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**COMMON PROPERTY RESOURCES
AND FOREST POLICY:
A CASE STUDY OF TALLE VALLEY
IN ARUNACHAL PRADESH**

05

Omeo Kumar Das Institute of
Social Change and Development
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PREFACE

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CHAPTER I

INTRODUCTION

Common Property Resources (CPRs) can be broadly defined as (non-exclusive) resources in which groups of people have co-equal use rights. Common Property Resources are of crucial importance to the rural poor and hill population in terms of sustaining their livelihoods. CPR has historically provided and continues to provide a wide array of essential items of food, fiber, fuel, timber, medicinal herbs, building materials, raw materials for handicrafts, etc. for subsistence and economic use. In context of natural resources located in rural India, CPRs refers to the resources on which a well defined village community has inalienable use rights (Jodha, 1992). They include village panchayat land, privately owned fallow land, community threshing and dumping grounds, protected and unclassed forest, village forest and wood lots land lying alongside railway lines, road, water reservoirs, tanks, ponds, lakes, canals, rivers, streams, community and public inland fisheries and so on (Jodha, 1986; Sing, 1994). In India, apart from the legally owned common property resources, rural people are also using resources like revenue land, state forest, private land, public inland fisheries as de-facto common property resources.

Arnold and Stewart (1991) classified CPRs in India in three broad regional groups: semi arid and arid regions, the hills and forested tribal areas. Though use of CPRs in the hills is very high, ownership rights are often not clearly defined. In semi-arid and arid region, common property resources tend to be smaller but are more closely integrated into the legal and political framework than in the other regions while in forested tribal regions, the use of CPRs is most variable. Tribals' heavy dependence on CPRs for non-agricultural products creates different needs than those of other areas. Difficulties in establish-

ing rights of ownership have led to nominal state ownership in the hills though much of the areas are still effectively under community management. Hence rules of use and management of CPRs in the tribal areas are not defined clearly and are changing rapidly.

Dependence on common property is greatest among the poor because their possession of income generating private property resources or other valuable private assets are minimum or even absent. Consequently, they depend on access to CPRs for fuelwood, crop wastes, weeds, fodder, organic manure (dry leaves and forest litter), building materials, fruits and vegetables, herbs and fiber.

As per the NSS data of 50th the Round (1993) and the 54th Round (1998), the extent of consumption of fuelwood from CPR land and forest has no doubt come down on All India level but it is still very high being 62 per cent. Around 45 per cent of rural households reported collecting firewood from CPR sources and this comprised around 50 per cent of the fuelwood actually consumed. However, there is a large variation among the different states of India. In North Eastern States extents of dependency on such collection from common property resources is very high.

In North East India the hill population have a fairly high level of dependency on CPR. However among the North East States, it is in Arunachal Pradesh where CPRs and the corresponding association with the socio-economic life of the people is more prominent, and therefore, the present study has focused on Arunachal Pradesh only.

In comparison to the other states of North-East, Arunachal Pradesh is territorially the largest unit in North-Eastern Region of India with an area of 83,743 sq. km. It has an international border of around 1,628 km with Bhutan in the west, China (Tibet) in the north and Myanmar in the east.

1.1 Political Setting of Arunachal Pradesh

The young state of Arunachal Pradesh acquired its present status through a long transition process. It has passed through the stages of Frontier tracts, Frontier Agency, Union Territory and finally to a full-fledged state.

Prior to the introduction of Panchayat Raj in 1969, traditional village councils were the only known institutions, which regulated the socio-political and cultural life of the people in the territory. Every tribal group till date has its own type of village council with different nomenclature but with almost similar functions. It is known as *Kebang* among the Adis, *Tsorgens* among the Monpas, *Jung* among the Sherdukpens, *Mele* among the Akas, *Buliang* among the Apatanis, *Gindung* among the Nyishis, *Abbale* among the Idu Mishmis, *Mokchup* among the Khampis and *Wangchu Wancha* among the Wanchos.

Till 1972, Arunachal Pradesh remained constitutionally a part of Assam. The North-East Areas (Re-organisation) Act, 1971 provided a new name and new political status to the then North East Frontier Agency (NEFA). NEFA was renamed as Arunachal Pradesh and a new Union Territory of Arunachal Pradesh was formed. On 20th February 1987 the Union Territory of Arunachal Pradesh became the twenty-fourth State of the Indian Union.

Although the first General election in India was held in 1972, the franchise right remained unextended to the people of Arunachal Pradesh for long. The voting right was not extended till 1977 (First Parliamentary Election) by a special provision of the representation of people Act, 1951.

The population density of the state as per as 2001 census stands at 13 persons per sq. km. The rural population of the state is 79.6 per cent and the

urban population of the state is only 20.4 per cent. There are 26 major tribes and 110 sub-tribes that contribute to the human mass in the state. All the individual tribes have a rich cultural heritage. Agriculture is the main source of livelihood of the people. Though shifting cultivation is predominant, settled cultivation has also been taken up in some valley areas.

More than 80 per cent of the state is covered under forest. The indigenous people of this state have been living for ages in a symbiotic relationship with forest and wildlife.

The indigenous tribes of Arunachal Pradesh have always regarded and treated land, forest and river as their common property resources. Forest and its resources are the main sources of sustaining of livelihood. Land, forests and rivers are regarded as the common property of villagers to which every villager has equal right.

1.2 Talle Valley - A Case Study

The tribal population of Arunachal Pradesh too shares a long history of harmonious co-existence with nature. Apatanis in Arunachal Pradesh are well known for their indigenous system of Forest Management and have eked out their livelihood from forest resources. The Enactment of the Wildlife (Protection) Act, 1972, the Forest (Conservation) Act, 1980, and other laws have tampered with the Apatanis' traditional lifestyle, and inhibited free practice of their religious rites and customary activities.

Adjacent to the Apatani Valley in the Lower Subansiri district is the Talle Valley, which is an extension of the Apatani Plateau. It is a densely forested area, rich in plant and animal life with 274 species of birds and 560 plant species. Before notification as Reserve Forest, the Talle forests belonged to a

number of Apatani clans. Talle Wildlife sanctuary, with an area of 337 sq. kms was carved out of the Reserved Forest in 1994. Much of it still lie unexplored, even by the Apatani hunters, who venture here from the Plateau, a day's walk away. With the notification as a protected area, it is now under exclusive government control. With the change in the forests' legal ownership, the Apatanis are inhibited from freely using these forests as their resource base as also for their customary hunting. These restrictions run counter to their traditional rights and customary practices, and are likely to become the foci of potential conflict between the people and the government. With the notification of the Talle Valley as a Protected Area, many traditional activities like hunting and easy access to forest produce is now prohibited. It has created a simmering conflict situation between the people and the Government. The Apatanis have a strong traditional and emotional bond with the Talle area and can play a major role in devising and implementing appropriate strategies and action plans to conserve it.

Initially, the people of the Valley did not know about these developments and they continued with their existing practice of forest activities like grazing of livestock, animal hunt, collection of bamboo and timber, shrubs, etc. However, with the passage of time as forest guards started resisting the peoples movement in the reserved area, the villagers came to know about the policy and there was a mass resistance in the Valley. Public hearings were held and the Government took villages affected by the Policy into confidence to work out a possible solution. However, till date a solution has been eluding on the question of Apatanis' custom of natural rights over forests and government's initiative to protect and preserve the same.

