
Joint Forest Management in Rajasthan – Case Studies of Two Villages in Udaipur District

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Rural development through participatory forestry is a dynamic process for promoting the economic, social and environmental growth, increased agricultural and silvicultural productivity, and enhancing the prospects of basic needs and services in rural areas. Forestry promises a vast potential to achieve the indigenous rural development through the integrated management of natural resources. The achievement of the aims of rural development to a large extent depends upon the availability and use patterns of natural resources including land, forests, soils, water and trees etc.

Planners in India have now realised the importance of forestry and integrated rural development planning to enhance the availability of goods and services to the rural people.

Potential of Forestry for Local People

Serious researches have concluded that despite several development achievements, the performance of programmes directly targeted to the rural poor has been disappointing. This had led to a relentless search for sustainable and alternative paths for rural development. Chambers, Saxena and Shah (1989) conclude 'lift irrigation and trees fit the livelihood priorities of the poor, for both resource-poor farmers and labours reliable earnings to lean months of the year, reduces risk, and often removes the need for seasonal out migration. For their part, trees provide subsistence and income through minor forest produce, firewood, fodder and seasonal crops. Where they can be cut and sold freely, trees owned by poor people can enhance their security, as savings banks cashable to meet contingencies and avoid debt'.

Forestry forms the core-sector for rural people for various reasons:

- Forestry can play a vital role in increasing fodder availability in rural areas. This, in turn, supports the animal husbandry, a core economic activity over a major part of the state.
- Forest and trees play a significant role in the people's farming systems, and supplement their daily income. Collection, storage, processing and marketing of non-timber forest produce can provide a gainful employment to the rural poor, and support forest-based industries in the region. (Srivastava, 1993).
- Many forestry related activities are season-bound as with *Safed-Musli* collection, seed collection for forestry plantation, tendu-leaf plucking, and the seasons when they become available may not coincide with the general availability of the market for wage-earners. Thus, people may not only earn a livelihood but also contribute to the local development.
- There is big gap in supply and demand of forest produce in the country. With the restoration of forest cover and enhanced productivity of the land, the yield of timber and non-timber forest produce will increase. This will not only lead to establishment of indigenous cottage industry but also provide purchasing power to the rural people (Mukerji 1991).
- In addition to economic benefits to the rural poor, development of forests and better management of natural resources will also strengthen the essential ecological process and life-support systems in the nature.

Policy Changes for Participatory Forestry

Forestry assumes great significance in the era of participatory strategies. Experiences from West Bengal, Haryana, Orissa, Himachal Pradesh, Gujarat, Uttar Pradesh, Jammu & Kashmir and Tamil Nadu have made it amply clear that under the

prevailing socio-economic and demographic situation in India, participatory forest management offers one of the most important survival strategy for threatened Indian forests. Imposition of State ownership on forests during the British rule disrupted the community management systems. Natural resources in village neighbourhood were taken over by the state. This action initiated the Green Mango Picking Phenomenon, a condition where everyone decides to harvest his/her own produce before it is extracted by somebody else. Forests, thus, were exploited beyond silvicultural regenerative capacity, resulting in habitat insularisation and local extinction of much biological diversity. Prevailing trends of deforestation in India have raised doubts about the management system that began more than a hundred years ago in the name of "Scientific Forestry". A growing number of foresters, environmentalists, ecologists and sociologists, after years of debate, have come to conclude that we need to adopt a more people-friendly approach to help revive threatened Indian forests.

With this background, the Government of India's Ministry of Environment and Forests issued the historic June 1, 1990 guidelines facilitating the development of forest management partnership between village communities and forest departments. The guidelines provide for rights to usufruct and all non-wood forest products and percentage share of final harvest to organised communities willing to help regenerate depleted forest and waste lands.

The Government of Rajasthan issued an order on March 15, 1991

for the Forest Department to enlist co-operation of village communities and NGOs in re-greening of the degraded and barren forest lands in Rajasthan. This is one of the most important initiatives for sustainability of forests in Rajasthan. This order has been updated in the year 1999 to make it more operational and effective for partnerships.

