
BLOCK IV
Indigenous Knowledge and
Natural Resource Management

UNIT 11 INDIGENOUS KNOWLEDGE AND NATURAL RESOURCES*

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LEARNING OBJECTIVES

At the end of this unit, you will be able to:

- explain what is indigenous knowledge, how it is patterned and how it is different from western or modern knowledge system;
- understand how indigenous knowledge is related to natural resources and further why it is important to make optimum use of natural resource for human population; and

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- know what are basic constituents of natural resources, its linkages with indigenous knowledge, people, and how they are necessary for livelihood of local population;

11.0 INTRODUCTION

This unit highlights the significance of indigenous knowledge and natural resources and their utilisation among the local population with focus of relationship between human beings and natural biodiversity. Natural Resource Management (NRM) refers to the management of natural resources such as land, water, soil, plants and animals, with a specific focus on how management affects the overall quality of life. Indigenous people happen to be the carriers of ancestral knowledge and wisdom regarding biodiversity. Their active participation in biodiversity conservation programs is essential for resource management to be more effective and cost-efficient. A comprehensive NRM approach is very critical to human survival and prosperity. Forests worldwide cover around 3.9 billion hectares, while the existing forest resources are divided into six categories globally, namely, Moist Tropical, Montane Sub Tropical, Dry Tropical, Montane Temperate Forests, Sub Alpine and Alpine.

Under diverse natural conditions, over a billion people in rural and under diverse natural conditions, over a billion people in rural and urban areas live in harmony under a democratic system in India. However, the loss and fragmentation of natural habitats invariably affect all animal and plant species. The predominant causes underlying the declining forest cover are over-exploitation, overgrazing, encroachments, unsustainable practices, forest fires, and non eco-friendly development projects in the forested areas. Forest resources help protect ecological systems besides enhancing the quality of environment by way of controlling soil erosion and water retention. But, increasing population and commercial demand for wood have dented the natural forest cover nurtured by our ancestors.

Considering that local knowledge is no longer receiving its due attention in modern India, the loss of natural biodiversity has doubled with conservation becoming much more challenging. Along with science, local technologies and people's knowledge regarding ethno forestry have an important role to play in biodiversity conservation and sustainability. A balance between local and formal institutions can result in empowerment, security and opportunities for local people. Also equity of knowledge provides an opportunity for local people to participate in the management of local resources with global implications.

Before going to detail description of the one attributes of the natural resource management such as flora, fauna land and water we are here first discuss about Indigenous Knowledge, its conceptual understanding with how its differ pattern in the local population.

11.1 INDIGENOUS KNOWLEDGE (IK)

Indigenous knowledge (IK) is used at the local level by communities as the basis for decisions pertaining to food security, human and animal health, education, natural resources management, and other vital activities. IK is a key element of the social capital of the poor and constitutes their main asset in their efforts to

gain control of their own lives. For these reasons, the potential contribution of IK to locally managed, sustainable and cost-effective survival strategies should be promoted in the development process. Indigenous knowledge is an integral part of the culture and history of a local community. We need to learn from local communities to enrich the development process in sustainable way. Indigenous knowledge (IK) is currently flavour of time both economic commodity and political slogan. It has market value placed upon it, and has become pivotal in preserving the identity and culture of indigenous people whose traditional way of life is under threat.

11.1.1 What is Indigenous Knowledge?

Indigenous knowledge can be broadly defined as the knowledge that an indigenous (local) community accumulates over generations of living in a particular ecological setting. The definition includes all forms of knowledge-technologies, know-how skills, practices and beliefs- that enable the community to achieve stable livelihoods in their environment. A number of terms are used interchangeably to refer to concept of IK, including traditional knowledge (TK), Indigenous Technical Knowledge (ITK), Local Knowledge (LK) and Indigenous Knowledge System (IKS). The most recent definition given by Gadgil (1993) it is a cumulative body of knowledge and beliefs handed down through generations by cultural transmission about the relationship of living beings including humans with one another and their environment. It is unique to a given culture or society.

Although there are some conflict prevalent in the naming of these knowledge system. For the sake of the simplicity we have being using both the term interchangeably. In this way TK and IK are synonymous in using. But there are debates over the use of term for particular concern or some other perspectives. Generally in the development scenario the term 'indigenous' is more favour than 'traditional'. While at the same time 'traditional' is refers more on the lifestyle of the particular community. One more different as indigenous generally used for the tribal community whereas traditional refers to the non-tribal village.

IK is unique to every culture and society and it is embedded in community practices, institutions, relationships and rituals. IK is considered a part of the local knowledge in the sense that it is rooted in a particular community and situated within broader cultural traditions. It is a set of experiences generated by people living in those communities. IK is based on, and deeply embedded in local experience and historic reality, and therefore unique to that specific culture, it also plays an important role in defining the identity of the community. It has developed over the centuries of experimentation on how to adapt to local conditions. It therefore represents all the skills and innovations of a people and embodies the collective wisdom and resourcefulness of the community.

Indigenous people have specific ways of the transmission of cultural trait from one generation to next generation. Cultural communication done through traditional folk-songs, folk-tales, folk-legends, folk-ritual, proverbs, and total design of living style to convey as means of transmitting specific human elements of traditional knowledge. Often this way of communicating in order to acculturation of new individual to specific community is intermingled with all the social institution like family, kinship and religion.

Indigenous knowledge is having many definitions but there is not anonymity among the users of the term. For some (Sillitoe, 1998: 224) anthropologist of the view that indigenous knowledge is comes under the development domain, while some includes in this totally way of life. Sillitoe (1998, 224) is of opinion while defining the term indigenous knowledge as ‘intellectual pursuit’ rather than developed as practical purposes. So as form him it is developed as thinking level or special perspective of thinking world in his concern ‘development project’. So the objective of the indigenous knowledge is to incorporation of locally prevalent ideas, knowledge in to the mainstream knowledge (some says in the western stream of knowledge) in the development perspective to attain a position in the power structure by the Indigenous Knowledge entity.

While talking the evolution of the indigenous knowledge Sillitoe (1998, 225) is of the opinion that there are two ways or of the development of the indigenous knowledge system. In this both are developed largely separately two divergent views such as one academic and other one is development focused. In academic perspective the study of indigenous knowledge system is developed from the starting from the 1960s with the advent of ethnoscience in the discipline and more developed with the other related perspective such as Symbiotic Anthropology & Human Ecology. While in the development way it started in 70s in subject such as farming system and participatory development with incorporation of the anthropological knowledge to these studies. In fact this perspective comes from the resultant of far-reaching changes occurs in the thinking and practical application in the various development issues. Earlier in 1960s the development is seen only the technology transfer model from the western (developed) to non-western (un-developed countries) like inception of the high yield varieties of grains in the Indian subcontinent.

Check Your Progress

- 1) Define the term indigenous knowledge.

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11.1.2 Pattern and Difference between Indigenous Knowledge and Western Knowledge

There is difference in the construction, development and transmission of the indigenous knowledge and western knowledge. Primarily traditional knowledge differs from modern knowledge in the manner of creation i.e. traditional knowledge is normally empirically validated therefore it is said that Modern Knowledge has been validated in laboratory of brick and mortar whereas traditional knowledge has been validated in the laboratory of life.

As the anthropologist Levi-Strauss (1966) argued that indigenous knowledge and Western science are two parallel modes of acquiring knowledge about the universe, yet he observes that “*the physical world is approached from*

opposite ends in the two cases: one is supremely concrete, the other supremely abstract.” On the other hand Cleveland (1998) and with Soleri (Cleveland, and Soleri, 2002) had given the four point method to study both the knowledge system. Such as, the indigenous knowledge of local farmers consists of basic four questions. First how local farmer understand the basic biological models of relationship between plant genotypes, phenotype and results of seed selection. Second include the farmer’s ethno-ecological understanding of agro-practices. Third point comes to mind basic between farmer ethno-knowledge with the broader mainstream knowledge. Finally the fourth and last one is to ‘contribute collaboration’ of farmer’s and scientific understanding in a way to improve the result of agro-production.

Indigenous Traditional knowledge is not patterned like the western knowledge system. Traditional knowledge is not like the science a discovery of truth. Rather than it is looking what is exactly exist pattern of living at present and how it constitute to the wellbeing of the human society. So traditional knowledge is the knowledge meant for survival. The primer thought on which traditional knowledge is established is the means to live not for explaining something, or arrival on the core truth of the subject. It is matter of concern of belief and cultural lifestyle of the local people that is accessed, documented and disseminated within the society through the process of socialization. So it is differed from the modern or Western knowledge which is emphasis on the learning there knowledge becomes the concept for simple determination and application of the discovering the truth of the concern subject.

11.1.3 Transmission of Indigenous Knowledge

The local population of any specific ecological setting has special way of transmission of cultural trait from one generation to next generation with the institutional based formal form of socialization. Cultural communication done through traditional folk-songs, folk-tales, folk-legends, folk-ritual, proverbs, and total design of living style to convey as means of transmitting specific human elements of traditional ecological knowledge. Often this way of communicating in order to acculturation of new individual to specific community is intermingled with all the social institution like family, kinship and religion. In indigenous knowledge systems, there is usually no real separation between secular and sacred knowledge and practice - they are one and the same thing.

Check Your Progress

2) Difference between Indigenous and Western Knowledge.

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In next section we will try to know how this indigenous knowledge system interact with biodiversi-ty attributes separately namely flora and forest, land, water, soil etc.

11.2 INDIGENOUS KNOWLEDGE, FLORA AND FOREST

Indigenous knowledge on the flora of India and adjacent region is as old as ancient scriptures, bio-geographical niche, cultural history, natural resource on which the indigenous communities are dependent upon on this subcontinent. The topography coupled with gigantic watershed river system, diverse mountainous, desert, oceanic ecosystems and varied climatic influences and other factors have contributed immensely towards the rich flora of the region with variety of life forms subsistent on them. There is marked affinity of indigenous traditional knowledge (ITK) of different communities of India with that of Indo-Tibetan, Sino-Himalayan, Indo-Nepal, Bhutan, Bangladesh, Pakistan, Sri Lanka, Myanmar region rich in forest biodiversity and genetic resource. Globally Indian sub-continent has admixture of flora and fauna of African, European, Mediterranean, Australian and south American origin (https://www.fao.org/3/XII/0303-A3.htm#P28_106).

