

# **COMMUNITY FOREST MANAGEMENT IN KUMAON**

A documentation of Aarohi's work : 1992-2002



**Aarohi**

**Village Satoli, P.O. Peora via Mukteswar, District Nainital,  
Uttaranchal - 263138**



### **DEDICATION**

The effort contained in these pages was started by Oona in 1987. Her passion about greening the Himalayas through community managed forests was unique. Her understanding of various local species of trees, shrubs and grasses was immense. Whatever knowledge we have gathered in this small record is a reflection of the many many hours of obsessed thought put by Oona into the issue of forests. The photograph above shows her planting in the forest of Satoli – her own village – in the last year of her life. Her walks through any forest plot were like that of a mother looking critically at her babies to see if they were doing all right. Any wayward plant growing all wrong would be straightened, negligent hoeing rectified, the odd balls of cowdung if found, were put at the base of the saplings – virtually each plant was lovingly tended. No one who was with her, whether it was the forestry team members of Aarohi or the chowkidar or the Sarpanch of the forest could help being touched by this sheer, uninhibited enthusiasm.

We at Aarohi dedicate this document to her. We may not have been able to emulate all her methods but we share her passion and have managed to keep the candle alive. This effort is but a drop in the ocean. One only hopes that it would be continued by those who take the baton from us and many such small efforts would one day coalesce to green the Himalayas, and get her people back to the richness that was once a part of their lives.

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## **1 SUMMARY**

The idea for the documentation of the work done by Aaroahi over the last decade was born out of a need to gather together all the processes, take stock of the state of the forests and evolve directions for future work. Over the years Aaroahi has worked with 15 villages in Ramgarh Block of Nainital District in Uttaranchal, to assist them to manage their common lands. While most of these lands initially belonged to the Civil and Soyam group, managed by the Gram Sabha, today the majority have been formally converted into Van Panchayats. There are currently 11 villages involving an area of 240 hectares, which are under protection.

These village communities took a decision, by consensus to ban grazing and felling in some sections of their forests. This meant that initially women had to travel farther to fetch fuel wood and grass for fodder. Within a year, however, the returns started coming in and women were able to harvest more grass closer to their homes. This grass was distributed within the community in an equitable manner. Communities also decided to fix a nominal price for the grass and cash thus generated went into village managed funds. These funds were later used for forest management and village development activities.

In ten years, most of the protected areas which were largely pine dominated, have begun to show signs of getting converted to mixed oak forests. Broad-leafed fodder species of trees planted are now seedlings. Old rootstock, especially those of oak, which had been repeatedly lopped and grazed and looked, like scrub, have now begun to take the shape of trees. Shrubs and grasses that were not to be seen have sprouted once again. In some of the better forests, women are harvesting dry wood for fuel and dry leaf litter for bedding for livestock and the making of organic compost.

The afforestation and protection activities were supplemented by energy saving measures like the provision of pressure cookers, smokeless and energy efficient chulahs, bio-gas plants and LPG connections. These were adopted by the community at cost or with a meagre subsidy. Concentration on such measures is needed to ease the pressure on forests. Concomitantly, the issue of excess and non-productive livestock and that of the human population pressure needs to be addressed to institute quicker change.

We feel that it would take the effort of another decade to get these ravaged areas to start looking like forests once again. Within the fabric of forest restoration are the complex social dynamics of the people who are completely dependent on them and yet do not possess total ownership. Their relationship with these forests has undergone many changes over the last two centuries of changing ownership and changing rules. At some point in time the parallax between the view of the state, that sees this resource as a source of revenue will have to match with that of the people, whose existence is completely dependent on these resources. Beyond the immediate concerns of the people and the state is the fragile situation of the Himalayas with its richness of plant and animal life and the entire ecosystem it supports which is at stake and needs gentle nurturing.

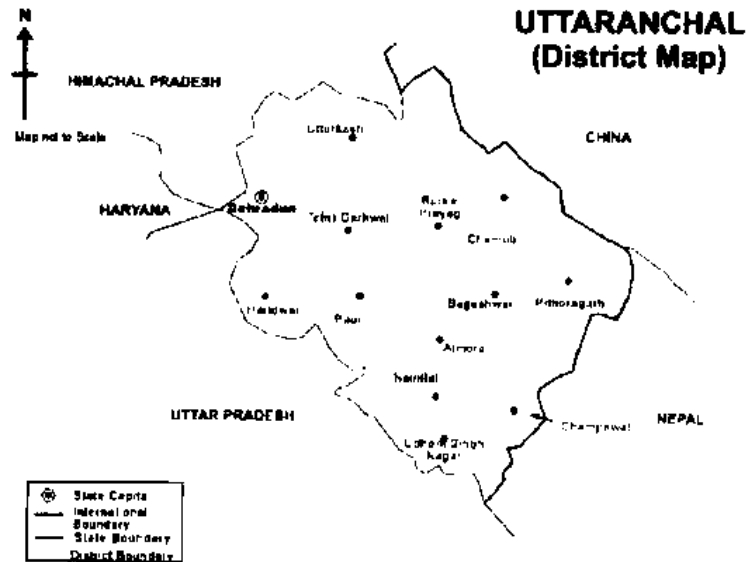
## 2 BACKGROUND

### 2.1 Area and the natural environment

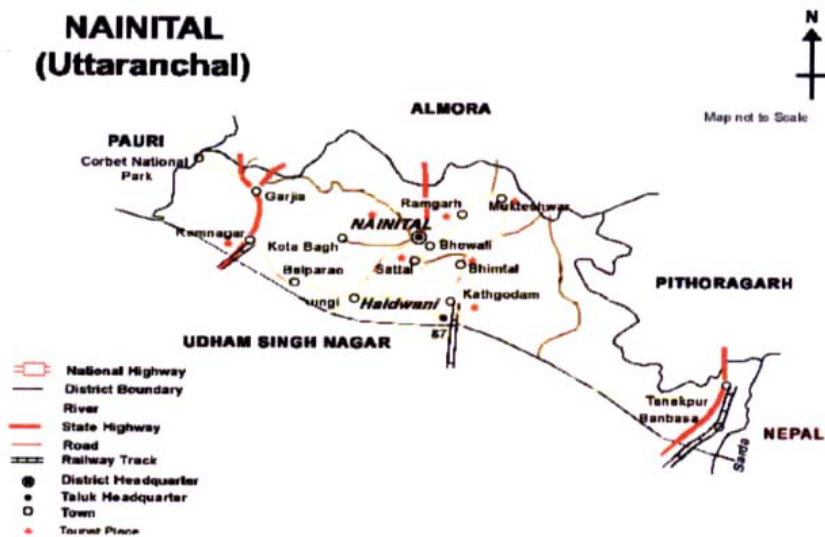
Geologically the Himalayas are a fragile eco-system. The past few years have witnessed a rapid change in weather patterns of heavy and extended monsoons with consequent floods and landslides as well as lesser snowfall and warmer winters. Combined with a net reduction in forest cover this is leading to increased soil run off as well as drying up in the winters and summers of once perennial water sources. In spite of there being annual rain fall of over 1200 mm of rain and snow many villages are now facing a water crisis or are expected to face water crisis in the future.



The study area lies in the Kumaon region of the state of Uttarakhand in northern India. Geographically this area covers the villages located along the tributary of the Kosi river between the altitudes of 1000 to 2500 meters above msl.



### NAINITAL (Uttarakhand)



This central Himalayan region is comparatively densely populated in relation to other Himalayan regions with a population density of 159 /sq. km. Communication facilities here are poor and very few metalled roads are available in the interiors.

**In the Central Himalayan region eight principal forest formations have been identified by Singh and Singh (1987).**

1. Sub-montane Seasonal Broad-leafed Forest  
Shorea robusta (Sal) is the dominant species found upto the height of 1000 m.

2. Sub-montane Broad-leafed Summer Deciduous Forest  
Albezia procera, Adina cordifolia, Terminalia tomentosa and Toona ciliata are some of the species occurring upto 1000 m.
3. Low-montane Needle-leaf Forest with Concentrated Leaf Drop  
Pinus roxburghii is the dominant species which is found at an altitude of 1000 m.- 1800 m.
4. Low to Mid-montane Hemi-sclerophyllous Broad-leafed Forest with Concentrated Summer Leaf Drop  
Consisting mainly of Banj Oak (Quercus leucotricophora) and other Quercus species found at an altitude of 1500-3000 m. This category overlaps the Chir pine Forest which is now extending into the Oak regime.
5. Mid-montane Needle-leaf Evergreen Forest  
Dominant Needle-leafed species are Cedrus deodara (Deodar), Pinus wallichiana (Blue Pine), Abies pindrow (Silver Fir) spreading at an altitude of 1800-2800 m.
6. Mid-montane Winter-Deciduous Forest  
Aesculus indica, Carpenis viminea, Acer pictum, Betula alnoides, Juglans regia form the dominant species ranging from 2000-3000 m.
7. High-montane Mixed Stunted Forest  
Occuring above 3000 m. with dominant specie such as deciduous Birch (Betula utilis), evergreen fir (Abies spectabilis), Quercus semicarpifolia, Rhododendron companulatum.
8. Very High-montane Scrub  
Forming Alpine region with species such as Juniperus scrub, Rhodendron companulatum, Sorbus foliosa occurring above 3000 m.

## 2.2 Socio economic conditions

In the mountain communities, while status distinctions based on **caste** exist, they are a little different from the strong social and ritual distance, which is characteristic of inter-caste relations in other parts of the country/plains.

**Class** segmentation, which in case of rural areas is drawn out of differences in land holdings, is not seen here in its extreme form, with most households practicing subsistence agriculture. Most of the farmers have land holdings less than 1 ha. Differences can be assigned to employment outside the region, since 45 % of the economically productive workforce is employed outside.

One commonly sees that relationships of interdependence are sustained within the hierarchical order, which has been often associated to the **relative isolation of mountain communities** (Jayal, NG, 2001).

Another factor that strengthens the interdependence between families in a unit (hamlet or village) irrespective of the caste is **the deep dependence on the common village lands and forests for survival.**

High male out-migration places an additional burden on **women** in terms of physical work but has also implied their active involvement in the village household economy and

common life. About 40 % of the households in the state are estimated to be headed by women (CECI, 1998, quoted by Madhu Sarin in ' From Rightholder's to Beneficiaries?')

In this part of Kumaon i.e. AaroHi's working area in Nainital district, most of the people are of the Hindu caste and there are no tribals. People in the Kumaon hill region are mainly farmers and dependent on their livestock for agriculture.

### **2.3 Agriculture and forest support land**

Agriculture in these mountain regions to be sustainable is entirely dependent upon nutrient transfer from forests through fodder and leaf litter in the form of dung compost. The productivity of the land is decided by a combination of the nutrient input and labour. Farmers have to apply large quantities of nutrients to maintain yields. Dung compost has to be applied in quantities ranging from 6.5 tons per hectare for rice, wheat and barley and upto an astonishing **17.5 tons per hectare for potato**. Potato is a cash crop that usually finds its way into the markets in the plains thus also resulting in massive one-way outflow of valuable nutrients.



Terraced farming in Kumaon

Independent studies (Wyatt-Smith) in Kumaon and neighbouring Nepal have shown that for such quantities of dung compost to be available it would require an agriculture land to **forest to land ratio of 1:4 to 1:6** in the mountains. And this is just to maintain subsistence level of production. Apart from nutrient inputs for agriculture other needs of these mountain communities too have to be met from **village commons** and nearby forest. All told a village with 50 households would require **206 hectares as support area** to meet their requirements for fuel wood, fodder and grasses and many other daily substantial needs.

### **3 AAROHI THE ORGANISATION**

AaroHi is a grassroots organisation committed to need based and people planned integrated rural development in the fragile Central Himalayan region of Uttaranchal.

A decade of experience has meant, close association with people through various activities related to Forest Management, Livelihoods, Drinking Water and Sanitation,

Health Care, Women's Development and Education. To date, these activities have benefited some 15,000 people from Nainital, Almora and Pithoragarh districts of Uttaranchal.

Participatory conservation of depleting natural resources and their management by village communities has been one of Aarohi's core concern since the beginning. Aarohi's work with forest management involves organizing village communities to understand the need to protect and manage their forests, to augment such degraded areas by plantation of local species, to generate community contribution for the same in cash and kind and finally to strengthen village committees and their funds so that they can independently manage their forests after a period of time.

#### **4 OVERVIEW OF THE DOCUMENTATION**

After a sustained effort of almost a decade a need for critical documentation of the work was felt. To understand the quantitative achievements and qualitative processes, assistance of external consultants was sought. Assistance for the ecological aspects of the state of the forests was taken from Prof. Jeet Ram of the Forestry Department of Kumaon University, and from Dr. Archana Godbole and Jayant Sarnaik of the Applied Environmental Research Foundation (AERF), Pune for the community processes.