In order to understand some of the basics of the problem, the present study has been taken up as a case study in two villages, Hari and Hong, which

are the two most affected villages and which have lodged strong protests with the government.

The study tries to make an attempt to explore the following questions:

- (1) The extent of dependence of the villagers on CPRs for their sustenance.
- (2) The extent of income generation from the CPRs.
- (3) Shifts in livelihood as a result of the declaration of the Talley Valley as Wild Life Sanctuary.
- (4) Role of women in CPR based activities.

1.3 Methodology

The study has been taken up as case studies two villages, Hari and Hong. The information from these villages has been collected with a structured questionnaire. A sample of sixty village households (thirty each from two villages) have been interviewed. Besides, discussions including the village headman, were also held to get further insights.

Apart from the interviews, information from secondary sources has been collated to understand the forest policy of the Arunachal Pradesh government, the indigenous practices of the people of the State in forest management and CPR based activities.

The data has been analysed using the simple percentage measures to give a representative and comparative picture of the two villages.

1.4 Limitations of the Study

The study is limited in its scope since the time frame for completion of the study is only one year and hence the study has confined itself to only four objectives. Besides, it restricts itself to only two villages and does not cover all the villages under the Talle Valley. Since the study has been taken up as a case study it claims no universal generalizations. Rather the findings point towards the emerging impacts on the socio-economic life of the people and the shifts that are taking place in livelihoods with the indication that such changes are most likely to be found on a wider coverage of village households in the area.

1.5 Chapterisation

The study is divided into four chapters.

The first chapter is *Introduction* that contains the introductory note, objectives and methodology and limitations of the study.

The second chapter *Forest Policy Initiatives, Common Property Resources and Review of Literature* gives an overview of the forest policies in Arunachal Pradesh, common property resources in the State and their use and practice by the people. The chapter also gives a brief review of the studies relevant to the present study.

The third chapter *The Reserve Forest Policy in Talle Valley of Arunachal Pradesh and the Question of Common Property Resources* presents the findings of the case studies from the two villages viz. Hari and Hong.

The fourth chapter *Revelation from the Study and Scope Beyond* gives the

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CHAPTER II

FOREST POLICY INITIATIVES COMMON PROPERTY RESOURCES AND REVIEW OF LITERATURE

Indigenous communities have depended on CPR for subsistence use from time immemorial. Therefore, they conserved their forest on their own using indigenous methods. Tribal social life, cultural and religious activities and economic interests are closely related with their forest environment. Their inherent fear for superstitious spirits, both benevolent and malevolent moving around them, kept them attached to their natural environmental settings of forests. Tribal societies believed and still continue to believe that their village deity is supposed to reside in a nearby forest, river, hill or tree and so on, which are periodically propitiated to keep their life tree from natural hazards. Most of their religious beliefs, folklores, festivities, myths and living patterns rotate and revolve around forest (Kumar, 1995).

The common natural resources were regulated through diverse decentralized community control systems. Tribal communities according to their tradition hunt and cut trees from forest for the fulfillment of their needs and the inherent traditional norms regulated such activities and ensured adequate protection and regeneration of natural resources. The growing population and its changing needs have however now started putting increasing pressure on land and natural resources (Krishnan, 1996). Among other factors, the shortening of *jhum* (shifting cultivation) cycles along with diversification of agricultural activities like horticulture and tea plantations have led to over exploitation of natural resources and also deforestation.

With the emergence of modern economics, forests have become an important source of revenue and wealth to the State. Initially, the administra-

tion began to exploit forest resources for commercial purpose without challenging the rights of the local communities. Forestry laws in general and the Wild Life (Protection) Act, 1972, in particular, ignored the historically evolved symbiotic relations between the forest and forest dwellers and drastically curtailed their traditional rights to use forest resources. Under the impact of new policy initiative, the declining access to and control over natural resources by the traditional communities, it becomes necessary to review the legal and forest policy of conservation in details (Krishnan, 1996).

2.1 Joint Forest Management (1997)

Arunachal Pradesh has 82 per cent of its area under forest against the national goal of 66 per cent stipulated for the hill regions. Against the country's four per cent forest area under protected area network, the state has 13 per cent. Forest Survey of India has reported 245 square kilometers increase in the forest area in the State. Despite its excellent record, the state is facing the problem of illicit felling of trees in border areas with Assam and Nagaland. Though the Government is striving to strengthen the forest protection network, the resources available for this stupendous task are meager. The Supreme Court, in its directive in 1998, has also stressed the need for strengthening Arunachal Pradesh's forest protection measures and empowering its Forest Department with more power. However, inefficient communication facility, low mobility and the lack of basic infrastructure and equipments have made the task of the Forest Department to protect the forests very difficult, particularly in the border areas. The National Forest Policy, 1998, gave it a new dimension by declaring 'forests for the people and forest management by the people'. It is now realised that the State cannot conserve nature for long unless its benefits are equitably shared with the people. To overcome the problem, the indigenous people and Government of Arunachal Pradesh have together adopted the Joint and Participatory Forest Management in 1997 (Public Hearing on Environment and Development Report, 2002).

Under the JFM scheme, village communities enter into an agreement with the forest department to jointly manage the forestland adjoining the villages, and share responsibilities to protect and preserve the forestland.

The essential economic and institutional features of JFMs are:

- a. Equal rights to all members of the community.
- b. Changing attitudes of the communities and forest department from one of suspicion and conflict to one of co-operation.
- c. Improvements in forest protection from illegal felling, trespassing, pouching and forest fires.
- d. Enhance regeneration and survival of plant and animal species.
- e. Reduce encroachments.
- f. Improve income and equity in the community.

2.2 Biodiversity Conservation

Government of India initiated the National Biodiversity Strategy and Action Plan in the year 2000 to conserve the Country's biological diversity and natural heritage. The draft National Plan stresses certain strategies and actions. Among other things, its focus is on:

- a. Preparing a national land and water use plan through a participatory process.
- b. Creating or strengthening decentralized instructions of governance.
- c. Eco-regional planning.
- d. Facilitating sustainable, bio-resources based livelihood options, and
- e. Reorienting development policies and schemes to ensure ecological security and people's livelihood options.

Integrating the biodiversity concerns in all projects through inter-sectoral co-ordination at all levels of government is one of its important elements. Its implementation and mechanism includes:

- a. Setting up biodiversity authorities or boards at local state and national levels.
- b. Creating a national biodiversity network, and
- c. Setting up a biodiversity Working Group in the Planning Commission.

The major biodiversity related issues in Arunachal Pradesh in general and the Talley valley in particular have assumed considerable complexity mainly because of the impact of social and economic development that is including demographic changes as well as changes in the traditional lifestyle of the ethnic communities. The growing population and expansion of agriculture, over-exploitation of bio-resources have led to de-forestation and has affected the State's biodiversity.

Arunachal Pradesh joined the process in 2001 and the State Forest Research Institute has been involved in preparing the State's Biodiversity Strategy and Action Plan. The aim of this exercise is to formulate not only a workable action plan for conservation and sustainable use of bio-resources but also ensuring equity in the benefits from those resources. The approach encompasses natural eco-systems, agricultural ecosystems and wild as well as domesticated plant and animal species.