While coming to Indian condition it is estimated that 90% of tribal communities in India live in or in close proximity to forests. The forests that remain in India today are mostly in tribal areas. According to the 2001 Census, the tribal population in the country was 84.3 million accounting for 8.2% of the total population. The tribes have traditionally lived in about 15% of the geographical area of the country, mainly in forests, hills and undulating inaccessible terrain in plateau areas which are rich in natural resources. As per the Forest Survey of India report (2003), about 60% of the forest covers of the country and 63% of the dense forests lie in 187 tribal districts.

Indian region, further, is endowed with rich forest biodiversity, representing nearly 18000 flowering plant species occurring in various distinct floristic zones. About 75,000 species of animals, 340 species of mammals, 1200 kinds of birds, 420 reptiles, 140 amphibians, 1200 kinds of birds, 420 reptiles, 140 amphibians, 2000 fishes, 50,000 insects, 4000 molluscs and other invertebrates are distributed in the land mass of 329 million hectares and a coastline of 7516 kms.

Indigenous communities are represented by nearly 430 distinct ethnic groups interspersed among 54 million under 227 linguistic groups and inhabiting different phytogeographical locations. An appreciable proportion of the biological components is used by indigenous communities for variety of value-added products such as food, fodder, dyes, fibre, gum-resins, rattans, bamboos, medicinal herbs etc. through their traditional mode of survey, collection and usage. Various ethnic groups have gathered considerable knowledge about the use of plants due to their constant and intimate association with the forests and plants in particular. ITK on Indian flora still remains scrupulously guarded by the communities from publicity. The wild resources are in fact the result of co-evolutionary relationships between indigenous peoples and nature since time immemorial (https://www.fao.org/3/XII/0303-A3.htm#P28_106).

From the taxonomic-cum indigenous peoples' dependence on the forest diversity point of view, ethnobiological studies have been carried out on all India basis. Ethnobiological information on nearly 10,000 wild plant species

including 7500 species for medicinal purpose, 3900 subsidiary food, 525 fibre and cordage, 400 as fodder, 300 piscicides and pesticides have been documented. Among the fauna indigenous traditional knowledge based on sound taxonomy of 76 species of animals (60: vertebrates- amphibians, birds, pisces, reptiles and mammals), 16 invertebrates (arachnids, insects, molluscs, etc.) exist. Scientific scrutiny of several of such bio-resources have characterised and standardised applications for safe use. Numerous medicinally important flora assessed through indigenous knowledge system have been documented and tested of popular tribal remedies. Over 300 items of assorted medicinal plants are extracted and traded from Himalayan and north-eastern region of India, Pakistan, Nepal, Bhutan, Bangladesh and Myanmar (https://www.fao.org/3/XII/0303-A3.htm#P28_106).

11.2.1 Indigenous Knowledge and End-users

Indigenous knowledge on the traditional classification system being followed by ITK holders (IKH) in colloquial/ dialects/linguistics has not been by and large converted in to taxonomic language of scientific world. Choice of species with features of taxonomic characters on the variability and propagating materials other those a traditional/orthodox taxonomist follows are needed under different project activities pertaining to the integration of ITK base with modern conservation measures. With the shrinkage of the bio-resources rich areas under indigenous communities and vanishing of knowledge along with indigenous communities such as Kolazuthu and Aryazuthu of mountain tracts of southern India, there is urgent need to make joint venture through the application and integration of scientific knowledge through the ways and means the communities understand and prefer most considering the components of ITK.

Table 11.1: End - Users and Components of ITK

End-Users	Components of ITK	
	Products of Grassroots Innovation / Outputs	Services
Indigenous Knowledge Holders	- Survey and inventorisation - Education and extension materials	- Benefit sharing through individual / collective mode and material/ nonmaterial benefits to IKH. - IPR (Intellectual Property Right) recognition - Capacity building.
Organisation or projected activities with short or long term objectives or mandate	- Interpretation and conversion of ITK - Conservation of rare and threatened species.	- Free supply of useful materials for propagation / domestication etc. - Developmental activities in IKH localities.

Source: <https://www.fao.org/3/XII/0303-A3.htm>

Benefits to indigenous knowledge holders may be in the form of award to the preservers/ custodians of biodiversity, monetary incentive for ITK on the phytogeographic/ zoogeographic and economic evaluation on species of great significance to mankind (Individual - Material). Under nonmaterial approach the individual (IKH) honour for traditional method for systematic evaluation

for conservation efforts may be considered. The local governments in the form of communication and amenities may develop the services for rendering to the communities being focussed for integration of knowledge.

From the integration of taxonomic knowledge there is need for characterisation of traditional methods of identification and classification, value addition and methods of pre and post harvesting of species. The range extension of species helps in inventorisation and monitoring. Popular beliefs folklore has now scientific principles for interpretative approach. As mentioned earlier, ethno-biological information on 10000 wild plant species and 76 species of fauna have been deciphered taxonomically in India, under co-ordinated project activities through concerted efforts in India.

With the property right and patent regimes the lesser known aspects of ITK have now larger attention and specific interest for commercial extraction. The lacunae in this respect exist in various ways and means. For example, with the change in dialects and linguistics in an area of ITK significance confusion over a name and complex groups of species exist with superfluous nomenclature. There is no uniform code of nomenclature in a physiographically and biodiversity rich area.

From the organisational level there is need for registration of grassroots innovations, certification of products for the authentication, besides developing benefit sharing mechanism on sustainable basis. Ethno-taxonomical products of biological origin have least record of information. For example, a plant is known to an IKH by its morphology, area of occurrence and usefulness to which they (IKH) have a vernacular. Yams (*Dioscorea*) of north-eastern India are known by Khasi tribe by the characteristic leaf with simple to digitate and variously shaped underground corms of similar species. The taxonomic knowledge of IKH may be put under coded, where the species and the products are known scientifically and the application of recent trends has subsequently made.

The products of ITK base are used for their time tested, cost effectiveness, purity, environmentally friendly nature and popular beliefs. It is found that the admixture of products of dubious taxonomic entity is in practice for commercial gains. With the upsurge of patent regime with out recourse to effective IPR of IKH in different areas, several agencies have competition among them for registration and marketing of the product. It is found that the little and less known ITK on better known species diversity have higher prospects. In such case the differences in patent laws of different countries play a key role particularly when the inventory is at inter organizational- cum- international level (https://www.fao.org/3/XII/0303-A3.htm#P28_106).

11.2.2 Need and Priorities

The improvements with regards to the products/ outputs and services proposed are (i) bio-geographical levels of characterisation of biodiversity rich areas of ethno-biological significance using remote sensing and GIS (ii) registration of grassroots innovations by IKH (iii) characterisation of products through application of scientific knowledge (iv) relocation, reintroduction and rehabilitation of rare and threatened species (v) preparation of extension materials based on local dialects and language. (vi) involvement of community

through participatory approach (vii) gender initiatives with regards to different aspects of sustainable utilisation (viii) studying the aspects of ITK entities of communities of disjunct and close affinity (ix) benefit sharing considering the sanctity of the region and ethics (x) developing at organizational and local government level accessibility to IK rich areas and IKH (xi) capacity building of IKH through integrated approach, and (xii) development of common format for the use of IKH at regional/national/international levels for rapid assessment, evaluation of features of forest biodiversity significance and integration of knowledge (https://www.fao.org/3/XII/0303-A3.htm#P28_106).

11.3 INDIGENOUS KNOWLEDGE AND SOIL

Indigenous pedological knowledge is related to soil of the land of the particular ecological setting. This includes the indigenous knowledge of the local population regarding the soil typology, structure, fertility, suitable utility and conservation for the various function related to local population livelihood such as agriculture or horticulture etc. In this local classification use the soil classification as ‘folk taxonomy’ for adapted indigenous soil management practices. Local farmer have a vast amount of practical knowledge repertoire about how their soils affect crop productivity.

Soil constitutes one of the key parameter in the analysis of the relationship between demographic pressure, land use dynamics and land degradation processes in the local agro-climate. The analysis of indigenous knowledge systems has a long tradition in anthropology (Conklin 1972) and in this a broad sub-discipline which is called ethnecology which focus local knowledge of all ecological condition of the particular locality and particular group of the people.

11.3.1 Indigenous Knowledge, Ethnopedology, Conceptual Width

Ethnopedology is a part of ethnoecology, the study of indigenous environmental knowledge (Toledo, 1992, 2000). It is a hybrid discipline structured from the combination of natural and social sciences, such as soil science, social anthropology, rural geography, agronomy and agro-ecology (Barrera-Bassols and Zinck, 2003). Often, terms such as traditional, folk, local, indigenous, farmers’ and peoples’ soil knowledge systems are used interchangeably to refer to ethnopedology.

Ideally, ethnopedology encompasses all empirical soil and land knowledge systems of rural populations, from the most traditional to the modern ones. It analyses the role of soil and land in the natural resource management process, as part of ecological and economic rationale. Soil and land are explored as (1) polysemic cognitive domains, (2) multiple-use natural resources, and (3) objects of symbolic meanings and values. Symbolism (Kosmos), knowledge (Corpus) and management practices (Praxis)—the K – C – P complex—articulate the empirical wisdom of local people about the soil resource. The interaction of the three domains of the K – C – P complex results in the merging of sacred and secular features, knowledge and experience, facts and values, and matter and mind. In practical terms, it allows peasant’s risk aversion to be counteracted, enhances food self-sufficiency and agricultural sustainability,

promotes low dependence on external inputs, makes maximum use of soil and landscape diversity, and secures survival under economic uncertainty. To reach these goals, a strict cultural control — selecting and monitoring land uses and management practices — is applied within each community.

The main research fields of ethnopedology include:

- local classification nomenclatures, and soil and land taxonomies;
- local soil and land resources perception, and the explanation of the structure, distribution, properties, processes and dynamics of the soil mantle;
- local knowledge of soil and land relationships with other biophysical factors, elements and processes;
- beliefs, myths, rituals and other symbolic meanings, values and practices related to land management and soil quality evaluation;
- local land uses and soil management practices;
- local adaptation, renewal and transformation strategies of soil properties and land qualities
- co-validation of ethnopedological knowledge, abilities and skills with modern soil science, geopedological survey, agro-ecological strategies, and agricultural and other rural practices, to promote participatory land evaluation and land use planning procedures for endogenous sustainable development (Barrera-Bassols N and J.A. Zinck, 2003)

Check Your Progress

2. Describe Ethnopedology.

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11.3.2 Methodological Approaches

They mark a shift from mono-disciplinary to integrated research. A review of ethno-pedological information sources reveals three main research approaches: ethnographic, comparative and integrated. It also shows a shift from early mono-disciplinary research towards studies that combine a variety of methods and techniques, in accordance with the broad nature of the traditional soil knowledge.