##### **The main objectives of this documentation were:**

- 1 To analyse the various forest protection measures adopted and their success or failure.
- 2 To attempt to understand the various complex social dynamics that affect community participation in forest management.
- 3 To record the ecological status of all the plots to understand their growth rate over the years and the various soil and climatic conditions affecting them.
- 4 To understand the history of community forestry initiatives in the region and important external factors that affect common land initiatives.
- 5 Use the study to chart the future direction of the program and develop suitable indicators to monitor the extremely slow and complex process of community forest management.

**The study of the state of the community** involved studies and data collection at three levels. First, earlier documentation done by Aarohi, project proposals and reports and various annual reports of Aarohi were studied. Detailed research and reference work was done to understand the historical perspective of Kumaon forests and people, socio-economic conditions of the people, and reports of government aided programs like Joint Forest Management (JFM). Secondly, detailed interactions using structured and semi-structured interviews by the consultants were held with Aarohi personnel from project coordinator to field staff, which helped to understand their perspective towards the work, and constraints if any. Finally all the protected village common land plots were visited. Detailed discussions were held with the village people.

To measure the overall balance and sustainability in participatory protection of common forest lands in the villages studied, the following parameters were chosen:

- a) **Community Organization (CO):** It is the coming together of a community for one particular cause. Often, the attendance at village meetings is directly related to good community organization. The rating for this parameter thus corresponds to

people's unity and capacity to take decisions related to forest protection as an organization.

- b) Level of Awareness (LA):** It is the awareness about the importance of the forest resource in inter-dependent resource conservation as well as about its value in terms of income generation among the community. It also signifies the overall awareness of the importance of forest resource as an integral part of bio-diversity and environmental balance.
- c) Level of Participation (LP):** Participation is a phenomenon comprising of many factors. Due to time constraints, the study had to be restricted to some factors namely- participation of a community in planning, debating and executing a forestry project as well as participation in the continuous protection and monitoring of community forests.
- d) Community Partnership (CP):** It signifies that every member of community considers any community activity as a collective responsibility. Also the extent to which the community has contributed towards the management activities of the forest protection work.
- e) Sustainability of Forest Protection work (SFP):** The working definition of sustainability is “ The ability of the system (in this case the fragile mountain ecosystem) to maintain a certain level of performance (output) over time and indeed to enhance it without damaging the essential ecological integrity of the system.” However, in the context of this study sustainability of community forestry protection has been taken in consideration with all the above mentioned parameters. A slight decline or increase in any of the above mentioned factors would affect the sustainability of any community based forestry activity in a negative or positive manner irrespective of an outside intervention. A method based on weightages given for participation providing the Sustainability Trend was developed.

As no earlier documentation of the status of resources and people's response was done earlier, for ease in comparison, through the interaction with the community and the team, a hypothetical picture based on ratings was developed, which is true to 80%. After providing the facts about the forestry work in each village a graphical comparison of the picture for the village five years ago and now has been given with its interpretation.

Extensive fieldwork of the teams, past village records, and meetings with the communities helped to understand the various process, the causes of their success and failure, the need to improve and modify them in a region like the Kumaon hills and the actual state of the forest. For such a study, it was necessary to know the geographical conditions, natural resource base and its present status, and a historical perspective of natural resource management in the region.

**Study of the state of the forest** involved visits to all the sites and taking soil samples to evaluate the texture, moisture content and pH of the soil. Species wise density of trees, saplings, seedlings, shrubs and grasses and herbs was determined along with the basal area and canopy cover for trees. These have been compared to standards for the Himalayas. Where possible, comparative studies of neighbouring unprotected plots were also done to gauge the condition of what the situation could have been 10 years ago.

The ecological study gives an indication of the level of ecosystem restoration following 10 years of community-managed protection and afforestation on forests that had been subjected to various disturbances. These disturbances include deforestation, lopping, grazing, surface burning, litter removal and conversion of forestland to agricultural land.

Such disturbances present in chronic form do not provide space or time for ecosystem restoration.

The standards and parameters (other than those for soil) are given below as reference for the detailed village wise study that follows:

**Tree density** is the total number of individual trees within a given area. It is generally measured in terms of individuals per hectare or ind/ha. Normally a forest that has more than 500 ind/ha is considered to be a good forest.

**Canopy/Crown cover** is basically to detect the actual ground area covered by the tree canopy/crown in the selected plot. This parameter indicates the protective value of the forest. A forest with greater than 60% canopy cover has a high protective value both for soil and vegetation. A 40-60% canopy cover has medium and less than 40% has a poor protective value.

**Basal Area** is the area of a tree stem that occupies the ground surface. It is calculated by measuring the Circumference of a tree at Breast Height (CBH).

**Total Basal Area** The area occupied in (m sq.) by all the tree stems in one hectare of land.

Oaks are the late successional species and form a stable community in the forest. Continued human disturbance converts these productive and protective forests to low productive early successional forests.



Close up of *Quercus leucotricophora* showing a node.  
The space between the two nodes signifies one year of growth

The productivity of disturbed forests is 10-15 trees/hectare/year while 20-25 trees/hectare/year are reported for late successional oak forests and are comparable with the highly productive forests of the world.

#### **Sampling methodology :**

The density of trees, saplings, seedlings and rootstock were calculated by physically counting them in sample quadrats measuring 10x10 metres in the comparison forests and 5x5 metres in the protected forests. Ten such quadrats were taken for each forest and the density computed as ind/ha.

The Basal Area occupied by trees in the forest was taken by computing the circumference at breast height (CBH) of the trees counted in the quadrats.

The canopy cover of trees was measured by adding the canopy along transects made randomly in the forest. Ten such transects of 10 metres each were taken for the comparison forest and of 5 metres each for the protected forest.

A similar methodology was followed for measuring the density and the cover of shrubs and grass/herbs. While for shrubs 2 sq metre quadrats and 2 metre transects were taken, for grasses and herbs 1 sq metre quadrats and 1 metre transects were taken.

## **5 HISTORICAL PERSPECTIVE OF FOREST MANAGEMENT IN KUMAON**

The Kumaon region of Uttaranchal has an agro-pastoral economy that is still predominantly subsistence based. About 90% of rural households, including the rural elite, have a high dependence on village commons and other forest lands. Land distribution is relatively equal with rare cases of land holdings of over 2 hectares, and landlessness is low. Because many men out-migrate in search of employment, women are in effect the managers of the rural subsistence economy.

Whereas only 12.6 % of Uttaranchal's geographical area is private cultivable land, 67% of it is legally classified as 'forests'.

The region has an impressive array of community forest management systems, both informal as well as officially constituted. Unofficial community management, with diverse institutional arrangements on all legal categories of forest lands, has co-existed with formally constituted Van Panchayats, and in fact predates them. Democratic and autonomous community management of legally demarcated village forests (on Forest & Revenue Department land) by elected forest councils, Van Panchayats (VPs), have existed in Uttaranchal for over 7 decades.

Prior to the British conquest in 1815, the hill peasantry effectively exercised direct control over the use and management of cultivated lands and uncultivated commons, with little interference from their rulers. Resident communities regulated use within customary village boundaries, which defined communal property rights, by evolving their own rules rooted in cultural norms and traditions.

Agriculture and animal husbandry comprised inseparable components of the hill farming systems, dependent on spatially and temporally integrated use of cultivated and uncultivated lands. High dependence on the forests generated conservation values embedded in cultural and religious traditions, such as the maintenance of sacred groves. Traditional village Panchayats (comprising mostly of men) dealt with community affairs and inter- and intra-village disputes.

A number of interventions during colonial rule permanently altered this landscape of integrated local resource use and management, with progressive transfer of ownership and control from villages to the state. Among other things, this trend has been characterized by:

- dilution of customary resource boundaries defining community property rights;
- state enclosure of common property as reserve and protected forests;
- fragmentation of holistic resource management into individual rights/concessions;
- conversion of common property resources into open access; and
- progressive reduction of villagers' access to critical livelihood resources.

Reservation of forests under colonial rule was met with stiff resistance by the peasantry who set the commercially valuable pine forests on fire in protest. To contain the unrest,

the colonial government was compelled to withdraw the forest department from over 50% of the new reserves, restore people's rights in these areas (while simultaneously converting them into open access) and create legal space for community based forest management through the institution of Van Panchayats.

After Independence, however, this centralisation trend continued as the state concentrated on commercial forest exploitation with even greater vigour. The Forest Department continued to gain still more control over forest resources. Local livelihoods received even less attention than under colonial rule, as state policy consistently favored export of raw timber and resin for processing by large industry in the plains. By the 1970s, the Chipko movement had emerged in Garhwal Himalayas to demand that priority be given to local needs and employment in the extraction and processing of forest produce.

In 1988-89, some of the Chipko activists started yet another, relatively less known Ped Kato Andolan (cut trees movement) in protest against the Forest Conservation Act. More recently, resource displacement and loss of livelihoods caused by expansion of the protected area network to twenty percent of Uttaranchal's geographical area has produced the 'Jhapto Cheeno Andolan' (snatch and grab movement) reflecting the intense local feelings of alienation and disempowerment.

### 5.1 Van Panchayats - a unique space for local forest management

According to recent Forest Department estimates, there are 6,069 Van Panchayats managing 405,426 hectares of forests (13.63% of total forest area) in Uttaranchal.

According to an estimate given by ( Saxena , 1995 and Singh 1997) the existing forest cover on Van Panchayat lands was found to be quite close to that on Reserve Forests. This inspite of the miniscule amounts that have been invested in the Van Panchayat lands as compared to Reserve forest lands.

Forest Type	Tree cover
Van Panchayat	40%
Reserve Forest	50%
Civil land	10%

Total area under different legal categories of forests in Uttaranchal (Jena et.al.1997); Reserve Forest- 68.92%, Civil (under Revenue Deptt.) + 'Soyam' (under gram sabha)- 16.78%, Van Panchayat- 13.63%.

### Tenure of Van Panchayats

The turbulent history and various processes that have influenced the formation of Van Panchayats have made it what they are today. A brief look at Van Panchayats and the status today is as follows:

**1823-** The first ever official recognition of communities' rights over forests; the British undertook the first Land Revenue Settlement through which though the state appropriated all authority to grant recognition to village boundaries. The villagers continued to enjoy the unrestricted use of the 'benaap' lands ( Nanda,1999 as mentioned in Madhu Sarin's 'From Right holders to Beneficiaries')

**1893-** The British Govt. declared all 'unmeasured wastelands' as District Protected Forests - this legally classified all village commons as 'forests' and converted them into state property.

This was followed by a period of intense struggle and negotiation according to the recommendations of the Kumaon Grievance Committee, a part of commercially less viable forests was transferred back to the civil administration and people's rights in them were restored.

The provision of Van Panchayats evolved out of this.

**1931-** Kumaon Panchayat Forest Rules were notified under the Schedule District Act, thus legally recognizing the institution of Van Panchayat- the framework provided the Panchayat with the status of a forest officer with powers to fine or prosecute the offenders. All dues payable to Van Panchayat were deemed as dues payable to the government, recoverable as arrears of land revenue (GOUP 1931). The Van Panchayats' entitlement to income from their forests was reduced to only 40 percent. Even this could be used only after obtaining permission from a distant Deputy Commissioner or Sub-Divisional Magistrate. Villagers continued to depend on adjoining forest areas, but they were no longer permitted to manage them.

However, since Van Panchayats were instituted in 1931, The Van Panchayat Rules have undergone amendments in the years 1976 and a few a couple of years ago in 2000. These amendments have sought to reduce the authority and entitlements of Van Panchayats over community owned village forests (Van Panchayats), systematically making way for commercial exploitation of the forests protected by communities over the years.

The Forest Conservation Act, the felling ban, monopoly control of the Forest Corporation on resin and even salvage timber from village forests, and controls over Non Timber Forest Produce (NTFP) marketing have drastically reduced local livelihood and employment benefits from both village and other categories of forests. Reduced bureaucratic support and accountability has resulted in a plethora of unattended boundary disputes in the absence of effective and accessible dispute resolution mechanisms. The issue of local forest rights thus seems to be taking a backseat with the new national and global ideology of conservation.

## **5.2 Civil and Soyam lands**

The British devised the concept of Civil and Soyam lands at the beginning of the last century when forest land was being classified for the purpose of revenue collection. They were envisaged as areas of land over which locally resident people would have rights and concessions for use. Unfortunately, over the years all semblance of regulated access broke down, and a free-for-all attitude prevailed leading to massive over-exploitation. Once-dense forests became highly unproductive and degraded wastelands. Where previously this common land met all the fodder and fuel wood needs of the village, today people especially women are forced to walk large distances in need of these precious resources.