It has four important aspects. These are:

- (1) Conserving biodiversity including the essential functions associated with it.
- (2) Making sustainable use of bio-resources.

(3) Ensuring equity in decision making with regard to conserving, benefit-sharing, accessing and protecting relevant knowledge and information, and

(4) Stressing ethical, cultural, scientific and economic dimensions including the rights of species and ecosystems to survive. It accords primacy to livelihoods dependent on biodiversity, and to cultural traditions relating to nature and natural resources. The attempt is to make the process of preparing the strategy and action plan highly participatory in nature by effectively involving all stakeholders.

2.3 CPRs: Traditional Conservation and Customary Practices

Since time immemorial, the tribal have a tradition of living in harmony with nature. Most of the tribal forest dwelling societies, however link forest, trees, animals and other objects associated with forests, to deities and animistic beliefs, thus attaching a sacred connotation to forests. Ficus trees are not felled in the belief that it may invite evil spirits on the person. Sacred groves are considered having super-natural powers and felling of any tree in it invites the wrath of deities. Anthropological studies (Roy Barman, 1992; Malhotra *et. al.*, undated) show that the village communities had protected and preserved the sacred groves much better than their own private land resources. Hence they have survived as commons for the village deities. They have also been studied as biodiversity preserves and avenues for local participation (Godbole *et. al.*, 1998). Sacred groves represent common property biodiversity resources, encompassing a large variety of trees and animal species, water bodies, and micro-organisms.

The most probable rationale for the close and sacred association between mankind and forests in general, and sacred groves in particular, lies in the short and long term benefits flowing from the forests. Sacred groves serve critical functions such as sheltering rare plants and protecting water sources. Being the only remnants of tree vegetation along the countryside they are

also the main sources of leaf litter. They are of significant economic and climatic importance to the people who benefit from them (Gokhale *et. al.*, 1998).

The tribal population of Arunachal Pradesh too share a long history of harmonious co-existence with nature. Apatanis in Arunachal Pradesh are well known for their indigenous system of Forest Management and have eked out their livelihood from forest resources. Besides drawing sustenance from it, the Apatanis believe it to be the abode of spirits.

The Apatanis avoid killing certain animals like tigers, leopards because they believe that the animals are their ancestral brothers. If they kill them, they have to perform 'Ropii' ritual. The enormous expenditure involved in performing it acts as a deterrent. If the ritual is not performed, it is believed that the killer is haunted by the dead animals' spirit.

Similarly, the festivals and rites center round conservation ethics. In every festival or rite, the Apatanis observe taboo by abstaining from cutting certain plants or killing certain animals. The hunting and fishing activities are restricted during their principal festival, Myoko. During certain seasons, felling, cutting, peeling, tapping and lapping of some of the trees and plants like Castonopsis/Querens/Michelia/Bola (BIYING) are restricted from as these trees are useful for construction works. SANGKHANG SANIL (Rubber tree), is restricted from felling, as rubber tapping has to be carried out regularly. Certain plants or animals are not cut or killed. Ficus species are not felled. SARI/TAMYO/TAHMO plants are avoided from felling as they cause irritation, itching and eruption of blister.

Though wildlife is hunted for sacrificial or other purposes, the use of traditional implements, like bows and arrows, prevents excess killing. In Myoko festival, only one monkey is sacrificed in each village. All these traditional practices help in conserving wildlife. The Enactment of the Wildlife (Protection) Act 1972, the Forest (Conservation) Act, 1980, and other laws have

tampered with the Apatanis' traditional lifestyle, and inhibited free practice of their religious rites and customary activities.

2.4 Indigenous Techniques of Water Conservation and Management by the Apatanis

The indigenous method of water control, conservation and judicious use and sustainable management of its resources by the early Apatanis of Arunachal Pradesh to develop the agro economy has still remained unchanged in the midst of the growing agro-technologies.

Most of the tribal people of the country are still dependent solely on natural and rain water for tilling of their agriculture fields. It is not so in the case of the Apatanis. They do not solely depend on rainwater rather they dig wells for drinking water supply and cut channels to irrigate the crops in fields and gardens. Conservation and management of the water resources through digging wells has sustained the flow of self-sufficient agro-economy of the tribe.

Besides, digging wells, the streams and rivulets flowing down to the Apatani valley are loaded with huge loamy and silt soils from its surrounded hills which are controlled in indigenous styles in order to regulate the water and uniformly distribute in every plot of rice field by a small runnel or through conduct of hollowed log.

A network of channel maintains the indigenous water conservation and management system of the Apatanis by damming of streams with the help of stone and pegs. Despite the fact that the Apatanis survey the alignment of long channels to tap water from woodland stream without the help of the compass and other scientific equipments, they have the ability to brilliantly engineer it and dig channels to tap water from perennial streams. The technology of alignment survey and construction of channels and runnels

are described below:

1. The irrigable streams and pereniality of its source are surveyed and then a site selected for construction of a dam to tap the water.
2. Then the alignment of the main channel is surveyed with the help of a long rope and a peg is pitched into the soil at the end of the stretched rope. This process is continued till the rope and peg reach to the dam side. The channel is dug at the alignment marked by these rope and peg.
3. The depth and breadth of the channel is dug as per the volume of water to be tapped. If the volume of water to be tapped is up to the level of knee (medium tall), the breadth of the channel is to be dug one metre and the depth and height are kept at least above the knee level from the waterbed of the channel.
4. The floor level of the channel is levelled with the headwater tapped from dam. Before use, the floor of the channel and its bound or embankment, both the inner and outer sides, are carefully plastered with mud so that it can't percolate even a drop of water.
5. The deep gorge is bridged by long conduct of a hollowed log and the channel water is passed through this log.
6. The main channel is always constructed above the rice field so that its water can be distributed to every plot of rice field through the small rills and runnel or conducts of bamboo or wood. Each rill and runnels has a laden with drainage of a comb. The burden of the water of the main channel is diverted to the main river of the valley, Kiile, to avoid the overflow of the rice-fields.

The drainage patterns followed by the Apatanis regulate the fertility of the soil of the fields and gardens. The houses are always situated above the fields and gardens. Then the human and animal excreta and other forms of decayed garbage are swiftly drained into the rice fields and garden by rainwater through stream and rills tapped into it. The system is followed so that the irrigated field and garden do not require the use of artificial manure.

2.5 Literature Review

It has been often argued that poor people extract more natural resources and degrade the environment more due to a greater reliance on natural base. Some studies on the other hand have pointed out that since poor people depend more heavily on limited natural resource base they attach greater value to its conservation (Reddy, 1999). Environmental degradation substantially increases the survival risk of the poor. The dependence upon common property resources is more crucial for the survival of the poor (Jodha, 1986). On the otherhand, evidence from India (Jodha, 1990) finds that for small and marginal farm households between 31 and 42 per cent of total own farm inputs are contributed in cash or kind from CPRs. Employment generated by CPRs for the poor is higher than on-farm work or public works. A drastic decline in the number of products and increased time involved in collection, over a 30-year period was noted.

Beck (1994), argued, from micro-level field work in three villages in West Bengal, that CPRs are of crucial importance to the poor, particularly poor women, in terms of sustaining their livelihoods. According to Sing *et. al.* (1996), CPRs contributed about 27 per cent to the total gross income of landless and 22 per cent to that of cultivating households.