11.3.2.1 Ethnographic Approach

In the ethnographic approach, field data analysis and ethnopedological knowledge acquisition are the main objectives in recognising farmers' environmental rationality from a cultural perspective (Malinowski, 1935; Conklin, 1957). In this type of study, the ethnopedological information is not compared with scientific soil information. In most cases, the empirical soil information does

not substantially contribute to integrated analysis of the local natural resource management. In this detail ethnographic knowledge of the local population with the methodological approach studied.

Classical ethnographies usually contain a few descriptive sections devoted to ethno-pedology. Linguistic criteria referring to soil attributes and land management strategies are often listed. Earlier ethno-pedological attempts were based on the linguistic analysis of local soil and land classification systems, similar to earlier studies on ethnobiology (Talawar and Rhoades, 1998).

11.3.2.2 Comparative Approach

The shortcoming of the ethnographic with the addition of the scientific and western knowledge of the local knowledge comes in this approach. The comparative approach aims to establish similarities and differences between local knowledge and scientific information. This type of study intends to identify possible correlations between different soil and land classifications and management systems. The analysis does not take into consideration the socio-cultural contexts from which perceptions, beliefs, cognition and practices are derived.

As in conventional ethnobiology, the analysis and correlation of soil and land classification systems form the main objective of the research, thus excluding other fundamental elements belonging to the local environmental knowledge systems, such as the symbolic meanings and values, as well as farmers' expertise. Although some studies demonstrate the scientific validity of local soil and land resources cognition, in most cases it is assumed that soil science is superior to local soil knowledge, so that the latter needs to be proven and formalized to be scientifically tapped (Thrupp, 1989; Sillitoe, 1998). The application of local soil and land resources knowledge during the production process is left out; thus the practical consequences of cognition systems and the analysis of local ecological and economic rationale are not covered by these studies (N. Barrera-Bassols and J.A. Zinck, 2003).

11.3.2.3 Integrated Approach

The integrated approach identifies and mobilises the relationship between cultural and scientific information in order to elaborate natural resource management schemes according to local social, cultural, economic and ecological contexts. Together with off-community agents (e.g. soil scientists, agronomists, social scientists, planners, among others); farmers participate in validating and integrating information into the local decision-making and planning procedures. Designing sustainable natural resource management models is promoted. This ethnopedological approach is still in its early day's (Ostberg and Reij, 1998; WinklerPrins, 1999). Its main goal is to link soil and land wisdom and knowledge in order to promote feasible and sustained local endogenous development in an interdisciplinary perspective. By analysing historical, ecological, economic and political factors and changes at the local level, and with the full participation of the local actors, this contextual approach could gain strength through co-validating and implementing in a creative way both the scientific and the empirical sources of information (N. Barrera-Bassols and J.A. Zinck, 2003).

11.3.3 Dominant Research Themes: From Soil Classification to Land Management Practices

Ethnopedological research covers a wide topical array centred on four main subjects: (1) the formalisation of local soil and land knowledge into classification schemes (2) Comparison of local and technical soil classifications (3) the analysis of local land evaluation systems, and (4) the assessment of local agro-ecological management practices (N. Barrera-Bassols and J.A. Zinck, 2003).

There are some significant similarities and complementarities between indigenous and scientific soil taxonomic systems, showing potential synergism, especially for solving problems related to soil and land management. A few examples are provided to illustrate this potentially fertile research area.

Ten years of ethnopedological research findings in the Himalayas demonstrate a close correlation between indigenous and conventional soil taxonomies (Tamang, 1993). Most of the indigenous classes can be readily converted into commonly used scientific classification schemes. Also, a close correlation between indigenous soil colour classes and soil chemical conditions reveals that farmers are well aware of the unique differences between soil colour and associated properties. Furthermore, there is a strong correlation between indigenous land classes and soil fertility. Local land quality classes for agricultural purposes correlate well with selected chemical properties (e.g. levels of cation exchange capacity and exchangeable cations), particularly in those soils that have not been altered by chemical fertilisers (Shah, 1995).

Indigenous and conventional knowledge systems are equally limited in their abilities to mitigate and prevent actual soil erosion hazards in the Himalayas. Both, however, have also extensive complementarities, considering the time frame and spatial scale of the responses provided by each system. Indigenous knowledge responds primarily over the long-term and takes into account off-site effects of soil loss. Complex soil landscape management and land use planning strategies constitute local responses to each specific erosion event over a decadal perspective. In contrast, conventional science primarily formulates general responses to individual erosion events and operates fundamentally on the site and over the short-term. Structural and vegetative techniques are implemented to reduce downstream sedimentation. The complementation of local and conventional approaches and techniques in the Shivalik Himalayas in India promotes increased productivity and drastically reduces sedimentation in eroded agricultural lands.

11.4 INDIGENOUS KNOWLEDGE AND WATER

The importance of water resource development was recognised by many ancient civilisations, which emphasised on various mechanisms of water appropriation, collection and its distribution. The maintenance of water quality and the means of regenerating the water resources were crucial factors for sustainability, especially in the dry areas. Water harvesting can be traced back through human history almost as far as the origins of agriculture. These ancient practices sustained people when conditions otherwise would have totally prevented agriculture. Since the inception of human civilisation, human beings have given

emphasis on capturing rain water through the construction of ponds and other storages. Many people in the world have continued to rely on water harvesting practices.

Social and cultural diversity coupled with the environmental complexity have generated diverse approaches and technologies in the management and use of different natural resources. Water used to be shared, preserved and regulated as per cultural norms of the people everywhere. Earlier people used to conserve water for their multifarious use, both individually and communally, following age-old traditions. Traditionally, indigenous communities made decisions concerning the sustainable use and management of natural resources, which were governed by the village Council/institutions. Many tribal and rural communities were, or are, well aware of the value of conserving biological resources, and had devised effective methods to conserve them.

Surface water was or is traditionally harvested collectively by constructing embankments across water conduits, gullies, natural channels and dikes; whereas ground water was/is harvested through dug-wells. The traditional system of rain water harvesting, which was one of the best ways of water management, helped people in overcoming rural poverty and unemployment resulting in an overall improvement of the economy. Agarwal and Narain (1992), while emphasising on the importance of traditional system of water harvesting in Rajasthan, point out that these water bodies were the major sources of their livelihood. They further point out that these systems even helped the people of Thar Desert to face the water crisis in summer. The traditional cultural and institutional mechanisms evolved strategies for effective use of resources. Culture usually plays a vital role in the development and conservation of traditional societies. The culture specific factors like traditional practices, values and beliefs play an important role in using, sharing, managing and conserving water resources. The traditional system of community management and local governance was based on the ideas, values and beliefs that a particular society held. In the traditional system, participation was evolved through centuries as a cultural norm and it was enforced through social institutions. Their cultural beliefs and practices coincided with the process of natural resource management and it had not only helped in preserving the natural resources but also in preserving the social solidarity. The rituals that they perform at the time of scarcity, used to bring all the villagers on to one platform. The cultural practice of obeying the decision of village council had helped in maintaining the social order and customary relation among the villagers.

There existed social arrangements to ensure participation of different social groups in the maintenance of water bodies and irrigation tanks. Village tanks were considered as the sacred resources of village and their maintenance was considered as a matter of honour. The tanks benefited most of the sections of the village society directly and indirectly. Some of the weaker sections had the traditional rights to distribute of water among landowners. This right to distribute water also has given them the right to access irrigation water to their lands. Even though the system was not based on principle of equity, it was efficient. The farmers used to make an effort to acquire water, distribute it among themselves according to some accepted norms.

11.4.1 Case Study – Saura Tribe of Odisha

The *Saura* are one of the oldest known tribes of India. They are called by various terms such as *Savara*, *Sabara*, *Saura*, *Sora*, etc. They are found in great compactness on the edges of the Eastern Ghats in undivided Ganjam and Koraput districts of Orissa and Srikakulam district of Andhra Pradesh. The *Saura* show their racial affinity to the proto-Australoid physical characters, which are dominant among the aborigines of Central and Southern India. The four types of *Saura* who are prominently found in Orissa are *Lanjia Saura*, *Sudha Saura*, *Kampu Saura* and *Malia Saura*. The *Saura* in the study village belong to *Sudha Saura*.

11.4.2 Traditional System of Water Management

The agriculture in the study area was completely subsistence in nature. The farmers were depending on nature for agricultural production, which was the main source of their income. They had lots of ecological knowledge, which helped them in forecasting the future state of rain. The farmers who lived and enjoyed the agrarian life were fascinated by the myths, legends, rituals, customs and beliefs. The villagers had many beliefs, which helped them in forecasting the time of rain. The *Sauras* of this area believe that if three seeds are found in a *palasa* fruit, in that year there would be good or copious rain.

They have observed that some animals could feel the forthcoming of rain. It is also believed by *Sauras* that *kudindati* bird, which usually lays one or two eggs in the first half of rainy season, if it lays three eggs and able to bring all three birds safely from these eggs there will be good rain in that year. They also have a belief that heavy rain will come from that direction towards which the *kumpeilada* bird keeps the tail of its nest in the beginning of rainy season. All the villagers, irrespective of caste and community, used to believe that the flying of para (pigeons) or *jhari poka* at unexpected times and ants with eggs moving from one place to another are indicators of forthcoming of rain. Similarly, Peacocks dance seeing rain clouds as if to invite the monsoon, which is their mating season.

Gadasum Puja: It is popularly known locally among the non-*Saura* as *bana devata puja* or *giri gobardhan puja* or *brusam puja*. This ritual is observed in the month of *Asadha* (June-July) during the time of drought. If there was no rain in the month of *Asadha*, *Gomango* used to call a meeting of villagers and discuss about the situation in that meeting. The contribution of the villagers for this ritual used to be decided in that meeting. With the permission of *Gomango* the *Barika* collects the contribution from all the households in the village. Here, the participation of villagers was not confined to only landholding households. Once the collection of contribution are over the *Gomango* used to consult the *kamanda* (priest). After consulting *panjika* (almanac) the *kamanda* used to inform the date of observance of this ritual to the *Gomango*.

Indra Puja: When the irrigation system of the study village was not so developed, the villagers were performing various rituals for receiving rain at the time of drought. It is viewed that at the time of difficulties, when there was drought, the villagers used to collectively arrange for the worship of the lord

Indra to bring rainfall. The *puja* used to be held near the village deity by the *Pujari* (Brahmin priest). The belief was that if the *Pujari* performs the ritual in a proper way, then rainfall will inevitably occur during the worship. The *Pujari* will not leave his *asana* (seat) until it rains.