Civil forests, apart from being over-used, have also shrunk in area because most of the extension of cultivation that has taken place in this century has been in this category of land. It may be seen that this is no cause for regret since the benefit of putting land to agricultural use is balanced against the loss of forest produce. While this may be true for privately owned land, in the case of the civil land, much of the loss is external to the gainer. For while the benefit of cultivation goes entirely to the cultivator, the loss of grazing, firewood, etc. is borne by the entire village. (E.Somanathan, Wastelands News, Vol VII No.1, Aug-Oct 91)

## 6 NATURAL RESOURCE BASE AND ITS PRESENT STATUS IN KUMAON



Dense oak forest in the area

Forests are an essential component of agriculture, which is the principal occupation for 80% of the region's population. **Oaks** have a high protective value compared to other species and are also used as multipurpose species by the village community.

Leaf litter from oak forests is an important source of manure, and the forests are an important source of fodder and grazing for cattle. Cattle dung, in turn, is used for bedding for livestock that eventually composts to form precious organic manure. Oaks and other broad-leaved species are lopped for fuel wood and for fodder for cattle. Timber from oaks has traditionally been used for making ploughs. Up until about the 1960's, oak forests were sometimes felled for making charcoal to be supplied to the hill towns and military bases.

Care and restraint has to be exercised during lopping to ensure that trees remain productive. When users, usually women, do not exercise such care, trees are stunted and may die.

Following felling, grazing and lopping of the new growth by the village population, effective regeneration has been prevented and this has led to degradation . It is important to protect these slow growing oaks that will provide both ecosystem values as well as will fullfill the needs of the people dependent on these forests.

The main local uses of **Pine** are for fuel wood and timber. However, Pines are a commercially important species. They were felled until 1981, when the Government of India imposed a ban on the felling of green trees above 1000 meters, by contractors for the state Forest Department for pulpwood and timber. They are also tapped for resin. Illegal felling continues but its scale is unknown. Pine saplings and mature trees being tapped for resin are vulnerable to fire. The village community sets fire to the forest floor in pine forests every spring to promote the growth of grass for their cattle. Fires that burn out of control are a major source of degradation of pine forests.



Pure Pine forest

The degradation of forests has been a major blow to rural residents of the area who have suffered from the lack of firewood (still the main source of energy for cooking and heating), fodder, grazing areas and the adverse effects on springs water sources. Since women are mainly responsible for most agricultural and domestic tasks, they are particularly adversely affected.

## **7 AAROHI'S WORK**

### **7.1 Rationale of the community forestry work**

Aarohi's common land user initiative began in 1993 after long dialogues with village communities where people, especially women identified one of their important needs as bio-mass shortage. They further identified those commons that they were willing to nurture and protect over a long period of time to overcome these shortages.

Aarohi is currently working with common lands that fall into the categories of Civil and Soyam lands and Van Panchayats.

### **7.2 Approach and intervention**

Aarohi's criterion for the selection of a village has been solely based on expressed interest and a village consensus for protecting their commons. The first stage in upgrading common land has been arresting the physical processes that led to environmental breakdown. Initially the boundaries of these commons were demarcated with the help of village elders and local revenue authorities. It has been the experience of the region that many parts of the commons have been encroached upon by private land holdings. The act of demarcation by the community is also a statement by consensus that they will henceforth look upon this land as a common property resource.

This further involves a move from resource use patterns dominated by free access towards community-based management, and requires communities to strictly regulate grazing and harvesting. Once the degradation processes were arrested, restorative activities were undertaken. These include afforestation, direct seed sowing and silviculture. The process has instilled a sense of community property rights and obligations.

Within months of the first monsoon, grass output increased substantially. The fair and equitable distribution of this resource, according to community formed rules, is a great incentive for further protection. Grass is the primary fodder in the hills and is vitally important to local welfare. Having grass available closer to the village during the lean

winter months has saved precious time for women who regularly spend several hours every day foraging for grass. The availability of grass has also resulted in a direct saving of cash. With the degradation of forests over the last few years, many families have been spending 2,500 Rupees or more every year for the purchase of grass. After four years of common land regulation, a limited but sustained harvest of grass and small timber can be obtained following coppicing and pollarding principles.

Through the process of community regulation, the basic fuel and fodder needs of the family have been made available closer to the village. In addition with the increase in vegetation, there is a long-term positive impact on village water resources.

The following are highlights of the forestry work over the years from the past Annual Reports.

### **1993 – 1994**

This was the first year where after intense discussions with the village communities strategies were drawn to tackle the issue of common land upgradation. The initial 6 months had a strong focus of community organisation and an attempt was made to involve every user family in the decision to protect the degraded commons from unregulated use and grazing pressure.

The technical aspects that were adopted were drawn up in consultation with the village communities. Thereafter if thought necessary village level nurseries were initiated to grow tree, shrub and grass rootstock that would supplement the natural regeneration process

7 villages were initiated in this process and work started with the Gram Panchayats , thereafter village development samitis were elected to discuss various development issues of which forest management was a major activity of the samiti. Men as well as women **chowkidars** (forest guards) were selected by the community who were nominally remunerated by the samiti (committee) and Aarohi jointly.

### **1994 - 1995**

The emphasis was more on regeneration through protection with modest afforestation on favourable sites on common lands in particular. Work grew from 7 to 12 villages. As one year was completed in 5 villages, the user communities got their first taste of benefits from reaping substantial grass harvests resulting from the protection efforts. About 137 families harvested 54,475 kilograms of natural grasses in a peaceful, self-regulated and equitable manner. The drudgery saved, the convenience, and the dignity of having ample grass at the people's doorstep are factors that earned the program a high reputation in the area.

A systematic survival rate survey conducted this year showed the survival rate was 65 to 75 percent. It was decided to focus in the coming years on revegetation around water points in addition to common land upgradation. We were simultaneously being drawn to work in highly degraded, dry and south-facing lands, at lower altitudes, some heavily invaded with the weed *lantana camara*.

### **1995 - 1996**

After 2 consecutive years of protection of the commons the grass output rose significantly and looked possible that some amount of sustainability of common land management could be established from the returns from the grass after about 4 years.

In one village, the earnings of the samiti from the sale of grass was more than enough to cover the cost of the watchman. This encouraged them to raise the cost of the collection pass. As a result, a large number of poorer families refrained from the benefit of the grass harvest. Once again the tricky nature of community forestry and the differential impact on the poor was driven home.

The resilience of Aarohi's community forestry initiative was evident when, in the summer of 1995, the region was struck with devastating fires, but not one forest plot was damaged. This was because of timely fire fighting by the community.

Of particular note this year was the high success level of direct seed sowing of the Banj oak, which had exceptionally good results and has been cost-effective as well.

### **1996 - 1997**

Work grew to 15 villages and 192 hectares. After 4 years of protection women of 7 villages harvested 47,888 kg of grass and did not have to purchase grass from outside.

### **1997 - 1998**

Of 15 villages in which work continued 13 were on village commons and 2 were private lands. Having learnt the technical aspects of dealing with forest species, there was now a concerted move to further strengthen communities through a process of decentralizing managerial and financial control. Communities were largely getting out of the habit of free access to forest produce and moving towards a sense of ownership and responsibility towards their forests.

### **1998 - 1999**

A critical review was taken of all the villages associated with Aarohi. Following this review, five villages were dropped from this association. The reasons were as follows:

**Birkhan-** the community had little interest due to availability of grass from private land and the nearby Reserve forest.

**Chopra-** this was a small private land and although gradual regeneration was taking place, there was too much external damage.

**Dhatwalgaon-** In spite of high community interest over here work had to be stopped as the conditions were extremely harsh and degraded.

**Sainj-** High degradation, conflict with organisation on the issue of construction of stone boundary wall and misuse of labour.

**Peora-** Intra village politics and suspected vandalism.

### **1999 - 2000**

8 years of protection work began to yield some results in terms of minor forest produce and strengthening of the samitis and their funds. The initial decision taken by the communities on strict protection and ban of grazing did mean that initially the women had to walk larger distances to collect fuel and fodder. But with consistent forest protection efforts grass yields increased over the year, saving precious time of women. Also a gradual reconversion of pine dominated forests to mixed oak forests started taking place. Plantation of saplings was used in the initial years for greater involvement of communities. It was also being demonstrated how the existent rootstock was

regenerating enough to show that such broad leaf species could become trees with proper protection and care.

### **2000-2001**

Most of the communities were contributing almost 50 % of the cost of maintaining a forest guard and towards routine maintenance activities.

### **2001-2002**

Apart from various direct forest protection and restoration work, this year Aarohi concentrated more on alternate technology dissemination such as pressure cookers, smokeless chulhas, bio-gas which significantly reduce the pressure on the forest for domestic energy.

Over the last ten years, Aarohi has provided technical, financial and community organisation inputs to 17 user groups from 16 villages, managing over 350 hectares of common lands. Currently the organisation is supporting such activities for 12 user groups from 11 villages, managing some 240 hectares of common land.

The village committees have current savings of Rs. 36,944 in their samiti accounts. A total of Rs. 39,533 has been used from these funds for various community needs like the purchase of community utensils, tents, floor sheets, repair of village temples, maintenance of forest and part payment of the chowkidar's remuneration.

## **7.3 Activities of the program**

### **Planting and Sowing**

During the last 10 years of work a total of 39 plant species have been planned for and planted and seeded by village communities. The choice of the species is primarily based on people's requirements and is also matched with the existing soil and other environmental conditions. The species cater to the wide variety of needs as perceived by village communities and particularly represent those species that are currently being required or used by them.

Seed collection has been an important activity as the availability of good quality seed is critical to the success of planting/sowing operations. With a few exceptions most of the species propagated have been done from seed collected from within the area and by the community themselves. The experiment of direct seed sowing in forests has been very successful with the Banj oak.

Totally the project has supported in the plantation of nearly **1,47,696 plants** and the sowing of **547 kg of seed.**

### **Nurseries**

Decentralised nurseries have been encouraged in many villages to raise good quality saplings. Apart from reducing carriage costs the more important objective is to encourage people and institutions to raise their own plants to meet their own requirements and to be self-reliant in the long run.

Decentralised nurseries are in the forefront of providing information regarding the time and techniques of seed collection and nursery techniques of many tree species. There are currently 15 nurseries in the villages.

## Hedgerows



Hedgerow coming up next to the barbed wire fencing.

Hedgerows have been used as protection on the boundaries of farm fields. This concept has been extended to common lands that require protection. Hedgerows in most cases are being used to supplement stone-walls and wire fences (and in time to replace them). The species being planned for planting in hedgerows are primarily thorny and hence not suitable for large tracts. Most of the species promoted as hedgerow plants or trees have multiple uses. Some of the common uses apart from providing physical protection are:

- i Flowers that provide nectar and pollen for the bees and fruits for human and other living beings.
- ii Natural fibres
- iii Nesting sites and perches for insectivores .

A total of 8500 saplings/cuttings of thorny plants, or bulbils (in case of agave) were planted as hedgerow strips along forest boundaries.

### **Fencing and walling for protection**

Increasing pressure on forest resources, the dependence of communities on their natural support area and the urgent need to assist in the conservation and regeneration of degraded forests have motivated communities to establish some protective regimes on their forest land. The actual area protected is as much as is feasible considering the normal requirements of village communities and their live stock. As of now Aarohi has supported **wire fencing of 5242 m** of community forest plots and **1500 m of stone boundary wall**.



Stone boundary wall protecting the commons

As of now these stone walls are protection against grazing animals, as well as an indicator of establishment of some protective regime.

### **Energy conservation**

The availability of fuel wood is one of the biggest benefits of forests to village communities and unregulated use of the same could well hasten the degradation of forest areas. The time consuming and tedious activity of collecting fuel wood is mainly the responsibility of women. An intensive survey conducted last year in 30 villages showed an **average consumption of 3.5 tons of wood per family every year.** Wood consumption in winter months could be as high as **35 kg per day in a family** of 6. It is thus imperative to provide energy alternatives to the community to ease the tremendous pressure of the forests.

Over the years, the team has been promoting, smokeless chulhas, pressure cookers and bio-gas plants and to date 78 smokeless chulhas, 134 smokeless chulhas with water heating tank, 237 pressure cookers and 23 bio-gas plants have been constructed / sold in the villages.

### **Working with women**

Women's reality in village communities in the mountains is determined, as in our society at large, by male domination and their control over power and wealth. As also the case in most rural societies, women form the single largest user group of natural resources and conversely are least involved in decisions regarding its management. Scarcities of fuel wood and fodder directly affect women and their workload. Further out-migration of men increases their burden many times.



Janki, the active chowkidar of Suyalgarh

Apart from encouraging women to participate in forest regeneration activities like pit digging, planting, seed collection, bush clearing and raising nurseries, there has been an ongoing effort to identify spaces that provide women an opportunity to get actively involved in managing their resources. This has translated to women being effective Forest and Fire Watchers in some villages as members of various village committees who are actively involved in decision-making.