Agarwal (1997, 1995, 1991) argue, 30 million or more people depend wholly or substantially on non-forest timber products, which are of vital importance to the poor.

importance in the lean season. Women and children play a crucial role in accessing common property resources, and have a more detailed knowledge of cultivated and wild crops than men in some cases.

Pasha (1992) in a study of three villages in Karnataka argued, CPRs made up 10 per cent of gross income of poor households. The area under common property resources had declined by about 33 per cent over the last 20 years. Iyengar (1997, 1989), argued, dependence on common property resources was largely for grazing and fuel wood. Dependence on CPRs was higher in drought prone areas.

It has been argued that due to an increase in open access and unregulated common property, the individuals do not get proper incentive to act in a socially efficient way and hence the tragedy of common occur (Hardin, 1968). The property rights school argues that private property is the most appropriate way to internalise the externalities that are generated in the former cases. It also makes the contention that private property rights will spontaneously emerge to increase efficiency (Demsetz 1977; Pasner 1967).

Many property rights scholars and policy analysts believe that the problems of over exploitation and degradation of open access to common property resources (CPRs) can be resolved only by creating and enforcing private property rights (Sing 1984, Welch 1983, Smith 1981, Hardin 1978, Demsetz 1967). A decade after his famous article, "The Tragedy of the Common", Hardin argued that the only alternatives to the problems of the commons are either a private enterprise system or socialism.

Smith (1981) thought that the "Tragedy of the Common" in natural resources and wildlife could be avoided only by creating a system of private property rights. Welch (1983) advocated privatization of the common pool problems.

On the other hand, evidences from various parts of the world suggest that the state managed natural resources often degraded faster, were used inefficiently and the outcome were not necessarily beneficial for the poor. As an alternative to both market and state controlled institutional arrangements, local level decentralized management of CPRs have been highlighted (Prakash and Gupta 1997, Baland and Platteau 1996, Ostrom *et. al.*, 1988). There is a need to further investigate the actual functioning and implications of such institutional arrangements because the rights over resources are often contested with multiple claimants at different levels, men and women; households of district ethnic groups and local national and international users (Pathak 1994, Sheva 1991, Nadkarni 1989).

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CHAPTER III

THE WILDLIFE PROTECTION ACT IN TALLE VALLEY OF ARUNACHAL PRADESH AND THE QUESTION OF COMMON PROPERTY RESOURCES

3.1 Arunachal Pradesh: Geographical and Natural Setting

Situated on the extreme North-Eastern tip of the Union of India in the trans-Himalayan regions, between the latitude 26°28'N and 29°33'N and longitude 91°31'E and 97°30'E, Arunachal Pradesh, territorially the largest unit in the North Eastern Region remained constitutionally a part of Assam till 1972. The North-East Areas (Re-organisation) Act, 1971 provided a new name and new political status to then North-East Frontier Agency (NEFA) and renamed it as Arunachal Pradesh. On 20th February 1987, the Union Territory of Arunachal Pradesh became the twenty-fourth state of the Indian Union. Today the state has 15 districts, 44 sub-divisions, 169 circles and 84 blocks.

3.2 Demographic Profile and Land Use under Agriculture

With approximately 80 per cent of the population residing in rural areas, the literacy rate in the State stands at 54.74 per cent. The rural literacy rate in the State is 48.34 per cent of which the male literacy rate is 58.09 per cent and the female literacy rate is 37.56 per cent. The sex ratio of the Arunachal Pradesh indicates 894 females per 1000 males as compared to 933 females per 1000 males for India as per as the 2001 census.

The total main workers in the State according to the 2001 census stand at 4,82,206 persons (2,98,549 males and 1,88,657 females). Out of the total main workers 58.44 per cent are cultivators, 3.85 per cent are agricultural labourers, 0.86 per cent are into household industry and 36.85 per cent belong to the category of other workers. Agriculture being the main occupation of the inhabitants of the state, more than 70 per cent of the indigenous people of Arunachal Pradesh depend on agriculture – both *jhum* and settled in the form of wet rice cultivation and terrace rice cultivation (WET/TRC). *Jhum* cultivation is century old experience of the hill men in the North-Eastern region. The Apatanis, the Khamtis and the Monpas have practised wet rice cultivation in tradition. The net area sown in Arunachal Pradesh as per data available in 2002-2003 is given below:

Table 1: Total Area Production of Important Crops in Arunachal Pradesh (2002-2003)

Area and production of important crops			Area and production of commercial crops		
Commodities	Areas (in hect.)	Productions (MT)	Commodities	Area (in hect.)	Production
Rice	1,24,584	1,52,500	Oil seeds	28,494	29,821
Maize	40,548	56,441	Potato	4,335	30,183
Wheat	4,114	6,250	Ginger	4,448	32,332
Pulses	7,305	7,793	Turmeric	514	1,950
Millet	2,11,10	19,411	Chillies	1,608	2,345
			Sugarcane	798	15,284
Total	1,97,661	2,42,395	Total	40,197	1,11,915

Source: Statistical Abstract of Arunachal Pradesh, 2003

3.3 Forests

As mentioned earlier, the forests are an integral part of all tribes and sub tribes of Arunachal Pradesh. However as a State resource, forest plays a vital role from the economic point of view by earning revenue for the State. The forests in the State are managed under the provisions of the Assam Forest Regulation of 1981 along with Indian Forest Act and Arunachal Pradesh Forest Manual of 1990, under which local people of Arunachal Pradesh have been given special privileges to collect timbers and other forest produces free of royalty to be used for self consumption and not for any commercial or trading purposes. The local people also enjoy privileges of hunting, fishing etc., but there is a limitation following the imposition of Wildlife Protection Act, 1972. The local people are allowed seven and a half per cent of concession in the settlement of forest coups muhals and are allowed 50 per cent concession for the security deposits in any contract for the purpose of settlement of forest coups muhals, etc. The timber permit for extraction of wood are only issued to the local people of Arunachal Pradesh. However, the movement of unfinished timber products outside Arunachal Pradesh was banned from 1982 onwards. At present, the state has 36 Forest Divisions in each district including 123 forest rangers and 151 forest beat offices.

As per the record available as on March 31, 2003, the total reserved forest in the State covered an area of 9552.32 sq.km. Of this total forest area, 625.37 sq.km. is under Anchal Reserved Forest (ARF) and 7.80 sq.km. is under Protected Forest Area. Of the total forest area in Arunachal Pradesh, Wildlife Sanctuary covers an area of 7059.75 sq.km. while a total of 2468.24 sq.km. area is under National Parks. The total Unclassified Forest Area in the State is estimated to be 30965.39 sq.km. In order to improve the forest coverage in the state, the Forest Department in Arunachal Pradesh has taken up plans to increase the coverage of reserve forest area to 4118.08 sq.km., while a proposed area of 436.47 sq.km. is sought to be brought under the cover-

age of ARF/VRF. The major forest products in Arunachal Pradesh are fire-wood, cane, bamboo and timber.

3.4 Common Property Resources in Arunachal Pradesh

In traditional societies, CPRs are either collectively owned or the community has exclusive user rights. Many of the rights are traditionally defined, rather than imposed by the State through law. Examples of traditionally given rights on CPRs are the 'timber rights' to villagers in Himachal Pradesh, forest user rights through Van Panchayat in Uttar Pradesh (Somanathan, 1991), or Shamlat-deh lands held jointly by the village community in Delhi and surrounding areas since the Mughal period (Chakravarty-Kaul, 1996), or NTFP rights from a Joint Forest Management of protected forest (Singh and Ballab, 1989).