Rajasthan presents a picture of vast contrast in climatic conditions influencing the distribution of vegetation which ranges from scrubby and thorny bushes in the north and semi-evergreen forests on the hills of Mount Abu in the south. Prior to independence, most of these forests were managed by erstwhile princely states for Shikar. Exploitation was done on permit-cum-royalty system that resulted in heavy felling without regeneration except in shikar preserves which were protected for game hunting. "Systematic management of forest was adopted after the merger of the princely states but the conditions did not change significantly, mainly on account of financial constraints and heavy burden of rights, concessions and open grazing on these lands. The average productivity of the once 'commercially workable' forests is estimated to be 10 tonnes or 15m³ per hectare. Out of total 31,660 sq.km. forest area more than 22,000 sq. km. support either degraded forests or are barren. About half of the degraded forests have rootstock still capable of regeneration through protection. These areas form the most suitable potential territories for Joint Forest Management. It is estimated that after rehabilitation through Joint Forest Management, these are likely to produce 130 quintals of wood per hectare at rotation. It is safe to assume that at least 2 m³ per hectare

per year wood can be produced leaving aside the trees planted to yield non-wood forest products.

Today Rajasthan has more than 1700 Village Forest Protection and Management Committees. Success of Joint Forest Management demonstrate that vast tracts of degraded forests in Ajmer, Banswara, Chittorgarh, Dungarpur, Jaipur, Jhalawar, Kota, Sirohi and Udaipur can show rapid ecological recovery through community forestry programmes. In most of these districts, secondary species dominate with vigorous coppice growth and rootstock. Human activities causing degradation include very high incidence of repeated grazing and non-regulated over-exploitation for rural fuelwood. Through participatory forest management, communities can take up protection, artificial planting of wood and non-wood bio-mass yielding trees, cleaning of surviving stumps, shoot singling and enrichment planting to enhance productivity of the forest lands. Tribal hamlets in southern Rajasthan often comprise a homogeneous group of less than 125 families and dependence on forests for livelihood is high. Since minimum requirement for ecological recovery is protection, enrichment planting and seed-sowing, the JFM approach should help develop the forest resources. This shall be an important issue for rural development.

Village Organisation

Government of Rajasthan issued a second order on April 26, 1991 enabling the constitution of Village Forest Protection and Management Committee in every revenue village to enlist people's co-operation for protection and management of Social Forestry plantations on

panchayat and Government waste lands. Membership is open to one adult member willing to participate from each family of the village or village-clusters. A list of members will be prepared by Forest Range Officer (FRO) in consultation with village panchayat. Deputy Conservator of Forests will issue formal orders of constitution of VFPMC. Members of the VFPMC shall elect executive body of 7 members, giving due representation to members of SC/ST. Elected members of the village panchayat, village secretary and patwari shall be non-voting members of executive body. The Forester of the area from FD shall be the member secretary of the VFPMC. Executive body will meet at least once a year. A treasurer appointed by executive body will maintain the accounts. VFPMC will be responsible for protection from cutting, grazing, fire, unauthorised use or encroachment, collaborative micro-planning, production, management, resource sharing, dispute resolutions and marketing of the final harvests. VFPMC is required to protect and manage forest/plantation area for at least ten years to earn rights to forest produce. Before the final harvest, villagers can collect non-wood forest products other than Munj, Bhuari and Khus grass free of charge. Munj, Bhuari and Khus will be sold through auction. After the final fellings, timber of less than 20 cm girth shall be distributed among the members of the VFPMC free of cost, and timber of greater than 20 cm. girth will be sold, in consultation with VFPMC, to villagers at the prevailing rates in the local market. Half of the income generated from these auctions will go to the State exchequer and 50% will be deposited in the account of the

VFPMC. Half of the share of VFPMC will be distributed equally among the members and the remaining half will be reinvested in plantation and forest development. In case a VFPMC does not exist, the income will go to village panchayat subject to its supportive role in protection for a minimum period of 10 years.

Rural Productivity Enhancement

Forestry activities can enhance the productivity of the forest ecosystem by supporting bio-ecological inputs. A sustainable package of location specific eco-development for a community living in and around a forest reserve may thus, include development of biomass required by human and cattle population, enhancement of the resource productivity through soil and water conservation, improved agriculture, pisciculture, poultry, piggery, veterinary care, development of cottage industry that is based on traditional knowledge and renewable raw material, introduction of wood-saving devices such as fuel-efficient chulha and improved crematoria, human resource development through education, health care and involvement of village communities for management² and equitable sharing of benefits derived from protected areas. This will not only support the essential ecological processes and life support systems but also provide the livelihood security to the rural poor (Pandey 1993a, Bapat 1992 & 1993, Bohra 1993).

Development Initiatives

There are several examples to show that participatory forestry can be a viable option. Joint Forest management in Udaipur South

Forest Division (Pandey 1991a,b & c), Shyampura (Chaudhury 1993), Eklingpura (Pandey 1992b), Gorela (Zutshi 1993) and Dataramgarh (Mathur and Ghose 1991) are such examples. There are other examples where World Food Programme assistance is provided for welfare activities to participating village communities in 13 districts of Rajasthan.