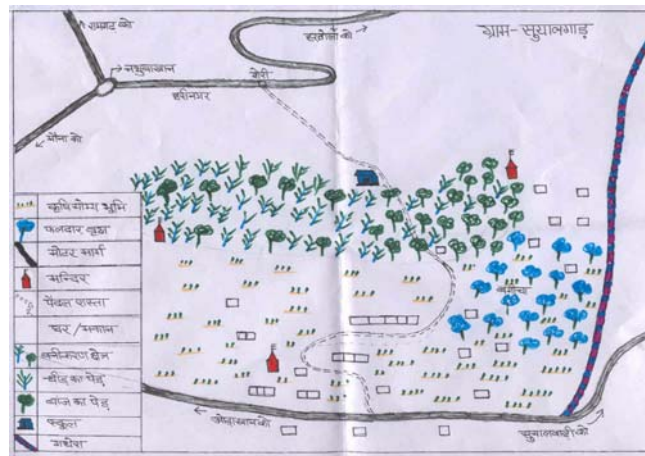
The fruits of consistency efforts are visible now. Women's participation is very high in the programs especially in Forest protection activities. They have understood that their participation will in the long run save their time as well as money.

Other initiatives like women's Self Help Groups and women's health awareness trainings have helped to organise women and bring them forward as effective managers of their own future.

## 8 Village specific Documentation

The village specific documentation of Aarohi consists of a brief history of the village, a documentation of its ecological and social status, as also the achievement of the community in terms of minor forest produce and funds created in the village samiti account. It also includes a resource map made by the community reflecting the present status. The following is the village specific documentation for the 11 villages where Aarohi is currently working.

### 8.1 Village Suyalgarh



#### Background and status of work

The village of Suyalgarh is situated at a height of 1000 metres above msl. This village is dominated by the Suyal caste of Brahmins. The village was underdeveloped and situated at a great distance from the road head. However, it was blessed with a good surrounding forest cover. Due to lack of appropriate leadership, there was illiteracy, poverty and poor sanitation conditions in the village. About 25% of the population had migrated from the village because of better opportunities outside. Shanti, a resident of this village and who lived closer to the roadhead, came in contact with Aarohi some nine years ago. It was through her that the village established contact with Aarohi and showed an interest in preserving and managing its natural resources. This was followed by an open village meeting called by the village, in which representatives from Aarohi were present, and a Village Development Committee was established. This committee undertook the responsibility of making a micro-plan for the overall development of the village, get community cooperation, give guidance to the development process and call regular village meetings.

Suyalgarh has approximately 100 hectares of common land belonging to the Civil and Soyam category, which had become degraded due to an unregulated cutting and grazing of animals by the village community. The village community took a decision to protect the forest, stop all lopping and grazing and not encroach upon the common land. The village community also appointed a woman by the name of Janki as chowkidar to assist in the protection of the forest. Within a year, the forest started to yield grass. Since the village had a surplus of grass, it was decided by the village that this grass be auctioned in plots, to people, who could then sell it to other villages if they chose. The community also decided to give free grass to Ganga Joshi, a poor widow from village. The grass for Ganga, has been valued at Rupees 2,000/- per annum. Cash collected from the sale of grass during the last nine years, in Suyalgarh, has amounted to Rs. 50,000/. This

amount has been saved in a village fund, operated jointly by two representatives - one from the community and from Aarohi.



Community assets, tent and musical instruments

To date the community has passed resolutions to withdraw and use Rs. 35,000/- from this account for the purchase of community utensils and tents. In addition to building community assets, these utilities are a great convenience during marriages and community functions. It has also entailed an approximate saving for the community of about Rs. 100,000/- in these years from rentals of such stuff.

The strict control of forest protection was augmented by plantation and seed sowing of broad leaved species. Within a few years, these saplings started to grow and become evident. The old rootstock which had been badly cut and grazed too, started to grow once again. Over a period of time these were systematically cultured to give them the shape of trees. There was also a conscious effort to create oak as a dominant species in a once pine dominated plot.

Along the road, many conflicts, like encroachment and damage by the neighbouring of Banj, Nani Banj, Budha Banj (mainly felling of trees) villages were resolved by the community with the help of chowkidar. Natural calamities like forest fires were also actively prevented and taken care of. Nine years of effort has now begun to show that a strong community process can convert a non productive, degraded common land to a productive forest.



Banj saplings coming up in a pine dominated plot

The forest protection committee is mainly represented and led by women. According to some women the Adult education program run by Aarohi in the initial years has been instrumental for an increased women's participation.

### **Analysis and Findings**

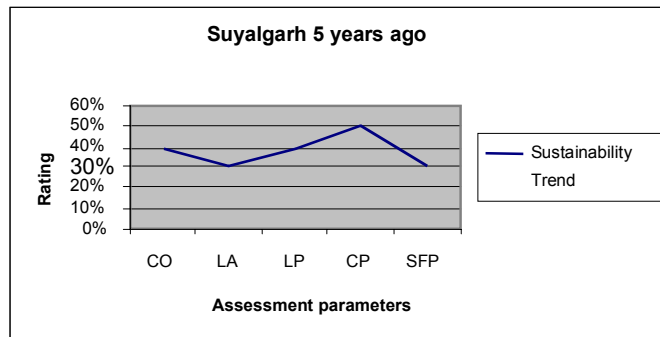
Some people do think that forests are life support systems and hence will be protected even without Aarohi's intervention. However, the majority of the population think that they need continuous support from Aarohi and do not consider themselves to be in a position to protect the forest on their own.

Forest protection in the Suyalgarh is successful because:

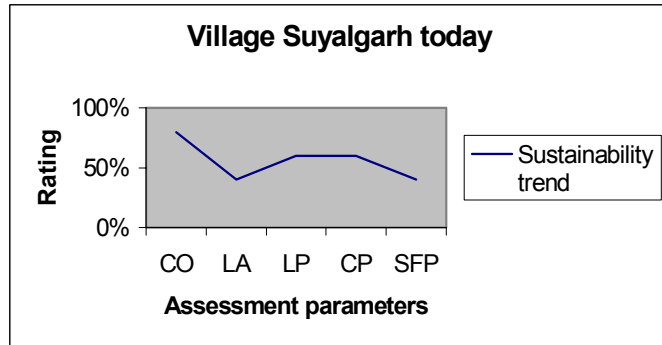
- a) The long term effort by Aarohi and support of the community has enabled the village to understand the important role of forests in their day to day life as well the need to protect these resources and there is a good understanding about the value of fodder in terms of income
- b) Resource area and local demand for fuel wood and fodder- Total common land available to this village is about 100 hectares out of which 70 hectares is currently protected by the community. The village has an extra 30 hectares of land available for grazing and cutting of wood. Village consumption is not high as compared to fodder production
- c) Resource location – The village commons are located at a distance of 2 km from the village, which is a deterrent for people who may have wished to break the rules of protection. Many people also take their livestock to the nearby reserved forest for grazing. This further helps the protection of commons. Livestock can graze in the nearby reserved forest.
- d) Population pressure – The village population has decreased in the last five years owing to out migrations, thus putting less pressure on the resources.

It is necessary to generate awareness about forest resources from the perspective of conservation and biodiversity. Secondly, a rapport needs to be established with the neighboring village of Banj, which is in conflict with the village of Suyalagarh over the use of the forest. Efforts should be made to organize joint meetings with people of Banj and Suyalgarh to initiate the process of resolving conflicts. Consequently exercises such as community problem analysis and participatory learning events could also be organized.

Ratings of Resource Protection efforts and sustainability of the work in future are given in two graphs as follows:



As it can be seen from the graph1 (five years ago) that low community organization had a negative effect on level of participation and it could have taken a long time for the villagers to come to terms with forest protection on their own. Aarohi's continuous intervention in this village has principally been responsible for the functioning of the forestry protection mechanism.



Today, though community organization, level of participation and community partnership in forest protection ranges from good to reasonable respectively, however low awareness about the importance of forest with respect to bio-diversity conservation and overall environmental balance will make the good work unsustainable in the time come. Population pressure, as well as inter-village conflicts over resource use can pose a threat to sustainable forest protection in future.

## State of the forest

### Comparison forest

Chir pine was the dominant tree species with 810 trees/ha. Saplings and seedlings of Chir pine were present in the forest. Large numbers of seedlings of Chir pine and Mehal indicated that these species are regenerating in this forest. *Rhus parviflora* was the dominant shrub followed by Ghingaru. Rootstocks with coppice shoots were present for Banj oak and Chir pine. This indicated past anthropogenic disturbance in the forest. The tree cover was 61%, shrub cover 51% and herb cover 67%.

#### Vegetation parameters

Site	Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling Density ind/ha	Seedling Density ind/ha	Root stock Density ind/ha
<b>Comparison forest</b>							
<b>Trees</b>	Chir pine	810	117.46	-	300	520	170
	Kaphal	20	0.69	-	-	10	-
	Ayar	-	-	-	-	180	-
	Mehal	-	-	-	-	300	-
	<i>Banj</i>	-	-	-	-	-	190
	<b>Total</b>	<b>830</b>	<b>118.15</b>	<b>61.05</b>	<b>300</b>	<b>1,010</b>	<b>360</b>
<b>Shrubs</b>	<b>Rhus parviflora</b>	44,250	-	34.0	-	-	-
	Ghingaru	14,750	-	16.55	-	-	-
	<b>Total</b>	<b>59,000</b>	-	<b>50.55</b>	-	-	-
<b>Grass</b>		-	-	<b>66.8</b>	-	-	-
<b>Protected forest</b>	Acacia sp.	40	2.4	9.0	-	320	40
	Angu	-	-	-	-	280	-
	Quiral	-	-	-	-	80	-
	Banj	-	-	-	-	3,280	2,000
	Mehal	-	-	-	-	1,680	80
	Kaphal	-	-	-	-	160	360
	Ayar	-	-	-	-	-	160
	Giwai	-	-	-	-	40	280
	<b>Total</b>	<b>40</b>	<b>2.77</b>	<b>9.0</b>	-	<b>5,848</b>	<b>2,920</b>

The study of a comparison plot could not be done because of unavailability of land.

## Protected forest

Nine years ago the forest was completely degraded. The status today has changed after 9 years of sustained forest management involving protection, plantation and systematic culture. A few trees of *Acacia*, with a density of 40 trees/ha were present. No saplings of any species were present. A high number of survived seedlings of Banj oak, Mehal and *Acacia* indicates the success of these species. A large number of rootstock of Banj oak (2000 ind/ha) and Kaphal (360 ind/ha) were present. The tree, shrub and herb cover, tree density and Total Basal Area is presumed to be the same as in the unprotected plot.

This village could become an example of autonomous functioning in community forest protection in future.

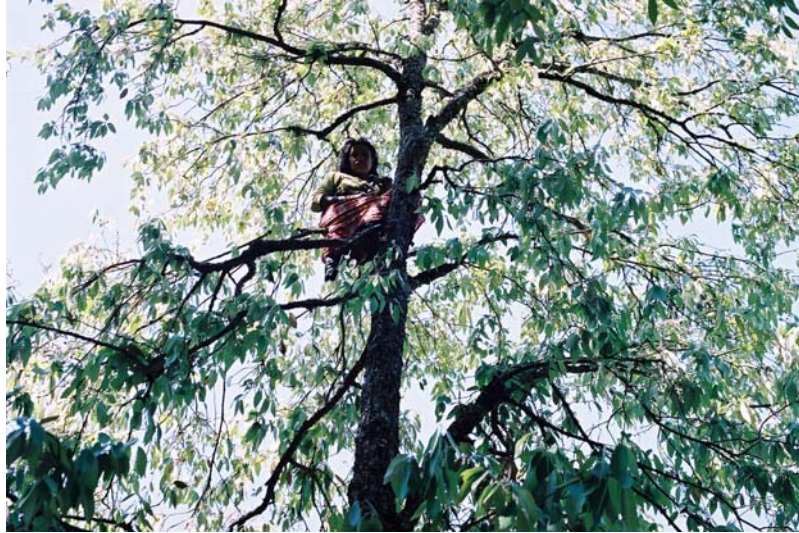
### 8.2 Village Talla Tanda (Tok of Nathuakhan)



#### Background and status of work

This is a small village situated at an altitude of 1700 metres above the msl and is a tok of Nathuakhan. The tok is inhabited by only 12 families. The area under protection is on the South slope. Aarohi came into contact with this village in the year 2000. This village has had a long history of forest protection under the Van Panchayat regime and thus the mechanisms & dynamics of community forest protection are well known in the village. The previous interventions of another voluntary organisation (CHIRAG) in the past have made the village community conversant with the scope and limitations of organisation intervention. The village has an active women's Self Help Group which is directly involved in protection of the forest and an amount of Rs. 200 is contributed by Aarohi every month towards the chowkidar's remuneration. The community has also given voluntary labour for the building up of the hedgerow around the forest.