In hilly areas of tribal societies, land, forest and water is always treated as their common property resources. The indigenous people of Arunachal Pradesh always treated community forestland, grazing land, river/rivulet, and public platforms etc., as their common property resources. Theoretically, all the land in a village is considered as common property under the management of village council or the village chief. The *Gaonburah* or the chief, as the leader of the village, decide which plots are to be brought under *jhuming*, when agricultural operation should be undertaken, when and where should hunting or fishing be done, etc. besides other matters of common interests like construction of village road, bridge, houses for common use. The village head mobilizes the manual labour in this regard. Thus, in the absence of any separate economic institution, economic activities have also been organised by the tribal socio-political organizations.

The ownership of land as well as the forestland, the individual right to use it is governed by local traditions and customs of the tribes in Arunachal

Pradesh. Under the prevailing land tenure system, there are three types of land ownership namely, (a) Community land, (b) Clan land, and (c) Individual land.

Regarding the forestland, almost all tribes have the community forests, which are controlled by the village councils. In some areas of Arunachal Pradesh, clan ownership is recognised in the forest areas within the village jurisdiction. That is why a look at the data on the basis of legal status of forests in the state, reveals that around 62.17 per cent of the total forest area is under community ownership which is reported as Unclassified State Forest (USF). However, at present there is a growing tendency of individual ownership of forest which is a recent phenomenon in the state. For example in the Apatani plateau of the Lower Subansiri district, the forest has become increasingly privatised.

The ownership of CPR land and forests in tribal societies of Arunachal Pradesh are different from tribe to tribe. The ownership pattern of village common land and forest among different tribes of Arunachal Pradesh are discussed below.

The ownership pattern of land in tribal societies is unique in the sense that customs did not allow inter-tribe transfer of land. Even in most cases, except the Apatanis, people of the same tribe but belonging to different villages were not allowed to own land as per the village customs.

Furer-Haimendorf's writing in 1994, has pointed out that in the Apatani society, the influential power and the social status of an individual depend largely on his propriety of land. 'Land is the source of wealth' and all other and less permanent possession are mainly valued as a means of acquiring more land'.

Individual land consists of all cultivated land, irrigated rice-fields for dry

crops, garden plots for maize, millet, vegetables and fruit trees, groves of bamboos, pines and other useful trees, as well as sites for houses and granaries'.

'Clan-land consists of meadow-land near the village used as pasture and buried grounds and tracts of forest, sometimes at a very great distance from the village, where only the members of the owner-clan have the right to hunt and trap'.

'Common village-land is confined to one or two usually not extensive stretches of pasture, and to forest tracts on the periphery of the Apatani country'.

Land can be bought and sold by the Apatanis among themselves but traditionally it must be bartered for livestock. One can buy other things with money, but not land.

The tribes that maintain themselves by *jhum* (shifting cultivation) have somewhat different system. The Adis of East Siang and West Siang districts are predominantly *jhumias*. The system of *jhum* cultivation prevalent among the different sub-tribes of the Adi group has led to individual ownership of cultivable *jhum* land. The plots developed for WRC/TRC are owned individually. In some cases, clan ownership is found in the hunting, fishing and forest areas as well. A Homestead site belongs to the common village land and is controlled by the village council, the *Kebang*. But in case of the Nishis, if a person cultivating a plot of *jhum* land in one cycle do not return to the same plot in the next cycle, any other villager is free to take up the land for cultivation. The Nishis, therefore, appear to be more individualistic than any other tribes and no strong village council have evolved in their society. Lands not taken up by the individuals for cultivation remain as village common land and no one exercises any right of ownership on them. But individual ownership is recognized in the WRC/TRC fields. Clan ownerships are the rule in hunting, fishing and forest areas while homesteads are owned individually.

The Wanchos of Tirap district enjoy a kind of non-transferable ownership right of jhum plots. Forest and fishing areas are treated as common village land. Villagers enjoy equal right to hunt and to fish in such areas.

The Monpas, the westernmost Buddhist tribe of Arunachal Pradesh developed extensive terrace cultivation along with jhuming. Both individual as well as common village ownerships evolved in the Monpa society. Individual ownership is predominant in cultivable land while the village council, *Mangma*, controls mainly village forests and pastures. *Mangma* can lease out its land to the individuals in exchange of some annual tax. The homestead sites called '*mangshah*' belong to the village common land and individuals enjoy non-transferable permanent ownership rights.

The Mishmi group treats homestead areas as village common land but within which the individuals enjoy heritable right of use and occupancy. Hunting, fishing, grazing and forest areas are owned either clan-wise or by village councils.

Individual ownership is the usual custom among the Noctes. The village chief allots common village lands to the individuals in consultation with the village council. Common village ownership is recognised in hunting, fishing, grazing and forest areas. Home sites also belong to the village council.

However, the Hill Miris of Lower Subansiri district practises only jhum cultivation like the Nishis. Individuals enjoy the right of use and occupation of the jhum lands for the period of cultivation only. Like Nishis, no strong village organizations are there in the Hill Miri Society to control and regulate the village lands. Forest and fishing areas belong to the common village land and not every villager has equal access to them.

Unlike the other tribes in Arunachal Pradesh, the Khamptis and Singphos

practise only settled cultivation like the Apatanis. Like the Wanchos and Noctes, the institution of chieftainship plays a pivotal role in the Khampti as well as the Singpho societies. According to the Khampti custom, all land is village common land. The village chief and the village council together allot this common village land to the individual villagers. In Khampti villages, certain parts of cultivable lands are kept exclusively under the village council where production takes place under voluntary community labour to generate a common fund for the welfare of the community as a whole.

According to the Singpho custom, the village chief is the lord of all lands in the territory under his jurisdiction. Individuals enjoy the right of use and occupancy of the cultivable land and can pass it on to his successor. Thus a kind of transferable individual ownership on cultivable land within the family system has been recognised. However, all other categories of land are considered as common village land.

It appears that both the land use pattern and agricultural practices have some bearing on the emergence of the land ownership pattern. In respect of cultivable land, some sort of individual ownership is found to be the dominant feature. In case of hunting, fishing, grazing and forest areas, village and/or clan relationship is the general norm. In some tribes, even the homestead land is under the village/community ownership. Despite the general norm of individual ownership of cultivable land, the degree of individual property right varies from tribe to tribe. Those who have developed permanent cultivation, enjoy greater degree of ownership right like the Apatanis, the Khamptis and the Singphos. But the Nishis, who practise the 'rough and ready' *jhum* cultivation has hindered the emergence of individual property right in land and in such cases even cultivable lands belong to the category of village common land.

3.5 The Origin and Migration of the Apatanis

There are no documentary evidences on the origin and migration of the Apatanis and the archaeological evidences are too meagre to throw any light on this. However, it is only different myths and traditions that throw some light on some aspects like their origin and cultivable practices including irrigation.