We shall discuss two examples where participatory forestry has shown initial promise.

J.F.M. in Village Ambua

Situated at about 18 km. from the city of Udaipur, Ambua³ is a small hamlet of village Kanpur, located in Girwa block of Udaipur district in Rajasthan. It comes under the Udaipur south Forest Division. It is connected with Udaipur by a 12 km metalled and 6 km. fair-weather road. A 3 km. walking path across a nearby hillock connects, village to Udaipur-Salumber road near Haldughati forest check post. It is home to 140 households with a total population of 1057 in the year 1994. There are 134 households belonging to scheduled tribes, 1 household of schedule caste and 5 household of others. Predominant community (97%) belongs to the *bhil* tribes. Literacy rate is as low as 3%, thus making the extension activities among the people difficult. People are essentially engaged in subsistence farming where average size of land-holding per household is about 16 bighas. Crops grown include makki, tilli, jawar, urad, wheat and rice. Village has 128 marginal farmers and 12 landless families, who either practice rainfed-agriculture or work for wages in farmlands.

Some of the families are also dependent on collection of dead and fallen wood to sell it in Udaipur market. Seasonal collection of several non-timber forest produce including tendu leaves, seeds of forest trees, Mahua, Flowers and seeds, Aonla fruits and dhavra gum provides additional income to the people. Though, village has a large number of livestock, there are only few household who sell milk in Udaipur. There are in all 358 cows, 241 bullock, 114 buffaloes, 305 goats, 37 sheep, 116 camels, 3 horses, 5 mules and 51 poultry chickens. A large number of people seasonally collect grass and carry it on camel back to sell it in Udaipur city.

Though there are 45 wells in the village, only 12 households irrigate their land by traditional water drawing system called *Chadas*. Only limited irrigation is available to the crops for most of the wells run dry after the month of March.

Resource Availability

There is a public well, and 2 handpumps (including 1 handpump dug in the year 1994 from WFP generated funds). The village does not have a Primary Health Centre (PHC). Nearest PHC is 10 Km. away from the village. Absence of communicable road, especially during the rainy season, further compounds problem. Forests of the village are under depletive grazing pressure exerted by 1679 cattle including 805 goats, 358 cows, 241 bullock and 112 buffaloes.

Low productivity of farm-land and small land holdings (avg. 1.4 ha/ household) make population dependent on daily wages for sustenance. Absence of employment opportunities force majority of the

villagers to outmigrate during the months, of November to June.

Forest Resource Use

Ambua is located close to forest block called Raniji Ka Beed which is close to Kewda ki Nal forest block. Forests in the vicinity are degraded though some of the areas have good forest of 0.3 to 0.4 canopy density. Vegetation includes Aam *Mangifera indica*, Mahua *Madhuca indica*, Ber *Zizyphus mauritiana*, Khajur *Phoenix sylvestris*, Khakhra *Butea monosperma*, Imlu *Tamarindus indica*, Jamun *Syzygium cuminii*, Tendu *Diospyros melanoxylon*, Bad *Ficus benghalensis*, Pipal *Ficus religiosa*, Bamboo *Dendrocalamus strictus*, Godal *Lannea coromandelica*, Neem *Azadirachta indica*, Rohan *Soymida febrifuga*, Karanj *Derris indica* and Sitaphal *Annona squamosa* etc. Shrubs include Negad *Vitex negundo*, Awanl *Cassia auriculata* and Jharberi *Zizyphus nummularia*. Ethnosilvicultural use of trees is shown in table 3.2. People also graze their cattle in the forests, collect fodder by cutting grass and lopping of tree branches.

An obvious result of overuse of resources was scarcity of fodder and livelihood goods. People felt the need to regenerate their forests and some of them approached the forest department with their problem.

A few years ago families use to collect *Dhavra* and *Kadaya* gum and sold it in local market, however, depleting forest yielded less and less of such products.

About 80 families were earlier involved in green felling and wood was transported on camel-back to Udaipur. Villagers feel this was the most depletive practice to forests.

Economy of people is dependent on several other trees, such as making and selling of mats from *Khajur* leaves, *Pattal* (Plate) from *Khakhra* leaves, collection of *Tendu patta*, and *mahua* flowers and seeds during summer.