The recent handing over of the responsibility of forest protection to the user group by the Sarpanch has given the community a feeling of ownership towards the forest. The community is well aware of their responsibilities and their rights. This decentralization of functioning has helped the community to formulate their own regulations regarding management and protection of the forests. Moreover, the dependence of a smaller population on a relatively large common forestland has helped to reduce the pressure on forest resources.



Woman on top of Banj tree, collecting dry firewood

The family members of this tok, especially women are managing the 35 hectares of forestland, which is close to their habitation. The people of Nathuakhan proper are allowed to use these resources. However there are conflicts with the neighbouring village of Lodh, which is engaged in theft and indiscriminate felling of trees from the village commons of Talla Tanda.

Resource sharing with the nearby villages has been a tradition and people understand the need of other villages for crucial needs like wood for cremation of dead bodies.

There are two views in the village and according to most people, rules should not be broken even for issues like providing wood for cremation. A few, however, feel that some help should be extended at times of dire necessity even to neighbours.

In this village, in the late eighties, soil conservation work had been carried out by the department of Soil Conservation during which period stone walling of the commons was done.



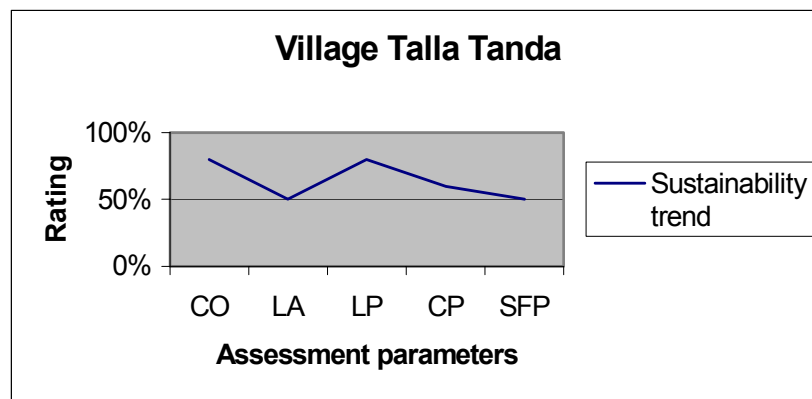
## Woman harvesting dry oak leaf litter

The yield of grass every year is around 3,000 kg valued at Rs. 6,000, which is by the community equally. A further 15,000 kg of dry leaf litter is harvested during the summer months for bedding for livestock, which goes into valuable compost making.

### Analysis and Findings

Aarohi has played a vital role in getting the village together to protect their commons after they had once abandoned this process, which was supported by Chirag. The organisation is also responsible for constant dialogue among the village community about forest protection through regular village meetings. People of the village would like to get Aarohi's support for conflict resolution, especially with the village of Lodh.

The graph relates strong community organization to a high level of overall participation. Good community partnership in management of forestry resources



has resulted from decentralization of power. Thus the village is willingly protecting all the common land handed over to them for protection and management. However relatively low awareness about conflict management raises certain questions about the sustainability of the current protection approach.

### State of the forest



It is a mixed forest of Banj oak, Chir pine, Surai and Ayar. The highest density was of Banj oak (840 trees/ha). Saplings of Banj, Kharsu, Mehal and Burash were present. Seedlings of Banj oak, Kharsu, Padam, Lodh, Kaphal and Mehal were also present. Ghingaruru was the dominant shrub followed by Bhatula. Large number of root stock (4,200 ind/ha) of Banj oak indicated the presence of past anthropogenic disturbances.

Tree cover was 58%, shrub cover 15% and herb cover 58%. The forest is in a good state of regeneration due to forest management.

#### Vegetation parameters

Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling Density ind/ha	Seedling Density ind/ha	Rootstock Density ind/ha
<b>Trees</b>						
<i>Banj</i>	840	28.5	-	80	280	4,200
Chir	240	7	-	-	-	-
Surai	80	1.26	-	-	-	-
Ayar	240	3.3	-	-	-	80
Tilonj	-	-	-	40	40	80
Mehal	-	-	-	760	200	-
<i>Burash</i>	-	-	-	80	80	-
Padam	-	-	-	-	-	-
Lodh	-	-	-	-	40	-
Kaphal	-	-	-	-	280	80
<b>Total</b>	<b>1,400</b>	<b>40.06</b>	<b>57.5</b>	<b>960</b>	<b>920</b>	<b>6,840</b>
<b>Shrubs</b>						
<i>Kilmora</i>	1,500	-	-	-	-	-
Ghingaru	8,750	-	-	-	-	-
Bhaiysia	1,750	-	-	-	-	-
Bhatula	6,250	-	-	-	-	-
<b>Total</b>	<b>18,250</b>	-	<b>14.7</b>	-	-	-
Herbs		-	<b>58.2</b>	-	-	-

Study of a comparison plot was not done due to unavailability of land.

This village could become an example of autonomous functioning in community forest protection in future.

### 8.3 Village Talla Supi



### Background and status of work

This village is different from other villages in the sense of the type of forest resource they have been protecting. The common forestland in this village is a sacred grove, a traditional institution responsible for protection and conservation of forests and biodiversity common all over India. However, such a tradition of conservation is not prominent in this region.



Sacred grove of Supi

The sacred grove of Supi (Talla) is spread over 5 hectares and offers shelter to very old Banj oak trees. The diversity of the plants seen here was unique and representative of a functioning sacred grove. As the tradition goes, the village has strictly followed the rules regarding cutting of trees over the years. Thus the area is well protected. Grazing still occurs in the plot through breaches in the stone walling and the community is keen to get the wall repaired.

The association in this village was made with an active youth group called the 'Yuva Jan Jagran Samiti'.



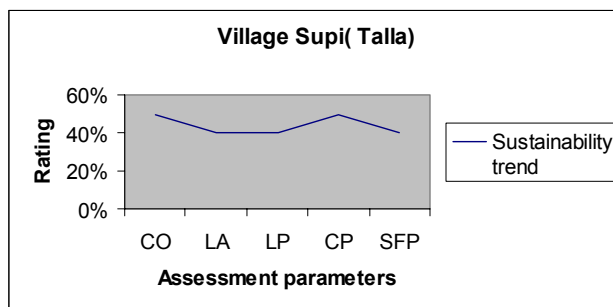
Villagers and Yuva Jagaran Samiti (Talla Supi) members engaged in Village resource mapping activity.

### Analysis and Findings

There are several reasons for the success of this samiti:

- The samiti members are mainly young people and most of them are not employed.
- The samiti has a few extremely active and socially conscious youth.
- This samiti is keen on associating with development organisations which could bring various development programs to the village.

The village has about 90 hectares of common land available and its management is done through the Van Panchayat. The village has also developed a resource sharing mechanism with the adjacent village of Kokilbana, on the grounds of the distant location of its own resource area. This could be used as an illustration in villages where conflicts arise due to resource sharing.



The graph above only represents the current status of various factors and no long term inference can be drawn as this is only the second year of intervention. The situation five years ago has not been given for the same reason.

## State of the Forest

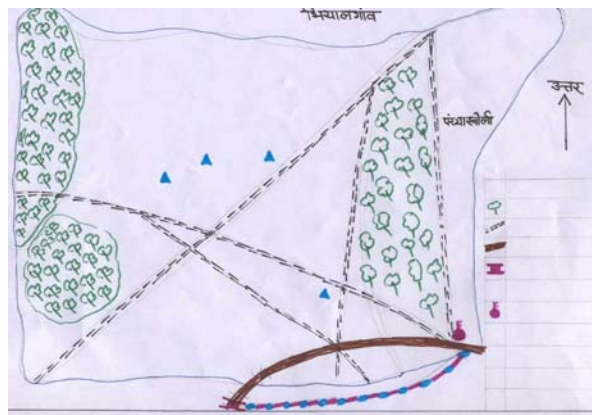
This is a mixed evergreen broad leaf and Chir pine forest. The highest tree density i. e. 320 tree/ha was found for Chir pine followed by 160 trees/ha for Banj oak. Saplings of Chir pine and Surai were also present. The highest seedling density was found for Burash with 5,200 ind/ha followed by Banj – 1,960 ind/ha. 320 root stock of Banj oak were present. Ghani was the dominant shrub followed by Randia.

The tree cover was 91%, shrub cover 25% and herb cover 42%. The high tree cover indicates it's protective value.

## Vegetation parameters

Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling Density ind/ha	Seedling Density ind/ha	Rootstock Density ind/ha
<b>Trees</b>						
Chir	320	12.96	-	40	960	-
Burash	120	2.05	-	-	5,200	-
Banj	160	7.25	-	-	1,960	320
Kaphal	80	0.7	-	-	-	-
Surai	-	-	-	200	-	-
Ayar	-	-	-	-	1,040	-
Mehal	-	-	-	-	520	80
Tilonj	-	-	-	-	480	-
Lodh	-	-	-	-	40	-
<b>Total</b>	<b>580</b>	<b>22.96</b>	<b>91.4</b>	<b>240</b>	<b>10,200</b>	<b>400</b>
<b>Shrubs</b>						
Kilmora	250	-	1.6	-	-	-
Ghani	6,000	-	4.25	-	-	-
Vivernum	2,000	-	6.5	-	-	-
Randia	4,250	-	4.0	-	-	-
Gawai	2,250	-	8.85	-	-	-
<b>Total</b>	<b>14,750</b>		<b>25.2</b>			
<b>Grass</b>						
	-	-	<b>42.0</b>	-	-	-

## 8.4 Village Bhayalgaon



## **Background and status of work**

Aarohi started community health work in Bhayalgaon in the year 1995. Three years later, in 1998, forest management work was initiated based on the expressed interest by the village.

In an open village meeting a village development committee was formed and it was decided to protect compartment no.2, an area of about 15 hectares. Soil conservation work had been carried out here from 1972 to 1977 by the state government. Stonewalling done under that program still exists.

The village has a large resource of common land totaling an area of about 75 hectares. The Van Panchayat manages 40 hectares of this and the remaining is left open for grazing.



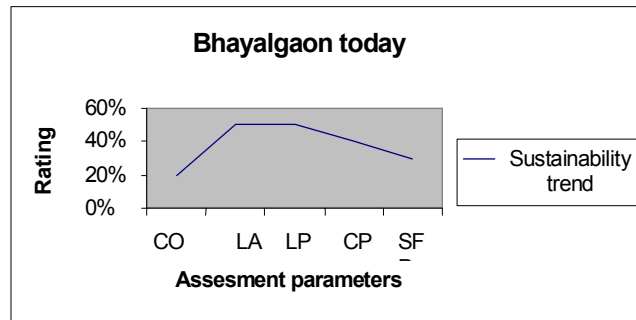
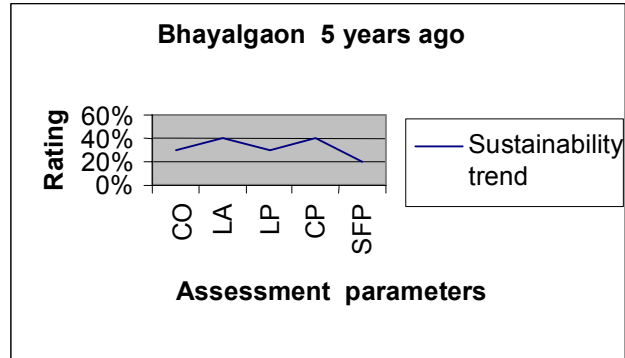
Forest of Bhayalgaon showing Oak seedlings

Compartment no.2 was earlier used as a free access plot and was in a severely degraded condition. Fencing, protected the plot and grazing and lopping were banned. A chowkidar was appointed. The village community assisted in the initial years by volunteering labour for pit digging and planting various fodder trees. Shramdan was also given for making a fire line which acts as protection against fire.

In a span of 4 years the plot has shown signs of restoration. On an average the forest yields about 1200 kg of grass per annum. This is distributed by a pass system within a community of 60 families. The committee has a total of Rs. 6,516 in its accounts.

## Analysis and Findings

Aarohi started working here in the year 1998. Aarohi's protection work is successful here due to an abundance of resources available for the villagers for fulfilling their needs. In spite of the forest showing signs of restoration due to an active chowkidar, support from the community for various forest-related activities is low.



Graph 1 gives an idea of the early years of Aarohi's intervention. This could have caused growth in community organization. However, specific measures were needed to strengthen the community, which was not well knit. Hence the second graph predicts a decline in community partnership and sustainability.

### State of the forest

#### Comparison forest

The area around the plantation site is a pure pine forest with tree cover of 62%. No saplings, seedlings or rootstock of any species were seen here.