11.4.3 Traditional System of Terracing

Though *Sauras* were depending on the mercy of monsoon for their survival, they had a good tradition of water management. By stone packed contour bundling, they used to lay small terraced fields on the hill slopes and grew paddy. By means of channels they regulated the flow of water from the natural hill streams and irrigated their terraced fields. They were terracing the hillsides for rice cultivation. The bed of the stream was levelled and terraced in some places. Floodwater was drained out by some drains on both the sides. By doing this they used to take advantage of the perennial springs to irrigate their narrow terraced fields during late winter and early rainy months. In order to pass the water from one field to another they used to make a hole in the wall of the land. The hole used to be made just above four inches from the level of the land so that the entire water cannot runoff to lower land.

11.4.4 Traditional System of Tank Management

Apart from the terracing system, they used to depend on *bandha* (tanks) to irrigate their lands. '*Bandha* is the traditional rainwater harvesting system consisting of a major embankment across the line of the drainage. It resembles a rectangular (or semi-circle) catchments basin with only three embankments and the fourth side left open for runoff and drainage water to enter. *Bandha* are inextricably linked to the socio-cultural aspects of rural life and have historically been an indispensable part of the village habitat, sustaining its socio ecological balance. *Bandha* systems were developed ingeniously and maintained over centuries. The traditional village *Bandha* are the best source of rainwater conservation. Besides, providing surface water it also helps in recharging the ground water. It is an easily accessible community resource for meeting the requirements of drinking water to human beings as well as animals. The sustainability of flora and fauna in rural areas is directly related to the perenniality of *Bandha*. In this rain-fed area the village *bandha* used to serve as a major source of irrigation. Traditionally, *Bandha* were providing protective irrigation on a limited scale. Here the irrigation system was a community constructed, maintained and operated entity.

11.5 SUMMARY

Indigenous knowledge can be broadly defined as the knowledge that an indigenous (local) community accumulates over generations of living in a particular ecological setting. The definition includes all forms of knowledge-technologies, know-how skills, practices and beliefs- that enable the community to achieve stable livelihoods in their environment. Indigenous knowledge is situated in the historical cultural repositories of knowledge of local population and transmission with one generation to next with the meaning of culture. Indigenous knowledge is pattern different with western knowledge in a way it is not constructed differently and not in the way comes with the truth but develop

know how to use for livelihood purpose of the local population. It is very well used not only for livelihood in different areas such as land, water, soil and flora and forest but also it is considered a unique method when combined with modern scientific or western knowledge as a source of biodiversity conservation.

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**Indigenous Knowledge
and Natural Resources**

11.7 ANSWERS TO CHECK YOUR PROGRESS

- 1) Refer to sub-section 11.1.1
- 2) Refer to sub- section 11.1.2
- 3) Refer to sub- section 11.3.1



UNIT 12 INDIGENOUS METHODS OF CONSERVATION OF NATURAL RESOURCES*

Contents

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- 12.1 Natural Resources
- 12.2 Conservation of Natural Resources
- 12.3 Indigenous Methods of Conservation of Natural Resources
 - 12.3.1 Land
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 - 12.3.3 Mineral
 - 12.3.4 Water
 - 12.3.5 Forest
- 12.4 Summary
- 12.5 References
- 12.6 Answers to Check Your Progress

LEARNING OBJECTIVES

At the end of this unit, you will be able to:

- explain natural resources and its types;
- understand the conservation of natural resources; and
- know the indigenous methods of conservation of land, soil, mineral, water, forest.

12.0 INTRODUCTION

Religious beliefs, traditional beliefs, cultural mores and practices play a crucial role for the successful conservation of the environment and specific organisms especially in the developing countries (Berkes et al, 2000; Lingard et al, 2003; Sasaki et al, 2010).

It is usually observed that among the rural communities of the world, the preservation of the environment has an inextricable link to the culture of the people (Anoliefo et al 2003). This is also noticeable in the people's farming systems, care for the land, forests, wild life, trees, and streams. These rural or indigenous people are those who are the original or oldest inhabitants of an area or region, who have lived in a traditional homeland for many generations (Toledo, 2000). Hence it is easier for them to pass on the knowledge about their environment from one generation to another.

12.1 NATURAL RESOURCES

Natural resources occur naturally within environments that exist relatively undisturbed by humanity, in a natural form. A natural resource is often characterized by amounts of biodiversity and geo-diversity existent in various ecosystems. Some of them are essential for our survival while most are used for satisfying our needs. Natural resources are materials and components (something that can be used) that can be found within the environment. Every man-made product is composed of natural resources (at its fundamental level). The Earth's natural resources include air, water, soil, minerals, fuels, plants, and animals. A natural resource may exist as a separate entity such as fresh water, and air, as well as a living organism such as a fish, or it may exist in an alternate form which must be processed to obtain the resource such as metal ores, oil, and most forms of energy.

On the basis of origin, natural resources may be divided into:

- **Biotic** – Biotic resources are obtained from the biosphere (living and organic material), such as forests and animals, and the materials that can be obtained from them. Fossil fuels such as coal and petroleum are also included in this category because they are formed from decayed organic matter.
- **Abiotic** – Abiotic resources are those that come from non-living, non-organic material. Examples of abiotic resources include land, fresh water, air and heavy metals including ores such as gold, iron, copper, silver etc.

Check Your Progress

- 1) Define natural resources and its types.

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Activity

Through the local people try to identify the natural resources available in your area, its longevity and careful use of these resources.

12.2 CONSERVATION OF NATURAL RESOURCES

In 1982 the UN developed the World Charter for Nature, which recognised the need to protect nature from further depletion due to human activity. It states that measures need to be taken at all societal levels, from international to individual, to protect nature. It outlines the need for sustainable use of natural resources and suggests that the protection of resources should be incorporated into national and international systems of law.

Conservation is the practice of caring for natural resources so all living things can benefit from them now and in the future. All the things we need to survive, such as food, water, air, and shelter come from natural resources. Some of these resources, like small plants, can be replaced quickly after they are used. Others, like large trees, take a long time to replace. These are renewable resources. Other resources, such as fossil fuels, cannot be replaced at all. Once they are used up, they are gone forever. These are nonrenewable resources. Conservation of natural resources is the wise use of the earth's resources by humanity.

Smith and Wishnie (2000) defined conservation as actions that prevent or mitigate biodiversity loss and are designed to do so. In time past, local people have developed a variety of resource management practices that continue to exist in tropical Africa, Asia, South America and other parts of the world (Appiah-Opoku, 2007).

12.3 INDIGENOUS METHODS OF CONSERVATION OF NATURAL RESOURCES

Indigenous knowledge systems are a body of knowledge, or bodies of knowledge of the indigenous people of particular geographical areas that they have survived on for a very long time. IKS is local knowledge that is unique to a given culture or society (Mapara, 2009). IKS is built by societies through generations of living in close contact with nature. It includes norms, taboos, a system of classification of natural resources, a set of empirical observations about the local environment and a system of self-management that governs resource use. In particular, rural women are one group within a community who hold enormous indigenous knowledge of conservation which can assist modern efforts of environmental management (Fonjong, 2008). Indigenous Peoples are carriers of ancestral knowledge and wisdom about their biodiversity. Their effective participation in biodiversity conservation programs as experts in protecting and managing biodiversity and natural resources would result in more comprehensive and cost effective conservation and management of biodiversity worldwide.

Activity

Describe any of the tribal group's (in your area/ state) methods practice by them for conserving the natural resources.

Natural Resource Management has been in the traditions of the Indian society, expressing itself variously in the management and utilisation practices. This evolved through the continued historical interaction of communities and their environment, giving rise to practices and cultural landscapes such as sacred forests and groves, sacred corridors and a variety of ethno forestry practices. This has also resulted in conservation practices that combined water, soil and trees. Nature-society interaction also brought about the socio-cultural beliefs as an institutional framework to manage the resultant practices arising out of application of traditional knowledge. The attitude of respect towards earth as mother is widespread among the Indian society (Taylor, 2002).

12.3.1 Land

Land conservation is the process of protecting natural land and returning developed land to its natural state. It is a set of methods that aim to sustain the natural features and functions of land, including as part of watershed processes and functions. Some of the most common techniques include preservation, restoration, remediation, and mitigation.

Preservation of the environment means that lands and their natural resources should not be consumed by humans and should instead be maintained in their pristine form. Under this form of land conservation, humans would no longer be able to use certain land for human use but would be able to enjoy it for its natural beauty. One of the most famous preservationists in U.S. history is John Muir. John Muir was a Scottish immigrant who lived from 1838 to 1914 and had a large admiration for California's Yosemite Valley. Muir was a strong advocate for the complete protection of land and believed that people should only use the environment for enjoyment and not as a resource for goods. The influence of John Muir is still evident today through the continuation of the Sierra Club and the establishment of the Muir Woods National Monument, a preserved area of land in Northern California that is home to an ancient redwood forest.

Another technique used in land conservation is **restoration**, which is the process of returning ecosystems and communities to their original natural conditions. This often includes introducing native animals, planting native plants, restoring waterways to their natural path, and removing human infrastructure. In the Florida Everglades, in the United States, there is an enormous restoration project going on. The Everglades are a complex system of marshes and grasslands that flood seasonally. These areas have been becoming drier over the last few decades because the water it relies on is being used for irrigation and development and is managed for flood control. The restoration project is trying to restore the flow of water to the area by undoing dams and other water-control features. If this project is successful, it will benefit the region because it will bring back wildlife that has left due to the drying conditions and help increase ecotourism in the area.

Remediation is the process of cleaning a contaminated area using relatively mild or nondestructive methods. One interesting method of remediation is known as bioremediation, which is the use of naturally occurring or purposefully introduced organisms to break down pollutants. This technique was used following the Deepwater Horizon oil spill in the Gulf of Mexico in 2010. Naturally occurring bacteria were used to clean up the oil. The bacteria were able to ingest and break down the oil into less harmful substances.

Another technique of land conservation is **mitigation** which is a process of replacing a degrading site with a healthy site that is of equal ecological value in a different location. The purpose of mitigation is to compensate for destroying one area by purchasing or creating a new area that is of equal ecological value. This technique is less desired than the others because it still allows land to be destroyed.