Plantation Forestry

First plantation was carried out in the year 1992 on 50 ha. of lands. Area falls on gently undulating land sandwiched between human settlement along hills running parallel to their settlement. People suggested if lower reaches of hillock are protected, tree-bearing upper slopes will automatically get protected. Thus, since 1992, 200 ha. of plantation has been carried out and another unit of 50 ha. is under advance soil work. Plantation not only provide employment to the people but also enhance the productivity of wastelands. This provided people an eco-friendly employment who otherwise might have continued with illicit felling of trees and its sale in nearby market. Plantations have yielded bumper crop of grass. Camel owning families have switched over to collection of their share of grass, its transport to local market on camel-back and its sale. They also get additional revenue by transporting grass of other families who do not own a camel, but still have surplus grass to be sold for additional income. On an average, one camel owning family earns about Rs 100/- a day for 80-120 days in a year.

Microplanning

To get the desired results from societal, financial and technical inputs, it is necessary to know the people's problems and their

solutions as suggested by them. Participatory rural appraisal was carried out to collect the information from primary sources. Patwari and forester's records were scrutinised to get the information from secondary sources. Men and women from different castes and economic status were involved for interaction. Information gathered during the visits at different periods of time of different group of people was consolidated and it was verified and corrected by villagers themselves during the discussions. Special efforts were made to involve the so-called non-participating or marginalisation-prone people including poor women and disabled. The documents prepared reflect the aspirations, needs, priorities, problems and their solution given by the people. It is not prepared for presenting priorities but for an integrated approach to land, water, agriculture, livestock and village infrastructure.

Species-ranking for plantations was done with the help of different use groups such as men, women, children, farmers, fuelwood gatherer, livestock-owning households, and NTFP collectors. People suggested Bamboo, Mahua, Baheda, Aonla, Imli, Bad, Pipal, Shisam, Havan, Desi babool, Khair, Kumtha, Jamun and Neem for plantations. Conceding to the people's suggestions forest department selected these species for plantations. They also suggested the apportioning of the species as 20% bamboo, 30% NTFP species, 30% fuelwood and 20% timber species for plantation.

Microplanning exercise also identified other developmental (non-forestry) priorities which include drinking water, a meeting platform near the Devra (village shrine),

construction of small anicut for irrigation, midwifery training to some women, a metalled road connecting Ambua and Umarda. People also demanded health services.

Participatory Forestry

Consequent upon Government circulars dated 15th March, 1991 and 26th April 1991, Forest Department officials in Udaipur South Forest Division started interacting with the villagers and explained to them the necessity of developing forest and importance of forests for their survival. Discussions with the villagers were held in formal as well as informal groups. Village Forest Committee was formally formed and registered on 27th February, 1993 by DCF Udaipur South. Nine member Executive Committee was elected by the villagers. The forester of the area was made member secretary. The executive body had only male members but later on the VFPMC nominated 1 woman member also.

WFP Project 2773.01 has participatory forest management as one of its main objectives and generated funds were to be used for development of the village after microplanning through people participation. Intensive interaction with villagers for need assessment, over a long period of time, was done by the local foresters. Informal meetings were held with individuals as well as in small groups from different sections of the society. The women were also contacted for need assessment and to determine the species to be planted in the forest area. Information gathered from VFPMC meetings and PRA/RRA exercise was used for need assessment and prioritisation of needs. Detailed microplan for the

village was prepared as per guidelines issued by Directorate, World Food Programme. The following needs were expressed by the villagers:

1. Employment opportunities
2. Electric supply
3. Two handpumps for drinking water
4. Culvert construction and road improvement
5. Cattle trough for drinking water
6. Construction of platform for meeting
7. Earthen bunding of agricultural fields for soil conservation
8. Deepening of private wells
9. Improvement of cattle breed

The Microplan Proposals were placed before Project Level Implementation Committee (PLIC). Earthen bunding and deepening of private well were not considered as these were individual beneficiary activities which could not be funded from generated funds. Improvement of cattle breed was to be taken up after habit of stall feeding was developed. The VFPMC had agreed to construct the cattle trough through their own contribution. They have also agreed to contribute Rs. 2000/- in form of labour towards construction of platform. After approval of the microplan by the PLIC and sanction of the works by the State Level Implementation Committee (SLIC) in the year 1993-94, 50 ha of forest plantation was undertaken for employment generation, 1 handpump was dug for drinking water purpose and platform for meeting was constructed. In the year 1994-95, another 50 ha of plantation was undertaken for sustainable employment generation and culvert construction work was also undertaken. Primary health care was provided through mobile medical

unit. The VFPMC is protecting 200 ha of plantations raised in the village and equitably distributing grass yield from the area. Villagers patrol the area in groups of 2 or 3 in rotation. Grass production has increased due to protection provided by the villagers.