#### Protected forest

The tree species in the protected plot are assumed to be the same. The tree cover is 66%. The presence of a large number of seedlings of Banj oak shows that the plantation of oak has been successful here.

## Vegetation parameters

Site	Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling density ind/ha	Seedling density ind/ha	Rootstock density ind/ha
<b>Comparison on forest</b>							
<b>Trees</b>	Chir pine	330	18.54	62%			
	<b>Total</b>	<b>330</b>	<b>18.54</b>	<b>62%</b>			
<b>Shrubs</b>	Kilmora	5,500					
	Ghingaru	3,750					
	Raitung	7,500					
	<b>Total</b>	<b>16,750</b>		<b>40.70%</b>			
<b>Herbs</b>	Siro, Kumeria			<b>62.6%</b>			
<b>Protected forest</b>							
<b>Trees</b>	<b>Total</b>			<b>66%</b>			
<b>Seedlings</b>	Banj					2,720	
	Mehal					80	
	<b>Total</b>					<b>1,440</b>	
<b>Shrubs</b>	Kilmora	6,750					
	Ghingaru	1,000					
	Raitung	4,000					
	<b>Total</b>	<b>11,750</b>		<b>44.60%</b>			
<b>Grass</b>	Siro, Kumeria			<b>84.35%</b>			

## 8.5 Village Simayil



### Background and status of work

This village has three common lands measuring a total of 25 hectares. Out of which 4.5 hectares is being protected through Aarohi's forestry program. The remaining common land is open for fuel wood collection and grazing. The protected area is in 2 toks namely Ghotigarh (2 ha) and Sehpani (2.5 ha). Aarohi's work started here in the year 1994 and it has helped the community to come together to take advantage of

this assistance. This resulted in organizing the village community for one particular purpose and subsequently for many other activities. Though the area under protection is small and the community cannot reap a large benefit from it, a good understanding has enabled them to protect the resource in a sustainable manner so far.

Simayil is financially better off as compared to other villages as at least one person from each household is employed. The literacy levels of women are also high here.



Temple tree of Simayil, a place for village meetings

While Aarohi has provided all the technical and managerial assistance and a financial contribution of Rs. 300 each for the two chowkidars, the community assists these women chowkidars in the processes of pit digging, plantation, hoeing, mulching and all fence maintenance and fire protection activities. Cash collected from the yearly sale of grass is deposited in the samiti account which is currently Rs. 2,974. The community has used an amount of Rs. 2,000 from this account to date for the purchase of community utensils.

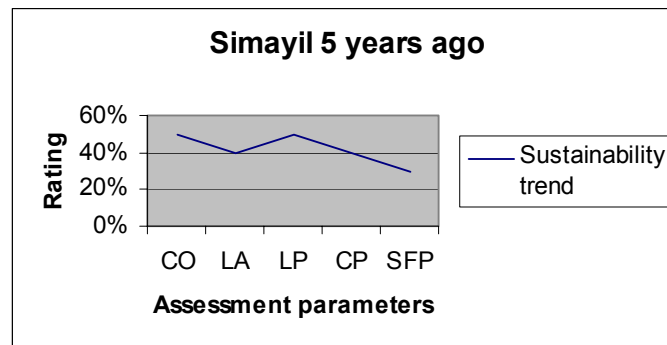
### **Analysis and Findings**



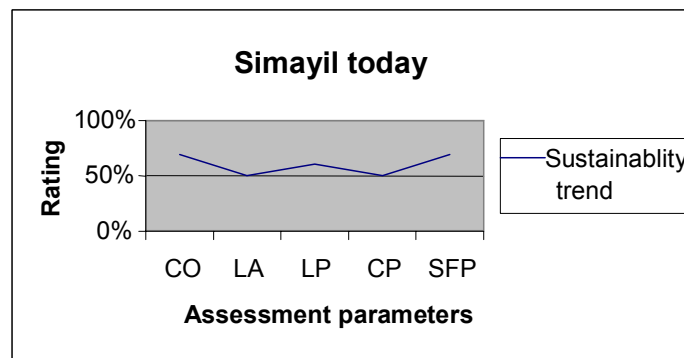
Women of Simayil during plantation

Simayil is fortunate in having more than one common forestland to cater to its needs of fuel wood and other minor forest produce. Women mainly represent the village community as men have migrated to nearby cities for their livelihood. This has also

had a positive effect on the socio-economic status of the community. The village community has also managed to garner support from the government through the Van Panchayat to protect the larger common land.



The above graph shows the results of intervention in the village. Since efforts were taken on certain parameters of participatory protection a declining trend for community partnership and hence sustainability has been shown. It suggests that unless a major percentage of the available common land comes under protection, the community partnership will not be high, as they do not depend on the protected patch of forest for their entire needs.



Nevertheless as of today Simayil is an example to be followed by many villages in participatory forest protection. The second graph thus describes a healthy picture of progress.

### State of the Forest

#### Comparison forest

This site was a pure Chir pine forest. The tree density was 280 ind/ha and the total basal area 22.2 m<sup>2</sup>/ha. The tree cover was 55%. Saplings of Chir pine and Kaphal were present.



Ghotigarh plot of Simayil showing 8 year old oak seedlings

### Protected forest

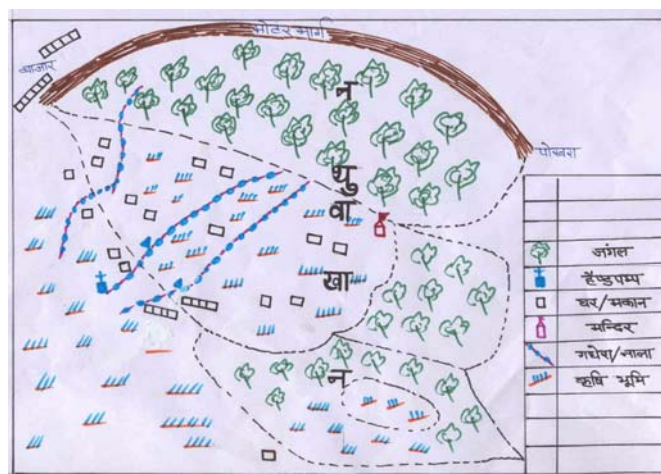
Plantation of several species was made during the year 1993-94. The presence of a large number of seedlings of Banj oak and those of many other species indicates that regeneration of different species is possible if forests are properly protected, managed and used. The survival of oaks in a pine zone indicates the adaptation of oak even in low elevations.

### Vegetation Parameters at Simayil (Sehpani and Ghotigarh toks)

Species	Comparison forest			Protected Forest	
	Density (ind/ha)	Total basal area m <sup>2</sup> /ha	Cove r %	Seedling density (ind/ha)	
				Sehpani	Ghotigar h
<b>Trees</b>					
<b>Pinus roxburghii</b>	280	22.2	55		
<b>Saplings</b>					
<b>Pinus roxburghii</b>	700	3.03			
Myrica esculanta	100	0.26			
<b>Seedlings</b>					
Quercus leucotrichophora		-	-	2,760	7,240
Quercus glauca	-	-	-	40	-
Melia azadirachta	-	-	-	-	360
<b>Prunus cerasoides</b>	-	-	-	40	120
Pyrus pashia	-	-	-	40	80
Rubinia spp.	-	-	-	-	40
Cupressus torulosa	-	-	-	-	80
Celtis australis	-	-	-	-	80
Ailanthus	-	-	-	-	280
<b>Shrubs</b>					
Didonia	-	-	-	-	80

\* Tree density, Basal Area and cover are presumed to be the same as the unprotected plot

## 8.6 Village Nathuakhan (Chatiyari and Harit toks)



### Background and status of work

This village has a total of 30 hectares of common land under protection. The village community has been involved in participatory forest protection for many years. It has one Van Panchayat as well as a Van Samiti to look after the management and protection of the forest. Aarohi's intervention 3 years ago was preceded by a five-year intervention of another voluntary organisation - CHIRAG. The community felt the need for further assistance and the association with CHIRAG taught them the nuances of organisational intervention. Nathuakhan too, has the problem of theft of its forest produce from other villages. There are currently the two toks of Chatiyari and Harit under protection. Chatiyari is located at an altitude of 1750 metres above msl on a North-East slope.

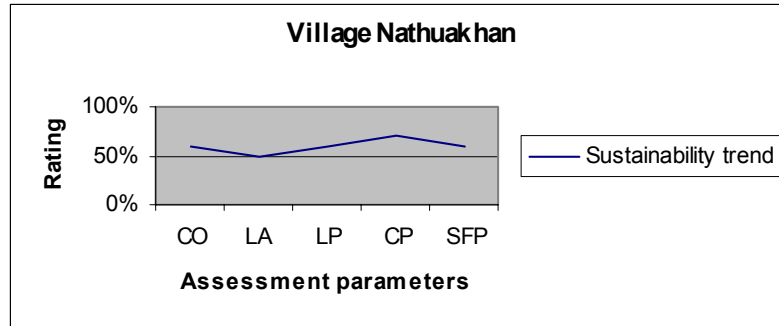


Grass 'lootas' on house top, a vital fodder in the hills

The community has contributed for planting, hoeing, mulching and 40% of the cost of stone wall repair as voluntary labour. Each family contributes a sum of Rs. 5 every month towards the payment of the chowkidar, while Aarohi contributes Rs. 200. The estimated yield of grass from these commons is to the tune of 1,200 kg every year, which is distributed equally in the village. In addition the major section of the forest gives a tremendous return of dry leaf litter amounting to 300,000 kg every year. Each family gets an average of about 1,500 kg of this forest produce that is used as bedding for livestock and is eventually converted into valuable organic compost.

## Analysis and Findings

The community and forest management committee is well aware of its need for forestry resources as well as the importance of protection. As of today the community faces difficulties in resolving conflict issues with other villages over resource sharing. In all other cases, it is representative of a strong and well-developed community organization, which can execute any community based development program. Aarohi's intervention has helped to strengthen this community spirit.



The graph represents a healthy picture of progress in participatory forest protection.

### State of the forest

Nathuakhan (Chatyari Tok): Banj oak was the only tree species present in the forest with a density of 370 trees/ha. No saplings were present for any species in this forest site. Seedlings of Chir pine and Burash were present. The tree cover was 68%.

The ground cover including shrubs and herbs were totally absent from the forest. This indicates severe past disturbances in the forest. Protection has provided the opportunity for the development of seedlings of the above species. The absence of Banj oak seedlings indicates a high pressure of grazing on the Banj oak and thus Chir pine and Rhododendron are regenerating on the site.

### ***Nathuakhan (Harit tok)***



Mixed forest with regenerating Oak

Chir pine was the only tree species in the forest with a density of 720 trees/ha. Saplings and seedlings of Chir pine were also present. The seedling density was 40 ind/ha and sapling density was 440 ind/ha. Ghingararu was the dominant shrub followed by Randia. Large number of rootstock of Banj oak indicates past anthropogenic disturbance. The forest was severely degraded and had been heavily lopped by the villagers in the past.

The tree cover was 15% shrub cover 28% and herb cover was 46%.

#### **Vegetation parameters**

Site	Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling Density ind/ha	Seedling Density ind/ha	Rootstock Density ind/ha	
<b>Trees</b>								
Chatyari Tok	<i>Banj</i>	370	20.16	67.7	-	-	-	
	Burash	-	-	-	-	40	-	
	<i>Chir</i>	-	-	-	-	390	-	
	<b>Total</b>	<b>370</b>	<b>20.16</b>	<b>67.7</b>	<b>-</b>	<b>430</b>	-	
<b>Herb</b>								
Harit tok	<i>Chir</i>	720	14.9	14.72	440	40	80	
	Mehal	-	-	-	-	200	40	
	<i>Rhamnus</i>	-	-	-	-	40	-	
	Banj	-	-	-	-	-	4,880	
	<b>Total</b>	<b>720</b>	<b>14.9</b>	<b>14.72</b>	<b>440</b>	<b>280</b>	<b>5,000</b>	
	<b>Shrubs</b>							
	<i>Kilmora</i>	250	-	-	-	-	-	
	Ghingaru	15,000	-	-	-	-	-	
Randia	5,550	-	-	-	-	-		
Cotoneaster	250	-	-	-	-	-		
<b>Total</b>	<b>20,500</b>	<b>-</b>	<b>28.0</b>	<b>-</b>	<b>-</b>	<b>-</b>		
<b>Herbs</b>								
		-	-	46.3	-	-	-	

\* Comparison plots were not taken here due to unavailability of land

### 8.7 Village Meora



#### Background and status of work

The village common land is spread over 20 hectares and is totally under protection. Though Aarohi's intervention in forestry protection is recent the community has taken up its herbs initiative with great enthusiasm. Women in this village are active and have taken complete responsibility of forest protection activities. The forest is in excellent condition.