Indigenous peoples' relationship with their traditional lands and territories is said to form a core part of their identity and spirituality and to be deeply rooted in their culture and history. Many or most of the world's major centers of biodiversity coincide with areas occupied or controlled by Indigenous Peoples. Traditional Indigenous Territories encompass up to 22 per cent of the world's land surface and they coincide with areas that hold 80 percent of the planet's biodiversity. Also, the greatest diversity of indigenous groups coincides with the world's largest tropical forest wilderness areas in the Americas (including Amazon), Africa, and Asia, and 11 per cent of world forest lands are legally owned by Indigenous Peoples and communities. For Aboriginal people the relationship is much deeper. The land owns Aboriginal people and every aspect of their lives are connected to it. They have a profound spiritual connection to land. Aboriginal law and spirituality are intertwined with the land, the people and creation, and this forms their culture and sovereignty. The health of land and water is central to their culture. Land is their mother, is steeped in their culture, but also gives them the responsibility to care for it. Farmers' traditional knowledge of agriculture includes tested technologies in the field. Under rainfed conditions farmers in hill regions plough their land several times before the onset of rain to conserve water and increase water retention capacity. Farmers plough their land straight instead of in circles and open parallel furrows for rainwater harvesting and retaining moisture. However, there is a recommendation to plough the land across the slope to check erosion.

12.3.2 Soil

Soil is vital to food production. Practices that conserve soil are essential: nature takes 500 years to replace 25 millimeters of lost soil. In Hungary, growers are using conservation tillage techniques that leave at least 30% of the previous year's crop remnants on the surface of the soil, before planting to adapt to drought, temperature extremes and heavy rains that are affecting the quality of the soil. Hill farmers, in order to conserve soil and water grow grasses for ground cover such as *Eulaliopsis binnata*, *Chrysopogon fulvus* and agave sps. Shrubs like *Ipomea icarnea*, *Arundo donex*, *Dendrocalamus strictus*, napier grass, *Vitex negundu*, *Morus alba* and *bagrera* are grown, and in wild form are available *bhang*, *lantana*, *sweet neem*, etc.

In Eastern and Southern Africa, soil conservation measures have been undertaken since time immemorial. It appears that indigenous conservation knowledge has accumulated particularly in areas where the natural resource base is under severe pressure from local communities, the ecosystems are fragile and there is a long history of adaptation to adverse conditions. Indigenous soil conservation systems may be agronomic, vegetative or physical in nature.

Agronomic and vegetative techniques may be biological or cultural. They include such practices as crop rotations, mixed cropping and trash lines. Crop rotations and mixed cropping are traditional systems that are widely practiced in the region. Good crop rotations such as maize followed by legumes facilitate the conservation and addition of humus, restoration of soil structure and fertility and reduction of pests and diseases. In mixed cropping, two or more crops are grown in the same field in the same season. In most cases grains and leguminous crops are mixed. The fast growing legumes provide soil cover early

in season, shielding the impact of raindrops. They fix nitrogen too, and thus help to maintain soil fertility. In slopping hillsides, maize stover is sometimes used to make trash lines, which help in slowing down the flow of runoff, and traps eroded soils.

Physical Tillage Techniques

Pit cultivation: This is essentially a soil and water conservation system as well as a fertility restoration technique, through refuse decomposition. Grass is cut and laid out in strips forming square grids. Soil is then dug from the centre of the grid, covering the grass and leaving 30-60 cm deep and 100 cm in diameter pits. The pits, from a distance resemble a honeycomb or chessboard. The pits control runoff while conserving moisture simultaneously. The rainwater collected in the pits, percolates into the soil slowly while the incorporated crop residues improves soil fertility. The practice is fairly common in the Matengo highlands in southern Tanzania where they are popularly known as “Ngoro”. Pits are laid even on steep slopes ranging from 10-60% (Temu and Bisanda, 1996).

Earth bunds: This is essentially a soil and water harvesting technique. Earth bunds are used mainly for water harvesting in rice production in the drier parts such as the lake zone in Tanzania. Earth bunds about 0.5m high are constructed around rice fields in order to collect runoff water from the higher slopes. In some other parts like Ethiopia, earth bunds are used for slowing down runoff in maize and sorghum fields where they are usually constructed along the contour after planting the crop.

Stone bunds: These are barriers of stones placed at regular intervals along the contour. They have been used for generations in Ethiopia where they are locally known as “dhagga” and in some parts of South Africa. Stone bunds retain or slow down run off and hence control erosion. They also allow the accumulation of soil, which may be redistributed after the bunds are dismantled.

Ridges: Ridges have traditionally been associated with the growing of specific crops such as beans, groundnuts, sweet potatoes and cassava. Ordinary ridges are 20-50 cm high and are usually spaced 60-80cm apart. When they are laid across the slope they control the soil erosion. Ridges also improve the soil fertility through in situ composting of vegetation that is buried under during ridge formation. The system is commonly practiced in Tanzania and Zambia.

Mulching: Mulch farming maintains surface residues on tilled land. Crop residues are useful in conserving the soil, controlling water runoff, improving soil physical conditions and increasing soil fertility. In situ mulching was fairly practiced in the region. Mulching however is still practiced in banana and coffee areas and in horticultural crops, in areas of high rainfall.

Lameo: An indigenous method of soil conservation

The sediment trapping technique, lameo, is a low-cost technology that only needs labour and local material, and it avoids the major investment needed to buy inputs. There is no doubt that this technique affects the soil's height, fertility, moisture content and mineral salt content. Another important aspect is that lameo helps to improve the health of the potato plant, by decreasing the amount of nematodes. In some valleys of the Department of Cochabamba in

the central part of Bolivia, farmers still practice the technique of lameo. To trap the sediment carried along by the rivers, flowing water is captured by altering the river's course allowing it to flood the fields. In this way, farmers create their own soil. In the fields located further away from the river, they enrich the soil by mixing the sediments carried by the river with the existing soil. In order to alter the course of the river, so that it can flood the land, bocatomas (man-made openings or inlets) are made. Every time the river floods, the farmers have to rebuild these bocatomas. In the final stage of the lameo, water inlets are closed off so that the excess moisture can be drained, enabling the farmers to prepare the land for planting and sowing. The drainage takes about one month.

Activity

Discuss some of the soil conservation methods practiced among the Indian tribes.

Check Your Progress

- 2) What are the physical tillage techniques commonly used for soil conservation?

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12.3.3 Mineral

Earth's supply of raw mineral resources is in danger. Many mineral deposits that have been located and mapped have been depleted. Many mining methods, such as mountaintop removal mining (MTR), devastate the environment. They destroy soil, plants, and animal habitats. Many mining methods also pollute water and air, as toxic chemicals leak into the surrounding ecosystem. Conservation efforts in areas like Chile and the Appalachian Mountains in the eastern United States often promote more sustainable mining methods. Less wasteful mining methods and the recycling of materials will help conserve mineral resources. In Japan, for example, car manufacturers recycle many raw materials used in making automobiles. In the United States, nearly one-third of the iron produced comes from recycled automobiles. The U.S. Environmental Protection Agency (EPA) estimates that Americans generated more than 3 million tons of e-waste in 2007. Electronic products contain minerals as well as petroleum-based plastics. Many of them also contain hazardous materials that can leach out of landfills into the soil and water supply. Many governments are passing laws requiring manufacturers to recycle used electronics. Countries rich in mineral resources such as Australia and Canada finally recognized the concern that mining activities have generated within their Indigenous communities. Also, in the case of the developing world for example in Latin America, the impact of mining activities has focussed the attention of the world, because they are attracting the greatest share of investment in exploration.

12.3.4 Water

Water is a renewable resource. The amount of water on Earth always remains the same. However, most of the planet's water is unavailable for human use. While more than 70 per cent of the Earth's surface is covered by water, only 2.5 per cent of it is fresh-water. Out of that freshwater, almost 70 per cent is permanently frozen in the ice caps covering Antarctica and Greenland. Only about 1 per cent of the freshwater on Earth is available for people to use for drinking, bathing, and irrigating crops. People can conserve and protect water supplies in many ways. Farmers can change some of their practices to reduce polluted runoff. This includes limiting overgrazing, avoiding over-irrigation, and using alternatives to chemical pesticides whenever possible. Water conservation encompasses the policies, strategies and activities to manage fresh water as a sustainable resource, to protect the water environment, and to meet current and future human demand.[1] The goals of water conservation efforts includes ensuring the availability of water for future generations, the withdrawal of fresh water from an ecosystem should not exceed its natural replacement rate.

Humans have virtually appropriated fresh water. Humanity now uses 26 per cent of total terrestrial evapo-transpiration and 54 per cent of runoff that is geographically and temporally accessible (Postel *et al*, 1996). For centuries, nature's various products and women's knowledge of their properties have provided the basis for making water safe for drinking in every home and village of India. The seeds of the *nirmali* tree are used to clear muddy water by rubbing them on the insides of vessels. The drumstick tree also produces seeds which are used for water purification. *Moringa* seeds inhibit the growth of bacteria and fungi. *Tulasi* is a water purifier with antibacterial and insecticidal properties. Copper or brass pots are what Indian women use to carry and store water; and unlike plastic, they do not breed bacteria. The technologies women have used for water purification are based on locally available natural products and locally and commonly available knowledge (Shiva 1988).

Rainwater harvesting in South Asia is different from other parts of the world in that it has a continued history of practice for at least over 5000 years (Falvo 2000). Revival of local rainwater harvesting globally could provide substantial amounts of water for nature and society. For example, a hectare of land in Jaisalmer, one of India's driest places with 100 millimeters of rainfall per year, could yield 1 million liters of water from harvesting rainwater. Even with the simple technology such as ponds and earthen embankments called tanks, at least half a million liters a year can be harvested from rain falling over one hectare of land, as is being done in the Thar desert, making it the most densely populated desert in the world. Indeed, there are 1.5 million village tanks in use and sustaining everyday life in the 660,000 villages in India (Pandey, 2001).

Some researchers have suggested that water conservation efforts should be primarily directed at farmers, in light of the fact that crop irrigation accounts for 70% of the world's fresh water use. The agricultural sector of most countries is important both economically and politically, and water subsidies are common. Conservation advocates have urged removal of all subsidies to force farmers to grow more water-efficient crops and adopt less wasteful irrigation techniques.

As changing irrigation systems can be a costly undertaking, conservation efforts often concentrate on maximizing the efficiency of the existing system. This may include chiseling compacted soils, creating furrow dikes to prevent runoff, and using soil moisture and rainfall sensors to optimize irrigation schedules. The 2011 UNEP Green Economy Report notes that “improved soil organic matter from the use of green manures, mulching, and recycling of crop residues and animal manure increases the water holding capacity of soils and their ability to absorb water during torrential rains,” which is a way to optimize the use of rainfall and irrigation during dry periods in the season.