Benefits and Beneficiaries

As per the government circular on JFM, the villagers are entitled to take non-timber forest produce (NTFP) free of cost from the area being protected by the VFPMC. The committee will also get 50% share in profits at the time of final harvest. If one analyses it for forest production system, the total production in the form of NTFP is much more than timber that can be obtained by harvesting after the rotation period. Therefore, for optimising returns to the villagers, the forest production system under JFM should be managed for NTFP, and on a natural rotation. The villagers collect grass free of cost from the area protected by them. The area yielded grass worth more than Rs. 1.75 lac in the year 1994.

In the initial years, when the returns from area closed are low, the villagers who are landless or poor face difficulty in procuring fodder and fuelwood. Therefore, it is essential for success of JFM that alternative source of income is provided to them. In the village Ambua alternative source of income was provided for the first 3 years by generating employment near the village on afforestation activities. Villagers working on afforestation activity were also provided food under WFP Project 2773.01. Employment generation through forestry works is likely to continue for next 3 years. Handpump

provided by the generated funds has made drinking water easily accessible to about 30 households. Cattle trough constructed from contribution of villagers is being filled with water by the committee members itself. The platform constructed from generated funds, and 20% contribution from the villagers in form of free labour, is being used by entire population for meetings as well as social functions. Mobile medical unit provided them health care in the village itself. During an out-break of malaria epidemic, medical unit not only provided medicines but also collected blood samples and conveyed the results after getting the samples tested at district hospital.

Status of Joint Forest Management

Joint forest management through people's participation can be evaluated on the basis of following criteria:

- Equitable sharing of usufruct Sustainability Mechanism for asset management Commitment of the community and government staff
- Sharing of Benefits: Village community has evolved sharing mechanism in which every household is given a token and only one person can enter the plantation. Till year 1994-95 no contribution towards VFPMC pool was being made. Grass cutting was allowed during limited period and one member from each household could bring one headload. Those who did not need grass for consumption were free to sell in the market. Recently, VFPMC members have decided to contribute a small bundle of grass

to committee pool everyday. This decision will be implemented in the current year during grass harvest season. Villagers have full access to chabutara (open cement platform) and handpump established from generated funds.

- Sustaining the Process: Income transfer in the form of wages on forestry works has, to a great extent, compensated for shortage due to closure of forest areas for development in the initial 5 years. Increased yield of grass and its importance in village economy is adequate in itself to make the process sustainable. In coming years, NTFP yield from planted area and bamboo will further reinforce sustainability.
- Asset Management: VFPMC has opened a bank account where money collected by the VFPMC is deposited. So far, Rs 9000/- have already been deposited in the account. This fund will be used for maintenance of developed assets. The decision of VFPMC to make contribution of grass to the committee pool is an indicator of collective resource management.
- Commitment: The members of the Village Forest Protection and Management Committee are aware of importance of forests to their life and the society. The preservation of sacred grove by the villagers, and increasing the area of protection to grove as well as plantation, is clear proof of commitment of the community. Local forester has played a very important role in formation and functioning of VFPMC. Continuity of the staff will definitely help in sustaining the participatory process.

VFPMC Ambua has received the highest state honour given by the Govt. of Rajasthan for their work. The award known as Amrata Devi Award was given in 1998 (Rs. 50000/-) for the work on JFM

JFM in Village Gorela

Gorela village is located in the Girwa Block, at a distance of 10 Km from the city of Udaipur in Rajasthan⁴. It is home to 230 families (and 1650 people), who represent wide social diversity in terms of occupation, social composition and land ownership patterns. Predominant communities here are *Gujjars*, *Rajputs* and *Gametis*. The *Gujjars* are the land owning community who are essentially engaged in commercial dairying. The *Gametis* are either landless or have very small holdings, ranging from 1 to 2 *bhigas*. Most of the *Gametis* work as labourers in the city. Almost all families in the village practice subsistence agriculture. Ninety people are engaged in dairying and over 700 people work as labourers in the city of Udaipur. The village has 1186 hectares of forest land. Agricultural land-holding per family varies from 1-2 *bhigas* to 6-7 *bhigas*. Main crops grown are wheat and maize. In areas where water is not available only maize is grown. The villagers keep cows, buffaloes and goats. There are, in all, 1300 cows and buffaloes and 3000 goats in this village. Infrastructural facilities include a primary school, a post office, 30 wells and electricity connections.