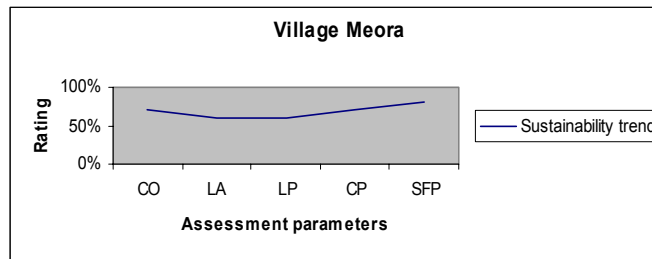
The women of Meora manage the village commons during the lean season and save the chowkidar's remuneration (Rs. 150 as contibution from Aarohi) in their samiti fund. They have a good understanding of the role of voluntary organisations in such work and are supportive of these efforts.



Women of Meora singing at a village meeting

### Analysis and Findings

Village Meora is another competent village community involved in participatory forest management. The village community represented by women is a team of experienced and trained women knowing the functioning of village level committees. Thus capacity building and motivation have been responsible for a steady progress of this community in every activity.



It is very clear from the graph that there is a possibility to continue the work with extremely good community participation of people of Meora.

### State of the Forest

Banj oak was the dominant tree species with 880 trees/ha followed by Chir pine. Trees of Kaphal and Deodar were also present. The tree basal area was 40 m<sup>2</sup>/ha. Large numbers of Chir pine saplings were present. The large number of Banj oak seedlings indicates that this species has begun regenerating on this site especially after protection. Seedlings of several other species were also present. There was a presence of a large number of rootstock of Banj oak. With protection, these rootstock are re-sprouting (coppice) and growing.

### Vegetation parameters of the protected forest

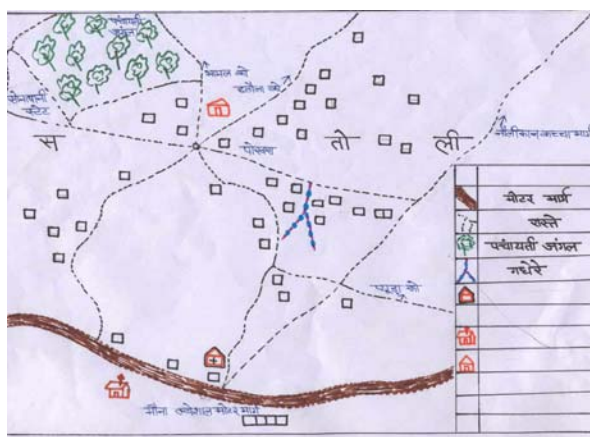
Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling Density ind/ha	Seedling Density ind/ha	Rootstock Density ind/ha

<b>Trees</b>						
<i>Banj</i>	880	30.36	-	-	1,240	480
Chir	200	2.78	-	1200	280	-
Kaphal	40	2.2	-	-	720	160
Deodar	80	4.6	-	-		-
Burash	-	-	-	-	120	-
Padam	-	-	-	-	200	-
Angu	-	-	-	-	160	-
Kharsu	-	-	-	-	80	-
Pangar	-	-	-	-	360	-
Mehal	-	-	-	-	720	160
<b>Total</b>	<b>1200</b>	<b>39.94</b>	<b>90.8</b>	<b>1,200</b>	<b>3,880</b>	<b>800</b>
<b>Shrubs</b>	-	-			-	-
<i>Ghingaru</i>	4,500		18.15		-	-
Ghani	2,750		3.0	-	-	-
Bhasia	4,250		5.80	-	-	-
Rendia	6,250		1.35	-	-	-
Chamlvair	750		7.00	-	-	-
<i>Darin</i>	9,000		10.0	-	-	-
<b>Total</b>	<b>27,500</b>		<b>45.30</b>	-	-	-
<b>Herbs</b>			<b>48.8</b>	-	-	-

\* Comparison forest was not recorded due to unavailability of land

The total tree cover was 91%, shrub cover 45% and grass cover 49%. This indicates that the forest has re-gained its cover after protection, by the regeneration of several species.

### 8.8 Village Satoli



#### Background and status of work

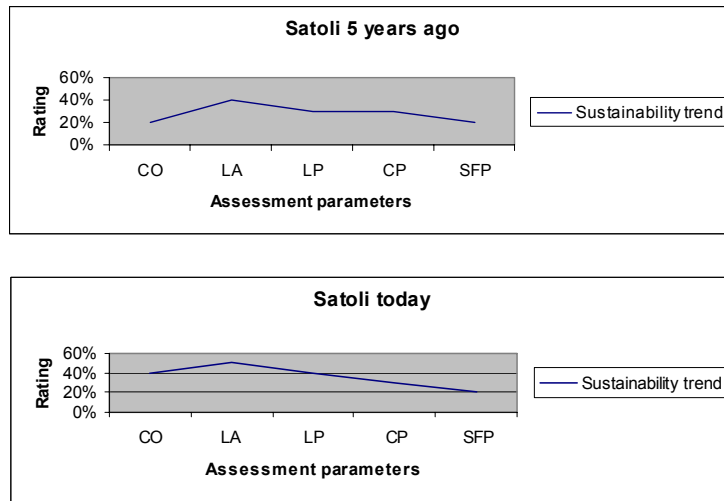
Satoli is situated at a height of 1820 metres above msl. This village has large area of common land, of which 35 hectares on the North-East slope, is being protected with Aarohi's assistance. Satoli is also spread over a very large area and households are scattered. About 70% of the community have migrated to the plains to seek better livelihoods. The village is a mixed caste group comprising of Brahmins, Thakurs and Shilpkars. The community of this village is not very supportive since for many of them the resource area is not of direct use. The total amount of private land is also very large

and many people can fulfill their requirements from their own land. The Van Panchayat of Satoli was formed in 1998.

The Sarpanch is unhappy about the negligence of the government towards their demands like land demarcation, measurement, contribution to the chowkidar's salary etc. However, he is happy about Aarohi's intervention.

### Analysis and Findings

This village could be representative of a community having opportunistic motives. It shows all the qualities of participation at the time of sharing benefits. The following data merely shows how ineffective organisational intervention could become, if the community is not united. Strangely, the forest here is in excellent condition due to the interest of a few individuals.



Over the period of the last five years, people's participation has reduced substantially.

### State of the forest

#### Comparison forest

Chir pine was the only tree species with 320 trees/ha. Saplings of Chir pine and Lodh were present. No seedlings of any species were present. Ghingarua was the only shrub.

The tree cover was 61%, shrub cover 21% and herb cover 48%.

### Protected forest



Forest showing healthy regeneration of rootstock

It was a disturbed forest and the village community planted various species with the help of Aarohi. No trees other than Chir pine were present before the plantation. A few saplings of Faniyat oak, Pangar and Lodh were present. Large number of seedlings of Banj oak and Mehal have survived and indicate the success of these planted species

#### Vegetation parameters

Site	Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling Density ind/ha	Seedling Density ind/ha	Rootstock Density ind/ha
<b>Comparison forest</b>	<i>Chir pine</i>	320	18.1	61.1	<b>80</b>	-	
	Lodh	-	-	-	220	-	
	<b>Total</b>	320	-	-	300	-	
		<b>320</b>	<b>57.95</b>	<b>61.1</b>	<b>600</b>	-	-
	<b>Shrubs</b>	-	-	-	-	-	-
	Ghingaru	12,500	-	21.0	-	-	-
	<b>Herbs</b>	-	-	<b>48.2</b>	-	-	-
<b>Protected forest</b>	Lodh	-	40	-	-	-	-
	Pangar	-	-	-	80	80	-
	Faniyat	-	-	-	120	-	-
	Banj	-	-	-	-	4,480	-
	Acacia	-	-	-	-	80	-
	Kaphal	-	-	-	-	80	-
	Mehal	-	-	-	-	240	-

	<b>Total</b>	-	-	-	<b>240</b>	<b>4,960</b>	-
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### 8.9 Village Quarab



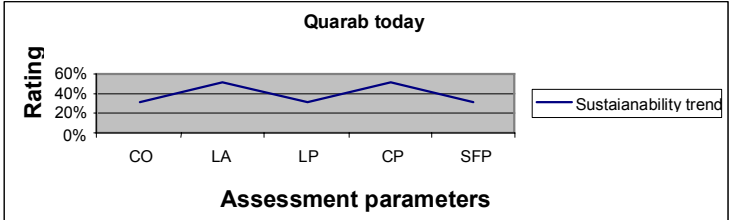
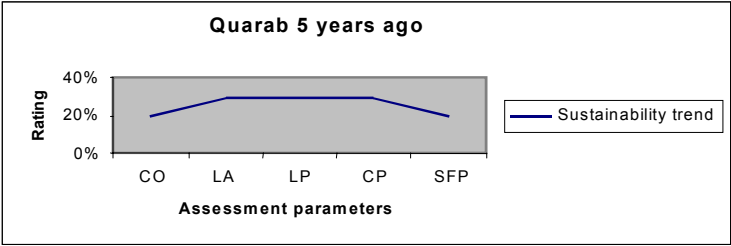
Chowkidar of Quarab, Diwan Singh standing proud with the tallest oak measuring 3 metres

#### ***Background and status of work***

*Bagdua tok of village Quarab is situated at an altitude of 1150 metres above msl. The area under protection is 3 hectares on the North slope along the river Suyal. One family is managing this village common. It was a degraded patch ten years ago when Aarohi started working with this village in 1994. Plantation of Banj oak and other broad-leaved species were tried here. It is actually difficult to grow Banj at such a low altitude. The plantation is well protected and the seedlings are growing well. The family managing this is taking all the care needed. This effort therefore does not involve any protection of an existing forest, but purely an afforestation effort. There is little threat to this forest land from other villages or toks of Quarab.*

Grass yield every year amounts to about 300 kg worth Rs.600. Today this is given to the chowkidar as his remuneration from the village. In addition the chowkidar also gets Rs.150 per month as incentive from Aarohi. The community participates regularly in fire protection activities and in the early years people have contributed in pit digging and tree plantation. The samiti currently has a total of Rs. 2,852 in its accounts and has used Rs. 6,500 so far for the repair of a temple.

#### **Analysis and Findings**



*The community today is not actively involved in the management of this plot today, but is participating indirectly in protection by not damaging the efforts.*

*This effort is an excellent demonstration of a successful oak plantation at a low altitude under degraded soil conditions.*

## State of the Forest

### Comparison forest

The forest was dominated by Chir pine. The density of chir pine was 360 trees/ha and 40 individuals/ha were saplings. The complete absence of chir pine seedlings indicated that there was little regeneration of the species. Mehal, a broad leaf deciduous species, was regenerating in the area. The tree crown cover was only 28% with a basal area of 9.1 m<sup>2</sup>/ha. This indicated that the forest is severely degraded. The total shrub density was 27,250 ind./ha the highest number of which was *Artimesia vulgaris*. The low shrub and herb cover also supports the fact that the forest is continuously degrading.

### Protected forest



Oaks at an elevation of 1150 m; river Suyal in the background

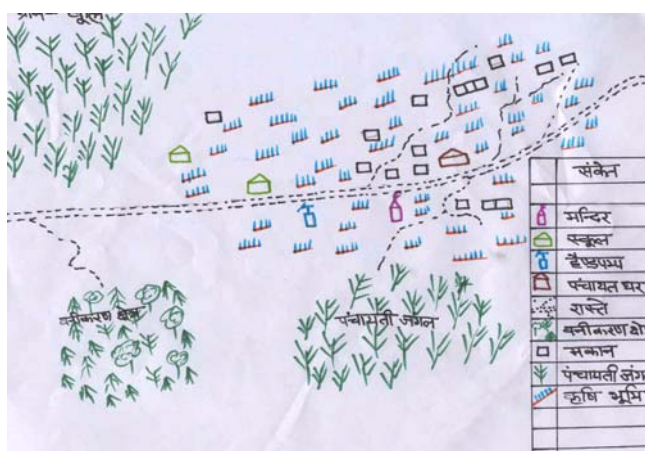
Plantation of different species was made in about 3 hectares of common land. Concomitantly, the site was also protected from human and animal disturbance. Oak seedlings were densely planted (3,240 seedlings/ha) and the seedling density of other species were between 40 to 200 seedlings /ha. Oak was densely planted to take care of anticipated mortality at this altitude. Almost all the seedlings survived after 8-10 years of growth. This makes a success story of oak plantation in degraded soil condition despite the low elevation.