Activity

Demonstrate some of the water conservation techniques practiced by tribes in your State.

12.3.5 Forest

A forest is a large area covered with trees grouped so their foliage shades the ground. Every continent except Antarctica has forests, from the evergreen-filled boreal forests of the north to mangrove forests in tropical wetlands. Forests provide habitats for animals and plants. They store carbon, helping reduce global warming. They protect soil by reducing runoff. They add nutrients to the soil through leaf litter. They provide people with timber and firewood. About half of all the forests on Earth are in the tropics — an area that circles the globe near the Equator. Although tropical forests cover fewer than 6 per cent of the world’s land area, they are home to about 80 per cent of the world’s documented species. For example, more than 500 different species of trees live in the forests on the small island of Puerto Rico in the Caribbean Sea. Tropical forests give us many valuable products, including woods like mahogany and teak, rubber, fruits, nuts, and flowers. Many of the medicines we use today come from plants found only in tropical rain forests. These include quinine, a malaria drug; curare, an anesthetic used in surgery; and rosy periwinkle, which is used to treat certain types of cancer.

Sustainable forestry practices are critical for ensuring we have these resources well into the future. One of these practices is leaving some trees to die and decay naturally in the forest. This “deadwood” builds up soil. Other sustainable forestry methods include using low-impact logging practices, harvesting with natural regeneration in mind, and avoiding certain logging techniques, such as removing all the high-value trees or all the largest trees from a forest. Trees can also be conserved if consumers recycle. People in China and Mexico, for example, reuse much of their wastepaper, including writing paper, wrapping paper, and cardboard. If half the world’s paper were recycled, much of the worldwide demand for new paper would be fulfilled, saving many of the Earth’s trees. We can also replace some wood products with alternatives like bamboo, which is actually a type of grass.

There is a global coalition, especially within the UN system, to effectively and sustainably manage the tropical forests ecosystems in the world. All the forests are maintained through century old traditional ecological knowledge of resource management practices, which is sustainable. These forests are maintained not

only to meet the fuelwood, fodder, food, and timber need of the community but also for socio-cultural and ritualistic purpose. Bamboo and pine groves meet the requirement of timber for house construction, edible bamboo shoots, fencing, erosion control, fuelwood, handicrafts and materials for ritual ceremonies. The *Sansung* (individual forest) are managed for fuelwood and material source for ritual ceremonies such as *Myoko*, *Murung*, *Subu*, etc. In addition, it has an ethno-medico-botanical resource centre for the community. The bamboo plantations are dominated with a single species *Phyllostachys bambusoides*, though the community uses other bamboo species mainly collected from primary forest. Maintenance and plantation of bamboo is done with utmost care. Pine seedlings are planted during February and looping of branch is done after third year of plantation. It is believed that proper looping enhances growth and straightness of plants, beside it supplies fuelwood requirement. *Castanopsis* spp., *Alnus nepalensis*, *Prunus* sp., *Prunus nepalensis*, *Pyrus* sp. *Quercus* spp. etc. are managed through cutting at the height of 3-8 m. This helps to promote large scale emergence of branches (coppices) and is believed that such type of management gives faster growth of plant in comparison to seedling plantation. In his research on traditional and indigenous methods of conserving biodiversity, Environmental Protection Council, (1976) identified four indigenous methods for conserving biodiversity in Ghana and other West African sub region, (Nigeria inclusive), these methods include:

- **Religious traditions:** temple forests, monastery forests, sanctified and deified trees.
- **Traditional tribal traditions:** sacred forests, sacred groves and sacred trees.
- **Royal traditions:** royal hunting preserves, elephant forests, royal gardens etc.
- **Livelihood traditions:** forests and groves serving as cultural and social space and source of livelihood products and services (Simberloff & Abele, 1976; Silori & Badola, 2000).

An example of natural resource conservation is at the village of Mendha in Gadchiroli district of Maharashtra. In 1987, the villagers renewed their efforts at biodiversity conservation. It was decided that no commercial exploitation of the forests, except for Non-Timber Forest Produce, would be allowed. Further, villagers would themselves regulate the amount of resources they could extract from the forests and undertake measures to tackle soil erosion. Forests would not be set on fire. Encroachment would not be allowed. The important aspect of this community is that the villagers decide for themselves, yet they are open to information from the outside world.

A case study is that of the North-Eastern region of India which is home to diverse tribal and other ethnic groups. They live in complete harmony with nature. For example, the Meetei communities in the States of Manipur and Assam. Sacred groves, or Umang Lais, as they are called in the Meetei language, form an integral part of the Manipuri tradition of nature worship. Several species of plants are protected in these groves, which also offer protection to birds and animals.

These include teak, several fruit trees like lemon, plants of medicinal value such as ginger, eucalyptus and bamboo. 2 Thus, in this case certain religious beliefs and practices help in the conservation of nature and its biodiversity.

Check Your Progress

- 3) Discuss various indigenous methods of conservation of Natural Resources.

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- 4) By giving examples discuss various ways of forest conservation among the tribes?

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12.4 SUMMARY

Indigenous peoples' relationship with their traditional lands and territories is said to form a core part of their identity and spirituality and to be deeply rooted in their culture and history. The natural environment and resources are under serious threat and at least cultural taboos and their sanctions have helped to check abuse of the environment at least among the local people. Religious beliefs, cultural mores and practices are often aligned with today's conservation ethics, and it is imperative that they are upheld as they are critical in the wise conservation and management of natural resources.

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12.6 ANSWERS TO CHECK YOUR PROGRESS

- 1) Refer to section 12.1.
- 2) Refer to sub-section 12.3.2.
- 3) Refer to section 12.3.
- 4) Refer to section 12.3.



UNIT 13 FOREST POLICY AND TRIBAL RIGHTS*

Contents

- 13.0 Introduction
- 13.1 Forest Policy since Colonial Time and Conflict with Tribal Interest
- 13.2 PESA: Panchayat Extension to Scheduled Areas Act
- 13.3 Forest Rights Act-FRA
- 13.4 The Rights Issues of Tribal Communities
- 13.5 Summary
- 13.6 References
- 13.7 Answers to Check Your Progress

LEARNING OBJECTIVES

At the end of this unit, you will be able to:

- understand the nature of association of tribal with forest;
- know about tribal livelihood based on forest and forest based occupation;
- understand about forest policy and conflict with tribal rights and interests since colonial time; and
- realise the nature of transformation in policy from antithetical to progressive and welfare approach for tribal development.

13.0 INTRODUCTION

Forest is an integral part of the tribal way of life. The social, cultural and economic system of the tribal communities is closely connected with nature in which forest is a vital component. Tribal derive their means of livelihood directly from forest or forest based occupations. Therefore, forest continues to be the single most important means of livelihood of the tribal population. More than two-thirds of the tribal population in India lives in or in close proximity to forests. Tribal depend on forest for food, fuel and fodder.

In the report of the Sub-Group-II on NTFP and their Sustainable Management in the 12th Five Year Plan, it is estimated that 275 million poor rural people in India- twenty-seven percent of the total population depend on non-timber forest produce (NTFP), for at least part of their subsistence.

NTFP, which is otherwise known as minor forest produce(MFP), contributes about twenty percent to forty percent of the annual income of forest dwellers who are mostly disadvantageous and landless communities with a dominant population of tribal. It provides critical subsistence support to the communities, particularly belonging to vulnerable tribes during lean season. Further, women

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have a significant role in collection, use and marketing of NTFP¹. Anthropologists have studied the symbiotic relations between forest and tribal communities. Tribal communities have cultural mechanism and indigenous practices that help conservation and restoration of forest and natural resource. Traditionally, they use resource that is essential for their survival but they have never been greed to exploit forest resource.

Anthropology has been able to highlight many complex issues of the tribal communities amongst which livelihood issues remain most crucial. Anthropologists have classified tribes based on their economy and livelihood as hunter-gatherers or foragers, pastoralists, shifting cultivators, settled cultivators, artisan tribes, folk artists, agricultural and non agricultural labour oriented tribes, and service groups. The first category, hunter-gatherer, includes particularly vulnerable tribal groups (PVTGs), earlier called, primitive tribal groups (PTGs) such as the Bondas of Odisha, the Chenchus of Andhra Pradesh, the Birhors of Jharkhand, and the Jarawas and the Sentinelese of Andaman and Islands amongst others. Of a total of seventy-five PTGs, forty one PTGs from Andhra Pradesh, Odisha, Jharkhand and Madhya Pradesh (including Chhattisgarh) are complete dependents of forest. Pastoralist community like the Todas in the Niligiri district of Tamil Nadu and the Gaddis of Himachal Pradesh and Jammu & Kashmir live in hill belts and practice rearing cattle as main source of livelihood. Among the prominent tribes as shifting cultivators, are included the Kondhs and the Juangs of Odisha, the Maria Gonds of Chhattisgarh, and some north eastern state tribes, etc. These tribes also live in forest and hill regions.

The other category includes the Bhil, the Mina, the Kondh, the Santhal and the Munda tribes in Jharkhand amongst others who follow subsistence agriculture practice. The artisan groups such as the Kolam of Maharashtra, the Irulas of Tamil Nadu, and the Agariya of Madhya Pradesh amongst others engage in bamboo and related cottage works with very fine artisan skills (Hasnain, 1991). This activity is completely based on available forest resource. Therefore, forest is intrinsically but very intimately connected to the life of individuals and individual tribe in carrying significant cultural, social and economic values. There is a significant contribution in anthropology on the holistic studying of such values. Vidyarthi's theoretical contribution to Nature-Man-Spirit complex, potential contribution in animism and animistic theory, theory of totemism, and a view on sacred groves amongst others are sufficient to prove cultural values of tribal associated with forest. A community culture is exhibited more prominently with close connection to the nature. Tribal are peace lover by nature. Until the region was annexed by the outsiders, particularly by agents of colonial administration, the tribal had abundant forest resource for their survival. Peaceful life existed without any fear of loss or gain from property. Natural resource including forest was treated as community property. Therefore, it was the utmost responsibility of the community to protect and preserve the forest besides its cautious use. The resource was managed based on customary practices. Therefore, excess and over exploitation of resource was not practiced in any form. It was the colonial practice that began to control over the natural resources by imposing new legislations. The statutory practice to control the

¹Report of the Sub-Group-II on NTFP and their Sustainable Management in the 12th five year Plan, September 2011, submitted under Planning Commission's Working Group on Forests and Natural Resource Management, Government of India.

resources for protection, preservation and promotion started with repercussions on tribal rights. The rights extended from a basic means of livelihood to cultural rights and social network. The stringent forest policy has both directly and indirectly affected all these rights over the years. Considering the nature of involvement of tribal communities with forest, the rights issues of tribals have often been discussed by experts of tribal studies and anthropologists. Among the rights include, right to survive, right to live in dignity, right to preserve culture, and indigenous rights. Since colonial time, these rights of the tribal communities have been ignored with imposition of stringent forest laws. To help students better understand the above issues, this unit highlights the forest policy and rights issues in very simple description.