The oral history of the Apatanis reveals that Apatanis probably migrated to their present habitat over different periods of times. The priests sing the mythical migration routes of the Apatanis during the traditional prayers of the tribe, from the border areas of Tibet and China, in the North of Subansiri and the Siang district of present Arunachal Pradesh. Later, the Apatanis are believed to have crossed the river Kuru and Kime (Kamla), which flows near the Tsangpo Valley and later on reached the present Talle Valley where the ancestors of the Apatanis settled for a few generations. From Talle Valley they have gradually migrated towards the present Ziro Valley. The reason for abandoning Talle Valley by the Apatanis may be the unfriendly climatic conditions due to heavy precipitation, extreme snowfall and over fertility of soil that make the grain to be addled.

3.6 Social and Economic Life of Apatanis

In the Apatani society, the family consists of the parents and their unmarried children. The parents assist their grown up sons to establish their own house and to have a land holding of their own. Normally, it is the responsibility of the father to provide house sites for his married sons. The Apatanis normally have a single family. Two married couples of equal status, may, however, share the same house but only for a very short time. The youngest son of the family usually live with his parents. However, the gender disparity in the Apatani society is quite evident in that the daughter does not get any share in the property other than the ornaments at the time of her marriage.

In the traditional Apatani society, one comes across rigid social stratification, where landless houses are suppliers of slaves, both hereditary and induced. The *Miira* is a slave of patrician and is considered the legal property of the master as such. The *Miira* can be either from the patrician family or from foreigners' family descendant. The Apatanis have different categories of slaves or *Miira* according to their origin and identifies. According to the customary laws of the Apatanis, the price of the slave is ten mithuns (*Bros Frontalis*) in addition to some household articles and ornaments.

In so far as the economic life is concerned, agriculture is the main livelihood. The Apatanis practise settled cultivation. The principal crops grown by the Apatanis are rice, millet, maize, pumpkin, tobacco, bottle gourd, beans, ginger, etc. While rice is cultivated on the wet terrace land, the vegetables are grown on the dry land and the kitchen garden.

Animal husbandry, like mithun and pig rearing, is also another major component of the Apatani economic life. Handicraft and cottage also plays an important role in the traditional economy. The Apatanis are also keen traders and as mentioned by H.M. Crow, 'The Apatanis are keen traders and if they could come down to the plains in perfect safety would do so in great numbers and develop considerable trade'. Of late the traditional economic activities are supplemented by horticulture, pisciculture that earn a substantial amount of cash.

3.7 A Tale of Two Villages: Hari and Hong

(a) Physical Setting of the Villages:

Among the six Apatani villages in the Ziro block of the Lower Subansiri district, Hong village is the largest. The Hong village is located in the southeastern part of the Apatani valley. The Hong village is situated at a distance of five kms south from Hapoli town while Hari village is six kilometers north of Hapoli.

Both the villages have schools up to Secondary level run by the State government. In Hari, a local household runs a private kindergarten school. Children of both the sexes attend schools in the two villages. However, in so far as the medical services and facilities are concerned none of the two villages have any primary health centers (PHCs) and the sick have to be carried to Hapoli PHC for medical treatment or consultation with the doctor. Roads from Hapoli town connect both the villages, while Hong has graveled roads, in Hari, the roads are metalled. Both the villages are well covered by piped water supply by the PHED. Almost every household in the two villages has the facility of tap water supply. The villages have also been covered well under the rural electrification programme and every household has electricity supply.

The average family size in the sample households is estimated to be 5.6 in both the villages. The gender wise distribution of head of the households by their levels of education reveals that while 28 houses are male headed in Hong village, in Hari 26 houses have males as head. The educational background of the head of the households show that in Hong, both the female household heads are illiterate while in Hari three of the female household heads are illiterate and one has read up to class five. Further discussions with the female members of the sample families reveal that education is the least priority for the girl child or women as work in the field and household chores keep them engaged all throughout the day.

Significantly, the present trend of service sector preference among the rural educated and migration to urban areas in search of jobs has left its mark in these two remote villages as well. The survey reveals that sample households with male heads and better educational level (graduates, higher secondary passed) have opted for service in urban areas. The female members of such households usually work in family agricultural lands and in *jhum* plots to raise the family subsistence of rice and other vegetables as well as other little

(b) Economic Activities of the Villages:

The indigenous people of these two villages are predominately agro-pastoral communities with economic activities based on agriculture and cattle rearing. Every family owns a number of agricultural plots. The agricultural production suffices to meet their subsistence needs only. The agricultural lands in both the villages are in the form of terraced fields and are situated at an average distance of two to three km from the villages. The introduction of paddy cum fish cultivation is a popular agricultural practice of the Apatanis. The paddy cum fish culture is rearing of fish seeds in the paddy field along with the paddy in the same unit area of land. A good numbers of fish farms owned by the private individuals have some capacity to share the total supply of fish made by the Government Fisheries in a year. The investment expenses are met from the sale proceeds in the fish market. This scheme was introduced in the Apatani plateau on an experimental basis way back in 1965-66, in a few selected paddy cultivated plots. The pisciculture production is confined during three months of the year from August to October.

A total of sixty households (thirty from each village) have been selected at random from the two villages for the study.

Interview with the villagers reveal that the introduction of paddy cum fish cultivation earn them additional income out of fish sale from the paddy fields. The survey reveals that an average of 12 kg of fish are produced during the season (September –November) by each of the thirty sample households from Hong village which fetches them sale proceeds of Rs.1, 440 (Rs.120/- per kg). In Hari, an average of 17 kgs of fish are produced which bring them sale proceeds of Rs. 2,040 (Rs.120/- per kg). This additional income is used for meeting personal consumption.

The following table gives a distribution of fish sale proceeds of the

land sizes under different types of cultivation.

While all the sixty families have land under settled cultivation, however there is concentration of land in the size class of 0.339 hectares to under 0.74 hectares in both the villages under settled cultivation. In respect of *jhum* cultivation while 16 of the sample families in Hong village practise *jhum*, 20 sample families in the Hari village still adhere to *jhum* system of cultivation in addition to settled cultivation. The land sizes under the *jhum* cultivation are, however, smaller than that of the settled cultivation. Further, the survey reveals that the families in order to irrigate their individual plots under settled cultivation and

Table 2: Distribution of Households in the Two Villages by Land Size Ownership under Cultivation

Village	Land size class (in hect.)	Settled (wet land)	Jhum (dry land)	Others	Irrigated land
Hong	0.027- under 0.136	---	16	6	---
	0.136- under 0.28	12	---	3	12
	0.28- under 0.339	3	---	---	3
	0.339- under 0.74	15	---	3	13
	0.74 and above	---	---	2	---
Hari	0.027- under 0.136	---	18	1	1
	0.136- under 0.28	6	2	9	4
	0.28- under 0.339	2	---	2	2
	0.339- under 0.74	21	---	5	22
	0.74 and above	1	---	1	1

Source: Field Survey, 2004

and tubers are cultivated under *jhum* plots, under settled cultivation wet rice is grown. The produce from the *jhum* land is used both for self-consumption as well as for sale in the markets.

Besides agriculture and pisciculture, the forests and common resources of the villages also play important role in the economic life of the two villages. Traditionally, the use of forest produce was to satisfy subsistence needs through the use of wood for building houses and agricultural implements, or the use of forest vegetation as supplements to the daily diet. Today, although the predominant use of common resources is for satisfaction of household requirements, easier market accessibility has resulted in the increased commercialisation of such activities. Most of the income generated from the use of common resources is through the sale of timber, firewood, bamboo medicinal herbs and animal products (such as meat, skin) etc.