History of Harvests

We discussed with villagers and FD officials about the evolution of forest protection systems, management practices and composition of the

forest in this area. The villagers described these issues with reference to three time periods, the period before 1972, through the 70s, and the period after 1980. These phases were crucial in the history of the forest. The year 1972 was characterised by a severe famine and 1980 was the beginning of plantation and protection activity that culminated in the formation of a forest protection committee in 1992.

History of the forest was also traced back to 1947 when the then Maharana had given rights to the village to graze their cattle and collect fallen wood and grass in return for a fee called "lagan". Later on the fee was collected by the FD. At that time, the forest was dense with a crown density of more than 0.4. Naturally growing species in this area included *Kumtha*, *Salar*, *Godal*, *Desi babool*, *Khair*, *Amla*, *Mahua*, *Neem*, *Bistendu* and *Khirmi*. *Salar* and *Bistendu* are fodder species. *Kumtha* is a fodder and fuel species and *Khirmi* is used for making toys. Apart from this, people collected many other products from the forests such as *Amla*, gum and fodder. *Salar* gum tapping was common and lopping was done to meet fodder needs. People were allowed to collect dead and fallen wood and graze their animals in the forest.

As part of the wildlife conservation drive, FD converted a part of the grazing land and near by areas into what is now called the Sajjangarh Wildlife Sanctuary. As a result there was less land available to people to meet their fuel and fodder requirement. This, coupled with increasing human and livestock numbers, led to increasing pressure on land. The situation grew worse after the famine in 1972. The famine

along with increasing demand for fuelwood in Udaipur forced people to embark on a three stage process of forest cutting. In the first stage, wood was collected from the forest for sale in the city of Udaipur. In the second stage, pruning and later truncating the tree was done. In the last stage, trees were uprooted and sold in the market.

An obvious result of deforestation was scarcity of fodder and other livelihood goods. This weighed down heavily on the community, a large section of which pursued commercial dairying as a major economic activity. The villagers approached the FD with their forest management problems. It was easy for foresters to convince the villagers about the benefits of forest protection. As early as 1980 the FD had brought 100 hectares of degraded forest under a plantation scheme called Tree Planting Programme. Subsequently forest department carried out plantation in the year 1985, 1987, 1991 and 1992. The total plantation area today is 450 ha.

Regeneration of Forest Land

Earlier, the choice regarding the composition of species for plantations was primarily governed by technical factors such as the climate, soils and topography. But now the trend has changed in favour of the species recommended by villagers.

Emphasis earlier was more on fuelwood and timber yielding species. *Prosopis* (fuelwood yielding), bamboo (timber) and *Inga dulce* (fuelwood and timber yielding) were planted under the rural fuelwood plantation scheme in 1987. Fruits, medicinal trees and species yielding other non-timber forest products were given low

priority. Only few *Am*, *Amla* and *Ber* saplings were planted, but natural saplings of these species were provided assistance in regeneration area. *Amla*, and *Karanj*, which yields oil, were planted only as late as 1992. Gum yielding trees such as *Salar* and *Godal* were not planted, however, assistance to natural regeneration of these species yielded excellent results. Villagers noted with satisfaction that *Neem*, a multipurpose tree was planted since 1987 in the area.

Forest Protection System

The Gorela Village Forest Protection and Management Committee (VFPMC) was formed in July 1992 with 117 members comprising of *Gujjars*, *Rajputs* and *Gametis* (scheduled tribe). Only one person from a household is a member of the Forest Protection Committee. Executive Committee was chosen by consensus. Members include the village patwari, a forester and 15 persons from the VFPMC. Members of the executive committee take most of the routine decisions on forest management. Forest protection is undertaken on a rotation basis by two community appointed watchmen. VFPMC is responsible for organising regular patrols of the area by members on a rotational basis. Everyday, two villagers and a forest guard take rounds of the regenerated area. Village problems and forest protection matters are discussed in meetings of VFPMC. The VFPMC met 7 times during the year 1994. The minutes of the meeting are maintained by the chairman of the VFPMC. In return for protection, the villagers have rights to collect fallen wood, fodder grasses and other non-timber forest products.

Felling of trees in the regenerated area is strictly prohibited. The VFPMC has conventional powers to detain anyone caught breaking rules and may impose fines also. In case of animal grazing in the regenerated area, the fine ranges from Rs. 10 to 20 depending on the type of animal. In case of illegal tree cutting, the fine is five times the value of timber cut. However, there have been no incidents of tree cutting. Sometimes the villagers even resort to a social boycott of the person who has broken rules. The money collected as fines from illegal grazing and tree logging is deposited in the account of VFPMC.