In the next paragraph, an effort has been made to discuss briefly about the forest policies that 'emerged since colonial administration. There is no doubt about the good intentions to protect, conserve and restore ecological balance by enacting new forest legislations. But the early policy makers' attempts underscoring the values of tribal livelihood associated with forest and forest based occupation has been criticised. The focus on contemporary forest policy further views the positive side of collective ownership, joint management and livelihood consideration for ethnic community alongside ecological restoration.

Check Your Progress

- 1) Describe the nature of association between forests and the tribal communities.

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13.1 FOREST POLICY SINCE COLONIAL TIME AND CONFLICT WITH TRIBAL INTEREST

Forest policy was introduced during colonial regime to restrict unauthorised private access to forest resources by individuals or communities both within and outside the localities. It was the forest policy through which the state exerted its control over vast forest resource in wide ranging geographical masses. In addition to economic interest of the state, the vested colonial expansion for administrative control over tribal areas through forest policy cannot be completely denied. Forest policy is not entirely anti-welfare or anti-development approach. Forest conservation for ecological restoration and development of biosphere was also the important objective of forest policy. In the following paragraphs there is a discussion on forest policies since their formal launch in India with implications for livelihood and other rights of the tribal communities.

Forest Act-1865 provided the legal sanction to the forest administration in various provinces of India and empowered the colonial state to acquire monopolistic control over the country². It was first formal step to regulate the collection of forest resource by the forest dwellers. Guha (1983: 1940) noted that the first

Forest Act was enacted mainly to facilitate the acquisition of such forest areas as could supply timber to the railways. Forest Act-1878 was more comprehensive than earlier ones. Forests were categorised as (1) reserved forests (2) protected forests and (3) village forests.

Certain acts like grazing of cattle were prohibited with some provisions for private forest. Provision was made to impose a duty on timber. Certain acts were declared as forest offences and imprisonment and fines were also prescribed (Kulkarni, 1987). Forest Policy resolution-1894 was administered for better financial implications and the forests were classified further into: (1) forests the preservation of which was essential on climatic or physical ground (2) forests which afforded a supply of valuable timber for commercial purposes (3) minor forests, and (4) pasture lands. But this policy resolution had some provision for cultivation and cultivators' claim from forest land. The demands were ordinarily accepted without hesitation for such cultivation. However, in this grant there was state vested interest to collect rent by imposing tax. Indian Forest Act 1927 exerted state's greater control over forest resource to increase its revenue. It was an attempt through elaborate provisions to further regulate people's rights over forest land and produce. Kulkarni (ibid: 2143) cited the nature of exploitation by the state. Massive deforestation took place due to large scale cutting down of trees through this Act. Meanwhile, ethnic communities' rights over resources were curtailed. The tribal communities were even physically harassed. Many reported that this Act came as a nightmare for the tribal and indigenous communities living in and around the forest for their survival.

N.C. Saxena, a leading scholar and former bureaucrat writes,

The British presence from the late 18th century onwards started making a difference to land and forest usage in India. Guided by commercial interests, the British viewed forests as crown lands, limiting private property rights only to continuously cultivated lands. On forest lands, 'human resource-use practices such as grazing, product collection, and temporary or rotational swidden farming were rejected as a basis for ownership, even when taxes were paid' ((Poffenberger and McGean, 1996: 59). Often such forests were under community management, and their annexation by government alienated the tribals from their erstwhile common resources, leading to their overuse by the same tribals. Although the colonial forest policy provided that declaration of an area as government forest should not abridge or affect any existing rights or practices of individuals and communities, who were given three months time to contest reservation, in actual practice the illiterate communities were hardly able to do so, and thus by the turn of the present century some 20 million hectares (m ha) of land was brought under a category of forests called reserve forests (Stebbing, 1926). These were exclusively for use of the Forest Department (FD) and the surrounding villagers had no rights other than the ones explicitly permitted by the State.

National Forest Policy 1952, the first such policy after India's independence,

²Cited from Arun Bandopadhyay's article on The Colonial Legacy of Forest Policies in India, Vol. 38/ Nos. 1-2 (Jan-Feb), 2010.

recognised tribal's symbiotic relationship with the forests. Therefore, policy allowed former for the protection, preservation and development forests and envisaged customary rights of the communities³. However, the Policy could not provide much respite to the local communities due to strong bias towards development projects such as mining, industries, hydro projects, etc. According to 1952 policy, the national interest was composed of numerous elements and forest policy was intended to protect these interests. Yet, the new policy explicitly maintained the colonial emphasis on precedence of national interest over local demand' (Haeuber, 1993, p.59). The tribal rights over resources were grossly sidelined. Adivasis living near forests were discouraged from using the forests. The government tried to obtain more and more revenue from the forest (Kulkarni, 1987: 2144).

Wild Life (Protection) Act, 1972 empowered government to declare any area to be constituted as a "protected area", namely a national park, wildlife sanctuary or tiger reserve. This Act prohibits unauthorised access to plants, animals of any species of whatsoever purpose by any individuals, groups and institutions. It also strictly imposes restrictions on trespassing by outsiders, banning hunting of wild animal and use of any species, etc. largely affecting the foragers. There is not much sympathy even for the tribal communities who had been traditionally living in or depending on such species for their survival. Since the settlement officers have been authorized for settlement of disputes in these areas, several studies have reported that many of such areas are not surveyed (Yadagiri, 2013). In connection to settlement of reserved forest, a World Bank study noted, settlement of reserved forest is a controversial issue, because of the wide powers granted to forest departments and the historical conflict it created over traditional land rights. Following the 1878 Forest Act, large scale declaration of reserved forests took place through the settlement process in many states. Informal systems of land rights and forest use privileges that had existed between rural communities and the government for centuries were often rescinded (World Bank, n.d.: 15).

National Commission on Agriculture (NCA) 1976 was an additional restrictive measure to discourage tribal communities' access to the forest.

The NCA had recommended regularisation of the rights of forest dwellers over forest produce in order to reduce their access over forest produce. The Commission stated, "free supply of forest produce to the rural population and their rights and privileges have brought destruction to the forests and so it is necessary to reverse the process. The rural people have not contributed much towards the maintenance or regeneration of forests. Having over exploited the resources they cannot, in all fairness, except that somebody else will take the trouble of providing them with forest produce, free of charge" (Karmakar, 2002).

In the following paragraphs, focus is on a brief account of forest policy and participatory initiatives.

³Draft National Policy on tribals was prepared by the Ministry of Tribal Affairs. Retrieved from http://www.prsindia.org/uploads/media/1167469383/bill53_2007010353_Draft_National_Policy_on_Tribals.pdf

After many successive forests laws passed with all having no sense of respite for the tribal communities, the government realised if people's demands are not met forest cannot be effectively saved (Misra, 2006). The idea of Joint Forest Management (JFM) was informed by the notion of inclusion of tribal into the forest management (ibid.). The Indian Forest Policy of 1988 and the subsequent government resolution on participatory forest management (MoEF, 1990) emphasise the need for people's participation in natural resource management. The new forest Policy 1988 gave higher priority to environmental stability than to earning revenue. It encouraged mixed cropping over mono cropping. It further advocated about to protect about the rights and concessions enjoyed by the communities (Saxena, 2002). Under JFM, village communities are entrusted with the protection and management of nearby forests. The areas concerned are usually degraded or even deforested areas and in some states like Madhya Pradesh and Andhra Pradesh all village fringe forest come under this (Prasad, 1999). JFM has been a successful approach for management of forest jointly by communities and the forest department. Thousands of forest protection committees (FPCs) have been formed under JFM for restoration of ecology by conserving forest.

The National Forest Policy 1988 included for the first time the elements of community ownership of resources and addressed the important relationship between tribal and forest. One of the basic objectives of the National Forest Policy 1988 is meeting the requirements for fuel wood, fodder, minor forest produce, and small timber of the rural and tribal populations. National Forest Policy emphasised afforestation, social forestry, and farm forestry. The Policy further became soft in recognising the needs of the local tribal communities. Therefore, it laid down the provision to protect the rights and concessions enjoyed by them. The policy recognised the symbiotic relation between the tribal people and forests. Therefore, emphasis was given on involvement of tribal people in the protection, regeneration, and development of forests as well to provide gainful employment to people living in and around the forest (NFP, 1988). The NFP 1988 also assures that the customary rights and concessions are fully protected.

Activity

Write about the National Forest Policy.

Check Your Progress

- 2) Discuss about non recognition of tribal rights and livelihood issues under early forest policies.

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13.2 PESA: PANCHAYAT EXTENSION TO SCHEDULED AREAS ACT

Panchayat Extension to Scheduled Areas Act 1996 is a forward looking optimistic approach to empower Gram Sabhas in the fifth scheduled areas on decision making over planning and management. The Gram Sabhas were further leveraged with multiple decision making authority with regard to management of local resources. Non timber forest produce (NTFP) remains a main source of income support for the tribal communities living in the forested region. After successive forest policies since colonial administration denied their rights to free access to NTFP, the Gram Sabhas were empowered to access ownership of NTFP. PESA recognised traditional rights of tribals to community resources (land, water and forest) and decentralised existing approaches to forest governance by bringing Gram Sabha at the centre stage for managing MFPs and social forestry (SAMARTHAN and UNDP report, 2011). Report of the Expert Group on Prevention of Alienation of Tribal Land and Its Restoration (PATLR) noted that the ‘the issue of ownership of NTFP has been resolved by the PESA 1996, which legislates that the ownership of NTFP is with the Gram Sabha, but its implementation in letter and spirit still leaves to be desired’. Still there are instances of meager price fetched by NTFP collected by the tribal. After nationalization of some important NTFPs, the produce can only be sold to the government agencies (Saxena, 2002). Therefore, there is no open sale or purchase of NTFP. But the practice of middlemen still continues in the tribal areas to collect produce in very less price from the primary NTFP collectors and sale later in the actual price at government outlets. The Expert Group on PATLR noticed discrepancy in marketing of NTFP. There is no price fixation based on minimum support price (MSP) on the real value of NTFP. Therefore, the Expert suggested for fixation and enforcement of MSP on the real value of NTFP.