(c) Use of CPRs for Fuel Wood Collection in the Sample Villages

One of the most commonly collected and used items from the forests under CPR is fuel wood. However, as revealed from the latest estimates of the NSS 54th Round (1998), there has been a marked decline in the collection of fuel wood from the CPRs in the country. Compared to 87 per cent of the rural households in India reporting collection and consumption of fuel wood from the CPRs in the NSS 50th Round (1993-94), an estimated 62 per cent only reported collection and consumption of fuel wood from CPRs in NSS 54th Round. This trend was discernible in respect of Arunachal Pradesh where from an estimated 96 per cent of rural households dependent on fuel wood from CPR as per NSS 50th Round, the figure decreased to 85 per cent in the 54th Round.

The village households usually collect the fuel wood from the forests

The survey of households in the two villages reveals that the average distance between the community forests and the sample villages is 10 Km (approximate) where as the distance from clan forest and individual forest is four km and two km respectively from the two villages Hari and Hong. The distribution of households by sources of cooking medium reveals that more than 80 per cent of the sample households are still dependent on fuel wood. Nevertheless, there is also evidence that other sources of energy are gaining in use which is also true for other rural areas in the State and explains the decrease in collection and consumption of fuel wood in the NSS 54th round. While an estimated 80 percent of the rural households (as per NSS 54th Round) in Arunachal Pradesh used fuel wood for all purposes of cooking, heating and lighting, the sample survey in the two villages reveals that kerosene is generally used to ignite the fuel and for lighting purpose while LPG is used only for making tea. The possession of LPG is 'a perceived social status among the sample households'.

Table 3: Distribution of Households in the Two Villages by Sources of Energy Use

Sl. No	Energy Source	Percentage of Households using Different Energy Sources	
		Hong	Hari
1	Firewood	85.4	82.4
2	Kerosene	14.0	17.1
3	LPG	0.6	0.5
Total		100	100

Source: Field Survey, 2004

The source of fuel wood is an important indicator of the dependence on the

buying fuel wood is found to be higher in Hong village. The households who buy the firewood generally belong to the businessmen, service holders and retired persons and to some extent agricultural labourer. Usually it is the cultivators and the labourers who collect fuel wood for self-consumption as well as for sale.

(d) Use of CPR for Grazing of Livestock

Another important use of the village forest and the CPR land in the villages is grazing of livestock. The NSS 54th Round (1998) data shows that in Arunachal Pradesh, 42 per cent of the village households use either the forest or the CPR land for grazing their livestock. Of the total households using forest or CPR land for grazing, 12 per cent use the village forest and 30 per cent use any other type of clan forest or forests under community ownership of the villages. The NSS data shows that only 3.5 per cent use the government forestland while some 30 per cent of the village households use any other type of government owned CPR for grazing their animals. The findings from the sample survey reveals that government forestlands are mostly used in the two villages for grazing of livestock. However in Hari, the common grazing lands in the village are also used by some of the sample households.

It is revealed from the discussion with the sample households, that despite the Reserve Forest Policy in the Talle Valley, the people from the two villages of Hong and Hari, which fall within the Talle Valley and where the Wildlife Protection Act has also covered the community forests, people access the forest areas for grazing their livestock. In so far as the grazing of livestock is concerned, it is evident that the Wildlife Protection Act has not affected the people in these two villages.

(e) CPRs and Income Generation of the Rural Poor

Common property resources serve as one of the important sources of income generation for the rural especially in the hill regions. Fuel woods, bamboos, leafy vegetables, shrubs, herbs, birds, etc. collected from the CPRs in the villages are not always used for self consumption, a part of it is also collected for selling in the village markets or in the nearby towns. However, estimation of market value of such collections is not always an easy task, as most of the people do not keep proper accounts of such transactions. The imputed value of a CPR-product has been estimated in the present study by multiplying its quantity with the prevailing village price of the resource involved (Qureshi and Kumar 1998, Sing *et. al.*, 1996, Nadkarni *et. al.*, 1989, Jodha 1986). As per the NSS 54th Round (1998), of the total value of collections of some selected materials from CPR in Arunachal Pradesh, 21 per cent accounted for fruits, roots and tubers, one per cent of honey and medicinal herbs each, 37.4 per cent of fish, 13 per cent of leaves and 26.5 per cent of weeds, grass and bamboo and the total value of collection has been estimated at Rs.137 million in one year (365 days).

Selling of forest product is the main CPR based activity in the sample villages. The income generated from CPRs in households has been estimated by imputing the value of physical products collected from CPRs. The CPR products, namely food items, fuel wood, fodder etc. have been collected largely for home consumption. Thus, adding up their imputed values has been used to derive an estimated income from them.

Table 4: Percentage of Yearly Consumption of Forest Products Village Wise During Last One Year

Sl. No	Village	Timber	Firewood	Bamboo & Cane	Leafy Vegetables	Thatching Grass
1	Hong	0.2	98.0	0.9	0.2	0.7
2	Hari	0.4	96.3	0.9	0.1	2.3

Source: Field Survey, 2004.

The above table reveals that in both the villages in Talle Valley, CPRs has contributed large proportion of the items for self-consumption and sustenance. The consumption of all the forest products is highest in Hong village compared to Hari village except the consumption of timber and fodder. It is pertinent to note here that in Hong village, while preference for service sector has been growing among the educated at the same time the dependence on CPRs for fulfilling the requirements of household consumption is also higher. Further exploration reveals that a substantial part of the income from service is saved to meet emergent situations and not spent for consumption purposes. In Hari village, where business is one of the preferred income earning activities among the households, there is a tendency to sell the forest collection in the market to earn 'extra bit'.

Table 5: Percentage of Total Collection of Forest Products Village Wise During Last One Year

Sl. No	Village	Timber	Bamboo & Cane	Leafy Vegetables	Fodder	Firewood
1	Hong	5	28	14	13	40
2	Hari	10	22	12	20	36

Source: Field Survey, 2004.

Table 6: Total Forest Products Sold Village Wise During Last One Year

Sl. No	Village	Imputed Value of Forest Products Sold (in Rs)	Percentage	Imputed Value of Wild Animal Products Sold (in Rs)	Percentage
1	Hong	1,51,080	48.28	2,040	15.7
2	Hari	1,61,830	51.72	10,950	84.3
Total		3,12,910	100	12,990	100

Note: Forest products include timber, bamboo, cane, leafy vegetable, fodder, etc.

Source: Field Survey, 2004.

The survey reveals that more than 63 per cent of the total annual animal hunts are consumed by the sample households in both Hari and Hong villages and is the major source of their animal fat and protein nutrient. While wild rats and birds comprise the main animal hunts among the sample households of Hong, in Hari, deer and monkey are also preferred choices among the households.

It is important to note here that discussions with the sample households reveal that though they earn income from selling forest and animal products, these do not ensure a regular level of annual flow of income for them. The income from these sources is dependent on the number of days the villagers spend on the collection of forest products and therefore is often seasonal. The sample households in this respect provide two explanations:

- (i) One, during rainy season, forest collections are reduced and hence the marketable surplus. Most of the collections are self-consumed.

