seen as a backward community today, but that is because the popular culture involves living in an unsustainable manner. Society looks down upon people who do not live a credit-based lifestyle, hoarding products of capitalism and living a life full of debt. Adivasis show us a far nobler way of life, one that does not extract resources mindlessly, treats the community members with more respect, is rooted in ancestral plant-based knowledge and worships nature instead of decimating it. Aren't these the virtues worth celebrating?

4) Influence of Alien Plants

Plant and human interrelationships are shaped by history, physical and social environments and inherent qualities of plants themselves. At the same time, different communities view plant sources with varying reverence and use. The plants in the forest have 'values' largely because the tribal communities have knowledge about their characteristics and the range of utility. For the community to test a plant, experiment and utilise, it has to be an integral part of their ecosystem. Plants that are alien to the tribal ecosystem may seldom be incorporated into their day-to-day life. The same holds good for plant species that may be of great value to the 'outside' world. This phenomenon is clearly observed in most of the tribal communities living

close to the "modern" world. One such example is the relationship between an alien species *Eucalyptus globulus* Labill., and the Gadaba of Chompakanda of Pottangi block in Koraput. The tree was introduced into their ecosystem as a part of a forestation program undertaken by the state forest department. Though *E. globulus* is a tree of great economic importance that yields pulp for the paper industry and medicinal oil, it is just an alien species for the community and the only use they find for it is to sell it in the local market for firewood. Of late, the Gadaba have started logging off these plants from their forest not for monetary benefits, but to expose the native vegetation growing underneath, on the forest floor. The same is the case in Bonduguda, a Kondh village in the Semiliguda block of Koraput district. Their hill slopes were afforested with *Acacia auriculiformis* A.Cunn ex Benth., an alien species. However, the Kondh find no use for it and describe it as a 'useless tree'. They have started logging off these plants so that their native vegetation could be restored.

The knowledge of the native people in the non industrialized regions of the world on their bio resources is extensive. This knowledge enables them to identify any new element in that ecosystem. While alien species are often rejected, there are also cases where such species were accepted into the tribal societies. However, it should be noted that such plants would have enjoyed some kind of indirect relationship with that society. For instance, the Kondh of Kondhpungar in the Semiliguda block of Koraput district use *Pterospermum xylocarpum* (Gaertn.) Sant. & district Wagh (**machkund**) in their ethnomedicine. Its flowers are kept in the ears of women during child delivery to ease pain. But, when another species of *Pterospermum*, *P. acerifolium* Willd., was introduced from Pakajhola a nearby predominantly Poraja village, the Kondh started using the flowers of this species too. Now, the name **mochkund** is applied to both the species. *P. acerifolium* owes its acceptance by the tribal society for its similarity with *P. xylocarpum* in appearance as well as in aroma. Moreover, *P. acerifolium* flowers more profusely than *P. xylocarpum* which increases the availability of flowers. Today, both these species enjoy a key status in their ethno medicine.

Our life starts and ends with the forest. It's our lifeline, the primary source of our food and livelihood," said Mukti Prasad Mallick (57), of Sangabadi village in Odisha's Koraput district that has a predominant tribal population. "We cannot imagine a life without the forest."

"We collect the leaves of sal (*Shorea robusta*) tree found in plenty in the forest, and stitch them into bowls and plates for our use and also to sell in the market. Sal seeds are also in demand because of their use by the soap industry," said Gaura Pradhan, village committee president of Sangabadi village. "While leaves and seeds provide us livelihood, the dry branches serve as firewood."

Biodiversity is therefore the natural biological capital for our life support system on the planet Earth. Our survival depends on the web of life created by the interactions of the millions of different animals, plants, fungi, and other microscopic organisms that share the Earth with us. All of

these species together make up our natural heritage, which we call biological diversity, or “biodiversity.” Because of human activities that pollute or destroy natural habitats, we are losing species at an alarming rate. We are, so to speak, erasing nature’s hard drive without even knowing what data it contains.. This goal can only be achieved through the concerted of all sections both national and international alliances between policy makers, science, the public and business.

2. Conservation Strategy

The luxuriant forest cover of Orissa has been devastated due to constant operation of biotic factors of various categories. Several anthropogenic activities are going on inside the forest, depleting the forest cover day by day. Shifting cultivation is also a major threat to forest depletion. Tribals are mercilessly cutting down the trees and cleared the forest areas for cultivation. The steps needed to be taken for conservation:- (1) All potential biodiversity rich areas to be identified demarcated and mapped. (2) Degraded patches need to be restored and given adequate protection. (3) Shifting cultivation to be protected. (4) Joint Forest Management with adequate eco-development packages should be encouraged and practiced. (5) Awareness should be created among the people on the protective, productive and ecological role of forests. (6) Plantation programmes should go on regularly. (7) Research need be taken up on various aspects of forest species like propagation, hydrology, economics and ecology etc. (8) Strengthening livelihood security of the local community who are living adjoining to the forest areas. (9) Empowering the stakeholders in adopting participating Forest Management practices. (10) Forest protection act and Environment act should be strictly regulated.

3. Conclusion

The major problem faced by the tribal population at present time is about the lack of knowledge of their own rights. They themselves and others also are not aware of the particular rights which have been vested in them. The basic reason for such a mess is the lack of any specific legislation which specifies the rights of tribal’s with respect to the environment conservation. Tribal people has been worshipping the environment considering it as god from time immemorial and this is one of the main reason, they protect it from any hazard, as because of their moral obligations, but due to this emerging words the tribal’s have been suppressed in different manner by several powerful sects of society. Therefore, this is the need of the hour to specify their rights and enact a statute to support the tribal people to secure their rights. The reason behind securing the rights of the tribal is just not limited to them but at last it comes to the protection of the environment and this is well understood from the paper now that tribal people are the best protectors of the environment, who serves the environment without serving much of their own selfish interest.

In this alarming situation conservation of these biodiversity rich wealth is very important. Most of these plants have been reduced to a greater extent and even some endemic and endangered species disappeared from these areas of Orissa.

Therefore, immediate steps must be taken in these areas for in-situ as well as ex-situ conservation of these taxa. This task should be undertaken not only by the government but also by the non-government organizations (NGO’s). More forest areas should be protected by declaring them as sanctuaries, reserve forest and so on. This will facilitate to grow the endemic taxa in the natural environment. Use of natural forest areas for development work should not be allowed. Plants are conserved in Botanical gardens and seeds are also stored in seed banks. Propagation of rare and endangered plants should be made through seeds as well as through vegetative propagation. However, with a better understanding of the concept and it’s across the-broad applicability, the state of Orissa is reorienting its various programmes to fulfill the national and international commitments towards biodiversity conservation.