This shows that the villagers have high stakes in protecting the forests. Protection has led to an increase in the production of grass which the villagers value most. The reason is simple - a large number of people in the village are *Gujjars* who are engaged in cattle rearing. The growth of commercial dairying can also be attributed to the fact that the village is situated just 10 km from the city, thus access to local market is easy.

Protection of Forest Land from Non-forestry Use

In October 1993, members of the Village Forest Protection and Management Committee came to know that brick-making industry was being planned to shift to the forest land adjoining the Kaler clusture plantations. VFPMC members approached the forest department to help them construct a fence wall and plant saplings before the land went to the outsiders. Forest department explained the situation that under the provisions of the Forest Conservation Act 1980 it will not be possible for anybody to use the forest land for

non-forest purpose. However, people of Gorela adopted an interesting protection mechanism. They contributed voluntary labour to develop the remaining areas as plantation. With technical support from Udaipur South forest division, they have closed the land by stonewall fencing, constructed soil and water conservation structures and resorted to planting and replenishment seeding. This is an interesting example of people's action against perceived external threat of forest encroachment.

Harvesting of Forest Products

(a) Grass:

On the plantations carried out in the year 1990, 1991 and 1992 the indigenous species of grass found include *Apluda mutica*, *Sehima nervosum*, *Eragrostis tennela* and *Dicanthium annulatum*. These grow on steep slopes and are also resistant to canopy closure.

The most immediate benefit of forest protection activity in Gorela is the regeneration of grass. It is collected after the rains during the months of October, November and December. Members of the VFPMC can collect it by first obtaining a permit for Rs 15 that is valid for a period of 1 year. The cash collected from permits is deposited in the community fund by the cashier of the committee. Grass collection is subject to a ceiling of about 30 kg (one head load) per day. One small bundle of grass has to be deposited in the common pool which is later auctioned in the village. Grass is used as cattle-feed by the *Gujjars* whereas it is a source of supplementary income for the *Gametis* who sell it in the local market. Villagers report that there

has been a considerable increase in grass yield leading to substantial returns to the villagers. In the last harvest 600 quintals of grass was collected which has a current market value of Rs one lakh and twenty thousand.

(b) Regulated grazin:

In the month of November 1993, VFPMC members discussed the arrangements and allowed a limited-time grazing for the first time since the planting in the areas regenerated in 1980 and 1985. Cattle were released daily for 15 days in regulated number so as to minimise the damage to regenerated area. Originally this arrangement was promised and documented in the plantation journal at the time of land being taken up for regeneration. After limited grazing entire stonewall fencing was repaired to ward off any stray cattle.

(c) Regulated pruning:

In the month of January 1994, Ber (*Zizyphus* sp) branches were pruned leaving the leading shoot to develop into tree form. This was done on an experimental basis. Leaves from the lopped branches are excellent fodder. Small brushwood was used over the fence wall for an extra protection against grazing by free-ranging cattle and enhances its durability.

(d) Dead and fallen wood:

Women collect fallen and dead wood from forest and agricultural lands for meeting their requirement of fuel. Wood collection is done over a period of one month in a year. Unlike grass collection, there is no permit system or upper limit for the collection of wood. Community does not permit green felling.

People's Perceptions for Future Forest Management

(a) Timber harvesting & benefit sharing:

From interviews it was apparent that some villagers were not clear about timber harvesting and sharing rules. A large number, however, know about the distribution and sharing of the final timber harvest. Moreover, the villagers are not clear that their share is from net revenue and not gross revenue from sale of timber. Procedure for harvesting and sharing should be clearly communicated to the people.

Since harvesting of timber has not been done as yet, people were asked if they would prefer timber or money from the final harvest. Most revealed a distinct preference for cash. Many felt that this revenue should be maintained as a community fund. Majority of these people are *Gujjars*. Some *Gametis* revealed an interest in timber. They said that they would either use it for construction purpose or sell it in the market. Distribution of benefits should be done according to the needs and preferences of the villagers. This would go a long way in engaging people's interest in the programme. Villagers pointed out that their opinion should be taken before any felling programme.

(b) Rules for benefit sharing:

The villagers are entitled to 60 percent of the net revenue from the final sale of timber. Net revenue is arrived at after deducting government expenditure on plantation, fencing, soil and moisture conservation, raising of seedlings and weeding. It would perhaps be useful if FD could develop a comprehensive employment programme to absorb

local people in plantation activity with training and supervision by the FD staff. Moreover, one needs to consider the opportunity cost of protection activity. The terms of distribution then will have to be reworked to take into account this opportunity cost. If local people are involved in plantation and soil and water conservation activities, the benefit to the community will have to incorporate these returns from labour invested.