- (ii) Secondly, the sample households (also supported by the Gaonburah) believe that the forest areas are community property of the villages and the declaration of the Talle Valley as a Wildlife Sanctuary by the Government of Arunachal Pradesh, has robbed the local villagers of their natural rights of collection of forest products and hunt of animals. This has adversely affected their real income at present as free movements within the forests have been restricted and hence their collection of forest products including animal hunt.

A perceptual change has come about in the villagers as revealed from the discussion with them wherein it has been found that there is a strong feeling for urban migration among the males for other sources of livelihood especially in petty trade and small time business helps, construction sites, etc. Consequently, the burden of forest based activities have been rising on the women with the net result that more families prefer to keep away their girl child from attending schools to help their mothers in forest collections from the CPR lands.

(f) Employment Generation through activities based on CPRs

One of the major concerns of the activists advancing the causes of hill people is the employment generation through CPR based activities. The employment generated by CPRs is usually estimated by evaluating the working days spent by a household in the collection of CPR products and in CPR based activities (Sing, 1993 and Jodha, 1986). Eight working hours by an adult person or sixteen working hours by a child have been considered equivalent to one working day (Sing, 1993 and Jodha, 1986).

In both the sample villages under study, as mentioned earlier, women spent more time in CPR based collection of forest products and animal hunt. It has been estimated that CPRs provide a mean annual employment of 74 working days per household in Hari and 34 working days per household in Hong village.

The percentage of gender wise days spent in collection of forest product in Hari village is 42 per cent for the male and 58 per cent for the female. The corresponding figures in Hong village stand at 31 per cent for male and 69 per cent for female. The income from the sale of forest products and animal hunts are usually controlled by the women folk and substantiates the family living. The survey reveals that the women folk in the sample households from the two villages are engaged not only in management of domestic chores but also in the processing, storing, utilization and marketing of free biomass goods. Their role and responsibilities are pivotal in framing the character of the society despite the fact that they have no representation in any decision making body of the village.

Thus, while the women enjoy no political empowerment, economically they are but the force behind - from cultivators to forest gatherers to sellers in the market with a decisive role in spending of family income.

It is pertinent to note here that, the households involved in collection of timbers from the forestland have comparatively higher levels of income and accounts for 44 per cent of the total annual income. These households engage hired labour (mostly women and girl children) to collect fuel wood, fodder, leafy vegetables, etc., in lieu of payments in kind rather than in cash.

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CHAPTER IV

REVELATION FROM THE STUDY AND SCOPE BEYOND

4.1 Major Revelations:

The depletion of forest resources are noticed in parts of Arunachal Pradesh, particularly in Eastern and Southern districts where there are heavy concentration of wood based industries like plywood, saw mills etc., creating imbalance in the ecosystem which have often resulted in floods and landslides causing untold misery to the people.

The practice of Preservation and Maintenance of forests like pine groves or bamboo gardens by Apatanis are well known to the Forest Department of the State. With the growing awareness and campaign on wildlife and forest preservation all over the country and enactment of the Reserved Forest Policy, the Wildlife Protection Act, etc., the Government of Arunachal Pradesh in collaboration with the indigenous people of Lower Subansiri district adopted Joint Forest Management. Finally the Government declared the Talle Valley Reserve Forest as the Talle Valley Wildlife Sanctuary. With the declaration of Talle Valley as the Wildlife Sanctuary, concessions to the local people to access the forest area has been abolished and large part of the forest areas to which the local people had access earlier for collection of forest products and also animal hunts ended with the new policy. Therefore, the local people lost access to an important source of subsidiary sustenance. The prohibition though has not destroyed the traditional economy of the tribals but it has altered their preference for livelihoods, as there is a distinct shift in preference for service-oriented livelihoods.

As has been found, the indigenous people of the two villages, Hari and Hong, are agriculture-based communities with a deep sense of attachment with land. The Field Survey brings into light that almost every family in the two villages owns a number of agricultural plots. The inhabitants carry out paddy cum fish cultivation in these fields, though pisciculture is confined to three months of the year from August to October. But the irony is, despite this possession of cultivable land, the agriculture cum pisciculture production just suffices to meet their subsistence needs.

Besides agriculture and pisciculture, the forests and common resources of the villages have been providing ample scope for livelihood generation in the economic life of the two villages. Traditionally, the use of forest produce was to satisfy subsistence needs through the use of wood for building houses and agricultural implements, or the use of forest vegetation as supplements to the daily diet. Although the predominant use of common resources is for satisfaction of household requirements, commercialisation of forest-based activities with easier market accessibility in the contemporary economy is taking place. Most of the income generated from the use of common resources is through the sale of timber, firewood, bamboo, medicinal herbs and animal products.

In both the surveyed villages of the Talle Valley, the common property resources have been contributing large proportion of the items for self-consumption and sustenance. The fact that despite the prevalence of the Reserve Forest Policy in the Talle Valley, the people from the Valley still have access to the reserved portions of the forest areas for grazing their livestock invariably questions the role of Government and the concerned Departments in implementing these policies. Proper implementation of these policies calls for an effective role on the part of the Government.

However, the policies introduced for the protection of forest resources and wildlife are not a total failure. As revealed from the study a perceptual change has no doubt come about among the villagers wherein it has been

found that there is a strong tendency for urban migration among the male members of the Valley in search of alternative sources of livelihood especially in petty trade and small time business helps, construction sites, etc. Consequently, the burden of forest based activities have been rising on the women with the net result that more families prefer to keep away their girl child from attending schools to help their mothers in forest collections from the CPR lands. Perhaps the growing incidence of high drop out rate from Class I-X for Arunachal Pradesh can be concealed within this social phenomenon of securing a livelihood in the event of CPR and Wild Life Protection Act. The question that arises is which is important for an average rural family in Arunachal Pradesh - sacrificing the additional helping hand of the girl child for securing two square meals a day for the family's sustenance or educating her to become a probable income earner for another family in future? The larger context of social and economic realities is more complex than visible and hence legal and regulatory framework cannot dispense all redressal measures.

4.2 Scope Beyond:

It therefore emerges that declaration of Talle Valley as a Wildlife sanctuary has affected the forest based activities of the villagers because of the restricted movements. Earlier scope of forest-based activities has been reduced and there is gradual shift towards service sector livelihood activities. While men folk in the villages were actively involved in forest-based activities previously, but over the years this task has been left largely to the women as male work force in the villages are opting for other options of livelihood as forest based activities do not substantiate family income. Also, sedentary agricultural activities are taken care of by the women. The social impact of this trend has been that girl children are withdrawn from schools after their primary level education to help the women folk in the fields and participate in forest activities that earn livelihood for the households.

The above study is a humble attempt to understand in a very concise and precise way the impact of the declaration of the Wildlife Policy of the gov-

ernment in Talle Valley in two of the prominent villages, Hari and Hong. It lays before academics and activists the scope to explore further in depth, the impact of this policy on the shifts in livelihood and income generating activities on one hand and the social impact of girl children's withdrawal from school for supporting family income by working in fields and forests. It is beyond doubt that forests and wildlife protection is important for ecological balance in the face of growing population pressure on land and forests, but at the same time, the humanitarian question of sustenance of the hill people who depend on forests must also be addressed and hence scope for alternative livelihood opportunities needs to be created. Perhaps this is the biggest question that needs to be addressed for the people of Talle Valley today.

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