13.3 FOREST RIGHTS ACT-FRA

‘The Scheduled Tribes and other traditional forest dwellers (Recognition of Forest Rights) Act, 2006 which is popularly known as Forest Rights Act or FRA is a result of the protracted struggle by the marginal and tribal communities of our country to assert their rights over the forest land over which they were traditionally dependent’. After all previous forest policies which assumed to be exploitative, the emergence of FRA brought by and large a greater respite to the tribal communities. As per the preamble of Forest Rights Act, forest dwellers are ‘integral to the very survival and sustainability of the ecosystem’ (Saxena, et al, 2010). The FRA does not allow compromise of the rights other than for conservation of critical wild life habitats (ibid). Since its implementation in 2008, FRA has provided a mixed response to its delivery of promises. Among the major promises that were made during its initial period was to empower and strengthen the local self - governance, to provide livelihood security and to address the issues of conservation and management of natural resources. Section 5(c) has authorized the Gram Sabha to ensure that their habitat is preserved from

⁴Guidelines on Process of Claim, Verification and Submission of Claims to SDLC. This is prepared by Vasundhara, an NGO in Odisha working on Natural Resource Management. Retrieved from <http://fra.org.in/document/Guideline%20on%20Process%20of%20Claim%20Verification.pdf>

any form of destructive practices affecting their cultural and natural heritage. Section 6(1) of FRA empowers gram sabha/ palli sabha to initiate the process for determining the nature and extent of individual and community forest rights of the forest dwelling tribes or other traditional forest dwellers. There are many other provisions under different sections to ensure rights of the communities. This local committee at the grass root level is considered as Forest Rights Committee (FRC)⁴.

Activity

Distinguish between PESA and FRA

Thousands of land titles in forest areas (Record of rights) have been issued with involvement of multiple institutions. Many evaluation studies have however found that not all promises been kept with utmost care due to lack of seriousness and authoritative approaches at various levels. Despite that, FRA is still instrumental in providing social support. Local political institutions are empowered to identify and recommend for granting of pattas.

13.4 THE RIGHTS ISSUES OF TRIBAL COMMUNITIES

The rights issues of the communities living in and around forest became the matter of anthropological discourse since beginning of forest policy. These rights can range from cultural to social and economic rights of the communities due to over restriction of access to the forest resources. As already discussed, the tribal derive the basic economic necessities from forest. According to Ramachandra Guha, a noted historian, the progressive diminution of 'rights', and consequent loss of control over natural resources evoked a sharp reaction from the forest communities (EPW, October 29, 1983). The forest has provided raw materials for industrial needs. Increasing access to forest by state and non-tribal agents have resulted in over exploitation of forest resource. This has lead to a progressive loss of control over forest resource by tribal. This deprivation has been manifested in a series of movements (Guha, 1983). Many forest policies were passed through but none could meet the basic demand of tribal on forest and forest produce by providing appropriate provisions through the Acts and the legislations. No policy could either completely deny access of the tribal communities to forest resource. Tribal despite difficulties from imposed restriction through laws, had to survive under stress. State takes over as the supreme administrator of forest and its machinery functions as both protector (conservator) and exploiter of forest resource and tribal communities). Tribals have been restricted from access to forest resource, by laws and legislations. The customary norms have been overlooked, the forest land has been taken away for the sake of development, and the middlemen have been facilitated encroachment of the forest land for private purpose and so on. This has subsequently threatened livelihood of the forest dwelling tribal communities. The history of Indian forest policy has been marked by increasing exertion of state authority and restriction of popular access. All these policies have left with difficulties for survival of the indigenous communities due to latter's primary dependence on forest economy (Hauber, 1993). The fundamental right to live in dignity is questioned under different forest policy regime. The United Nations Declaration on the Rights of

Indigenous People (UNDRIP) Article 26(2) defines, ‘indigenous peoples have the right to own, use, develop, and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired’. Most of the tribal or indigenous communities inherited customary rights of land and forest resource for generations. These rights are not even well recognized by many forest policies. The statutory provision and recognition of land rights remains in critical conjecture ever since colonial administration. Further, UNDRIP under Article 31(1) declares the rights of indigenous people ‘to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge and traditional cultural expressions.’ Article 3(2) declares ‘in conjunction with indigenous peoples, states shall take effective measures to recognise and protect the exercise of these rights’. However, state’s restriction of indigenous communities to access forest and forest based practices through forest policies seems to be contradicting the indigenous rights vision. The restriction on forest access under the early forest laws had forced to dissociate from the practice of totemism, forest based cultural norms and other indigenous practices. The traditional knowledge over medicine, fauna and flora and conservation of biodiversity could be affected due to severe restriction in early policies. Forest serves valuable functions in addition to a variety of aesthetic, moral and ethical considerations. They are: store houses of biological diversity with plants, animals and other species; regulation of soil and water; benefits to tribal and rural economy, industrial raw material. The Forest Policy of 1982 and the Forest Conservation of 1980 reflected these functions (Gadgil, Prasad and Ali, 1983).

The Directive Principles of State Policy under Article 46 of the Constitutional Provision highlights rights on promotion of social and economic interests of scheduled caste and scheduled tribes and other weaker section. The Article refers protection from social injustice and all forms of exploitation under special care of weaker sections by State. However, colonial forest policies seem to have rendered social injustice to the communities depended on forest. There was amendment of the laws to provide scope for social and economic justice of the communities. Subsequent welfare policies and Acts such as PESA and FRA have provided some scope for protection of communities’ interests. However, the property rights of the communities are conflicted. The tribal communities inherently lack records of their rights on land and other resources. Majority of tribal areas are even without proper forest survey or cadastral survey to demarcate boundary of possession and rights of usages. The colonial administration did not bother to extend cadastral survey for settlement of land records in many tribal areas due to difficult terrains. Even after six and half decades of independence, the tribal areas by and large un-surveyed and the records are yet to be created. Majority of the northeastern states having large chunk of tribal population are not surveyed for creation of record of rights. The innocent tribals without understanding the apathy of forest policies have

got trapped by law and have faced legal actions. They have been punished just for collection of forest resource from the forest which was under their control since generations. Not making much effort to promote social and economic interest of the forest based communities was an act of gross negligence of the state apparatus and subsequent undermining of constitutional provisions. Since colonial administration, the state on the other hand has conveniently annexed tribal territory for mining, and industries. Vast chunk of forest land has been acquired to accommodate both mining and industrial demands, which itself contradict the environmental ethics. The issue of non-settlement of forest rights could have continued indefinitely but for the enactment of the Forest Rights Act. The most recent issue of Dongria Kondhs strong protest against establishment of Bauxite mining in Niyamagiri Hill had nationally awakened the issue of indigenous rights. The Report of the Four Members Committee for investigation into the proposal submitted by the Orissa Mining Company for bauxite mining in Niyamgiri headed by N.C. Saxena is an important document of forest and indigenous community interface, an account of rich biodiversity, culture and social resources. The Committee noted number of issues and violation of rights of the communities in the proposed mining lease (PML). Forest Rights Act (FRA) has certain provision to allow communities to fight for their rights over the community forest resource. Despite the FRA, and other constitutional safeguards for tribals, the tribal rights are not always protected. They are prone to vagaries of state policies and other development intervention in forest areas.

Activity

List out the rights of tribal people

Check Your Progress

- 3) How have the community rights over forest resources been protected under the recent enactments?

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13.5 SUMMARY

The forest plays a very important role in the life of tribal and rural poor. The relationship between tribals and forests is very intimate. Since most of the tribals have traditionally depended on forest for their livelihood, their entire social and cultural life revolves around the forest. For thousands of years, forest and indigenous populations have evolved in symbiosis and try to recreate the forest with their traditional conservation systems. From time to time policies were made and legislation enacted to regulate the relationship between the tribals, the forest and government. Forest policies got transformed due to the progressive assertion of state monopoly rights over large areas of forest. It has resulted in large scale eviction and the uprooting of tribal people from the forest.

India's forest policy and legislation has contributed significantly to the process of deforestation. Forests in India are state-owned. The assertion of state monopoly right and the exclusion of forest communities have marked the organising principles of forest administration, since its inception in 1864. On one side is the 'state', which views forests as an important source of revenue and hence argues the need to manage them scientifically. On the other are the forest dependent communities who are antagonistic to state control, and to whom management of forests essentially forms a part of lifestyle and cosmology. And thus it is that conflicts between the communities and the forest department have been a constant factor ever since the first legislation in 1965 promulgated by the British.

The conflict of interest and issues of survival provide space for debate that is challenged and counter challenged since colonial time. Both new and modified policies have been formulated to protect interest of the society. Protection, preservation and conservation of natural resource and restoration of ecology are often encountered with development vision, i.e., key area of development, infrastructure and economic growth. More importantly, the protection of interest of indigenous communities, their cultural continuity, livelihood and growth remain significant in the whole discourse of forest policy. The policies formulated in initial period are often clashed with the local communities' interest and very basis of survival. Therefore, the rights issues were brought into forefront in the modern anthropological discourse. Many scholars of tribal studies and anthropology have challenged the non-balanced vision of earlier forest policies. Scholars have viewed some policies, namely Indian Forest Act-1927 and even the first National forest Policy in 1952 lack welfare vision for indigenous communities. However, one can judge that since colonial time, there is shift in focus from very basis of macro development with focus on growth to inclusive growth with micro level arrangement. The origin of joint forest management took place in 1970s. Forest protection committees were set up to jointly work with the forest department to take care of the forest management while safeguarding primary livelihood interest of the communities. National Forest Policy-1988 could help restoring confidence of the communities to some extent. But it could not live with better impression as a policy to meet with communities' interest. PESA Act 1996 and the Forest Rights Act are a sharp departure from the earlier ones. These two contemporary Acts have often been considered as revolutionary paradigm shift of policy in prioritizing and safeguarding interest of the local communities while not diminishing the environmental interest. Therefore, it is often looked upon as transformation from antithetical to progressive and welfare approach for tribal development.

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13.7 ANSWERS TO CHECK YOUR PROGRESS

- 1) Refer to section 13.0
- 2) Refer to section 13.1
- 3) Refer to section 13.4

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