(c) Preferred species:

Most *Gujjars* are not interested in any non-timber forest products other than grass. However, a few did suggest some species that yield minor forest products. The significant ones are - *Amla*, *Karanj*, *Bamboo* and *Neem*. Some suggested that FD should plant eucalyptus for its poles make very good straight timber needed for rooftops. Some people are against planting more trees because they say this will inhibit growth of grass. The *Gametis*, on the other hand revealed a distinct preference for species that yield minor forest products. *Kumtha*, *Khair*, *Salar* and *Godal* for gum, *Ratanjot* and *Karanj* for extracting oil were suggested by them. They are also interested in *Amla* because fruits fetch a good price in the market.

(d) Management of forest resources:

First, people suggested that abundantly growing *Lantana camara*, that suppresses the growth of grass in the area, should be removed. Second, people suggested that *Prosopis julliflora* should be eradicated because it does not allow other species to grow. In areas where

Prosopis is growing the growth of Bamboo is stunted. Moreover, since fuelwood needs are met by fallen wood that is collected from forest and agricultural lands, people of this village do not see any advantage in having this species. Third, thorny *Ber* bushes are growing in many patches in this area. Villagers want these to be pruned because they hamper grass collection. Fourth, villagers feel that grass productivity is likely to decline in the future because of closing crown cover. Most people suggested that branch cutting and pruning on regular basis would ensure that trees grow only in height and grass can grow uninhibited. These pruned branches can be used as fuelwood and fodder.

Conclusions

- Contrary to conclusions drawn by many workers from other parts of the country that forest management partnership may not work in heterogeneous villages, the programme has done exceedingly well in many villages where a great deal of heterogeneity exists in respect of social composition. Similarly, Gorela too shows signs of success. There are mainly three communities in Gorela - *Gujjars*, *Gametis* and *Rajputs*. The requirements of these communities vary as far as forest produce is concerned. The need for fodder grass is felt most strongly by the *Gujjars* since cattle rearing and milk selling is their main occupation. The *Gametis*, on the other hand, seem more interested in other marketable forest products such as gum, timber and even grass. Although, they do not require fodder grass, they do collect it for

sale either to the *Gujjars* or in the nearby market. The *Rajputs*, only a few households, also collect grass for their livestock.

- More than a homogenous social structure, it is therefore, the availability of livelihood products that motivates people to protect their forests. Joint Forest Management (JFM) should, therefore, be linked to the livelihood needs of people. Immediate economic benefit on sustainable basis would be an important determinant of effectiveness of participatory forestry.
- Grass is valuable because of the growth of commercial dairying in this village. More so because of the proximity of the village to the city. Commercial dairying will not be a lucrative business for villages that lie in the interior areas unless there is a nearby town where people can sell milk or there is scope for some milk processing activity in the village. In such areas, forest products other than grass might be preferred. One such example is that of Mohandungri village, where people are interested in increasing supplies of fuelwood. They are presently facing a chronic shortage of this resource.
- It is therefore imperative for the Forest Department to undertake intensive research before embarking upon any JFM programme. Some issues that ought to be investigated include livelihood needs of the local people, species ranking and access to local markets.
- The membership of the VFPMC needs to be increased to include every household so that more people benefit from the programme. Today 170 people are members of

the VFPMC, while there are a total of 230 household in the village. A concerted effort should be made to persuade others to join the VFPMC.

- The Gorela VFPMC has only two women members. Increasing women's participation by increasing their representation as well as allowing them to participate in decision-making is essential for the success of the programme. The reason is simple. Women have great dependency on forest resources. It is they who are responsible for the collection of fuelwood, fodder and NTFPs. Therefore, they have a strong vested interest in improving productivity and management of the forest. Declining forest productivities affect women adversely in the sense that they have to spend more time and effort in collection activity. Moreover, as part of the JFM programme, some income-generating activities for womenfolk can be created. This will ensure greater participation and also sustain the interest of people. A variety of local forest products can be used for such activities; for instance, use of bamboo for basket making, *Salar* gum tapping, collection of *ratanjot* oil-seeds and *khirni* for toy making. For all these activities, it would be worthwhile if the Forest Department or local NGOs could provide technical and financial support.

The above article by Deep N Pandey has been excerpted Beyond Vanishing Woods, Himanshu/AFN, New Delhi/Udaipur, 1996 with additional inputs from A.C. Chaubey, Meenu Kakapuri and P. Zutshi. ■