## Vegetation parameters

Species	Comparison Forest			Protected Forest	
	Density (ind/ha)	Basal area (m <sup>2</sup> /ha)	Cover %	Species	Density (Seedling/ha)
Trees				Trees	
<b>Pinus roxburghii</b>	360	9.07	28	<b>Quercus leucotrichophora</b>	3,240
<b>Saplings</b>				<b>Bahunia variegata</b>	80
<b>Pinus roxburghii</b>	40	-	-	Cuprussus torulosa	160
Seedling				Prunus cerasoides	200
<b>Pyrus pasia</b>	480	-	-	Melia azadarachta	80
Lyonia ovalifolia	10	-	-	Morus spp.	40
<b>Shrubs</b>					
Artimesia spp.	14,000	-	7.2		
Rhus sp.	4,750	-	1.1		
Berberis vulgaris	2,500	-	6.6		
Mahuwa sp.	5,750	-	6.7		
Myrsine affricana	250	-	2.0		
Rubus ellipticus	-	-	2.9		

\* The shrub density has been presumed to be the same as that in the comparison forest.

### 8.10 Village Kool



### Background and status of work

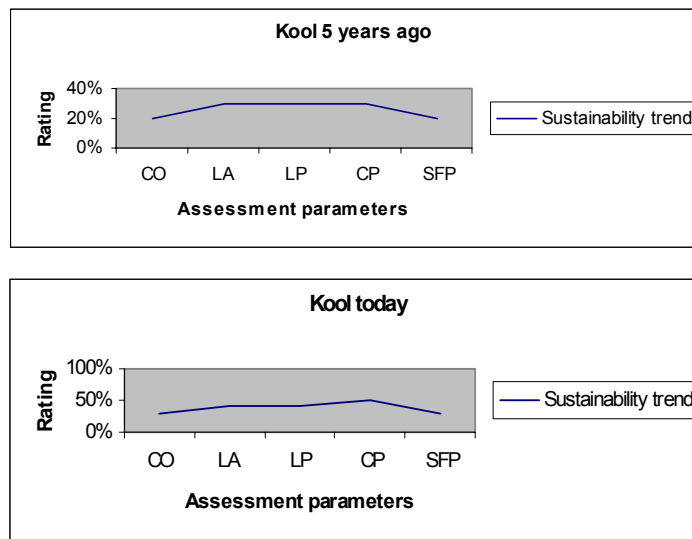
The village of Kool with 86 households is situated at a height of 1410 metres above msl. The forest land under protection of about 2.5 hectares is near the village habitation on the East slope. This village also has another resource area of 15 hectares close by. Aarohi initiated forest protection activities in this village in 1993. This was a degraded forest

land with only a few pine trees. The village wanted to protect this forest land to stop encroachment by neighbouring village of Matkina. Due to harsh soil conditions, the growth of seedlings is stunted. This village has a Van Panchayat which is fairly non-functional. The area is well fenced with barbed wire and the hedgerow is taking shape slowly. The village uses the nearby Reserved forest land for grazing cattle.

The total production of grass every year is 600 kg, valued at Rs.1200, which is given to the chowkidar as his remuneration for the year. Rs.200 per month is also given to the chowkidar as an incentive from Aarohi.

### Analysis and Findings

The highly degraded soil conditions of this plot have made the forestry effort here rather difficult. The community too, is not directly dependent on this plot for any immediate benefit. The issue of continuance of efforts here needs to be weighed carefully.



It is seen from the graphs that situation has not changed. People's organization is not visible in terms of forest related activities. The plot has largely survived due to the very active interest of the chowkidar and a few members of the community.

### State of the Forest

The comparison plot was largely a pine forest with some trees of Mehal. In the protected forest it has been assumed that the tree cover is the same as in the unprotected plot. However, a fair amount of surviving seedlings of various species were present. Although this study has not measured the growth of seedlings, the species that were found to be doing really well were Quiral, Kannaul and Didonia. The good shrub and herbs cover indicates that regeneration in the protected plot is taking place. Purely from an ecological point of view it may be worth continuing protection of the forest plot using species like Quiral and Kannaul (Bauhinia species) and *Alnus nepalensis* which can be used as nursing species to restore the state of the soil in which other broad-leafed species can thrive later.



Bauhinia variegata, growing successfully in arid soil conditions

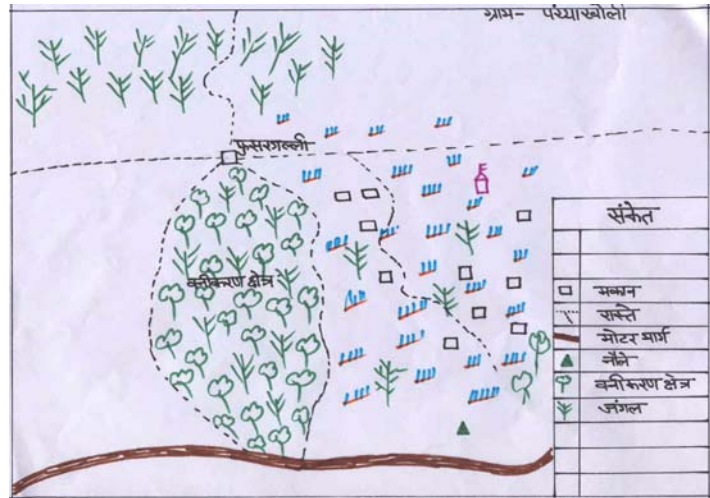
**Vegetation parameters**

Site	Species	Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling density ind/ha	Seedling density ind/ha	Rootstock density ind/ha
<b>Comparison forest</b>	<b>Trees</b>						
	Chir pine	540	37.6				
	Mehal	320	2.6				
	<b>Total</b>	<b>860</b>	<b>40.2</b>	<b>58%</b>			
<b>Protected forest</b>	<b>Shrubs</b>						
	Ghingaru						
	<b>Herbs</b>						
	Banj					640	
	Surai					120	
	Quiral					480	
	Kannaul					80	
	Bakain					80	
	Padam					40	
	Didonia					540	
	<b>Total</b>					<b>1,980</b>	
	<b>Shrubs</b>						
	Ghingaru	3,250	7.4%				
Kilmora	3,750	9%					
Bhaiysia	18,750	10.7%					
Ranel	2,750	4%					
<b>Total</b>	<b>28,500</b>	<b>31.1%</b>					

	<b>Herbs</b>		<b>69.2%</b>				
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\* Study of the comparison forest was not done because of unavailability of land.

### 8.11 Village Paiyyakholi



#### Background and status of work

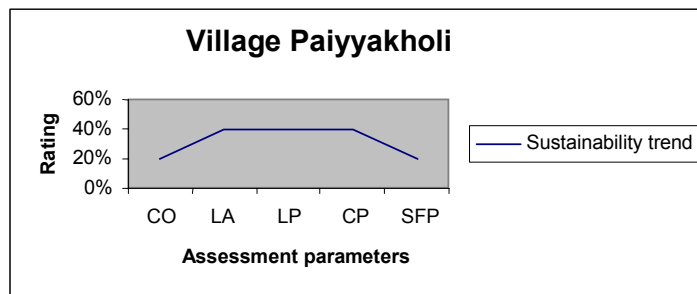
Paiyyakholi is a small village with 15 families managing some 15 hectares of common land close to its habitation.

Work was started here in 1998 through a women's self help group. In a general village meeting a village development committee was formed and a chowkidar appointed. It was agreed upon that the community would give voluntary labour for fencing and planting. The participation of women here is high. The village has a boundary dispute with the neighbouring village of Bhayalgaon. The elders are keen to resolve this dispute through a dialogue but need facilitation. There is damage to the commons by some people of the village itself. The interest of the community has declined over the last two years.

The village commons yield about 2,100 kg of grass valued at Rs. 4,200. However, the samiti has not been able to build its funds.

#### Analysis and Findings

Facilitation is needed here to overcome the conflict situation. Tremendous, focused efforts are needed to reawaken the interest of the community.



### State of the forest

Chir pine was the dominant tree species with a density of 300 trees/ha followed by Banj oak 10 trees/ha. No saplings were present for any species. Seedlings of Chir pine and Mehal were present. Large numbers of rootstock of Banj oak were present showing past anthropogenic disturbance and signs of regeneration. *Lantana camera*, an exotic weed, was the dominant shrub species. The tree cover was 54%, shrub cover was 63% and herb cover was 66% .

### Vegetation parameters

Species	Tree Density ind/ha	Basal area M <sup>2</sup> /ha	Cover %	Sapling Density	Seedling Density	Rootstock Density
<b>Trees</b>						
<i>Chir</i>	300	-	-	-	260	10
Banj	10	-	-	-	30	170
Ayar	-	-	-	-	50	-
Mehal	-	-	-	-	100	-
Burash	-	-	-	-	10	10
<b>Total</b>	<b>310</b>	<b>5.5</b>	<b>53.8</b>	-	<b>530</b>	<b>190</b>
<b>Shrubs</b>	-	-	-	-	-	-
<b>Rhus Parviflora</b>	8,500	-	-	-	-	-
<i>Lantana</i>	28,000	-	-	-	-	-
Ghingaru	1,250	-	-	-	-	-
Hisalu	750					
<b>Total</b>	<b>38,500</b>	-	<b>63.35</b>	-	-	-
<b>Grass</b>	-	-	<b>66.2</b>	-	-	-

\* No study was done of a comparison plot due to unavailability of land

## 9 CONCLUSIONS

### 9.1 Concepts and connotations of people's participation vis a vis Aaroahi's work

People's participation is used in different contexts to specify different meanings. It is a dynamic group process in which all members of the group contribute to the attainment of group objectives, share the benefits of group activities, exchange information, have common interests and follow the rules, regulations and other decisions made by the group.

In the context of Aaroahi's work of forest management, following connotations were used to understand the processes that led to success or otherwise of the programs.

#### **a) Attending meetings called to introduce, discuss, design and implement forestry program:**

There was a fairly good response of village people for meetings called to discuss the forest management program as a part of this documentation. The village meeting registers showed that communities with a good representation of women regularly attend Aaroahi meetings. Most of the meetings are generally attended by user groups or members of village committees. Regular monthly meetings are held in the village as well as the Aaroahi office, where there is a healthy discussion on forest management as well as other integrated development issues.

#### **b) Contributing in terms of voluntary effort (shramdan), money, or both to the program.**

Aaroahi was quite firm on such participation from the beginning. Shramdan and contribution for the remuneration was a necessary pre condition for work to be initiated in a village. In most villages, people subscribed to these conditions to start the program. Voluntary labour work continued to some extent, but sharing the costs of chowkidar's salary was a major issue at all the villages studied. In some villages families contribute a nominal amount of Rs.5-10 every month towards the Chowkidar's remuneration. However, this has not happened consistently due to two main reasons. Many families in the village are not users of the protected plot and hence have no stakes in it. Also, in almost all the villages people pay, although subsidised, a price for the minor forest produce which is mainly grass. Thus most communities are of the opinion that they would not like to pay on a regular basis for the chowkidar's remuneration, if they also have to pay for minor forest produce and instead would like to support him in times of need and distress through voluntary effort.

#### **c) Seeking new knowledge and information and sharing it with other members of the community:**

Participation also provides opportunity for learning from local people, sharing information, which can later be used effectively in planning, and implementation. Such dialogue and opportunity exists if suitable techniques are used. To achieve such participation, tools like focus group discussions, transect walks, resource mapping and games are effective and need to be used.

#### **d) Following the rules and regulations set by the community organization:**

In many villages, Aaroahi has catalysed the formation of village level forest protection committees. These committees have formulated their structure, rules and regulations. Participation of such committee members is high compared to other villages. These rules pertain to the ban on grazing, lopping and felling of trees. There are also agreements about the contributions, which would be made by the community towards

protection and plantation activities, prevention of fires and fire-fighting measures. Rules are made also about the equitable distribution of grass, leaf litter and dry wood.

**e) Abstinence from doing damage to common property resource.**

If a community participates wholeheartedly in the activities of forest management, then the level of participation is so high that collective protection of the resource becomes utmost important for community and it gradually takes the form of it's culture. This could take a consistent effort of many years or even a couple of decades for the development of strong community understanding for resource protection. The community for continuous protection asks no incentives in any form even after external intervention ends. In most of the villages even though the entire village is not actively involved in the forest conservation work, there is support in the form of abiding by the forest committee rules and people do not damage the good work that is being carried out. This can be called a form of indirect support. Aarohi will have to evolve further strategies to achieve a level where forest protection and management becomes a culture and is independent of external intervention. In some villages like Suyalgarh, Meora, Talla Tanda and Simayil, women have taken greater initiative to protect the village commons from fire hazards and external threats.

**9.2 Factors affecting people's participation**

There are many factors general and specific affecting people's participation. In the context of rural development programs, there are three of the following categories

- A. Resource specific**
- B. Community specific**
- C. Agency specific**

It is important to understand Aarohi's work in the light of the above. Therefore a brief description of these factors and practical alternatives to remove obstacles are enumerated below:

**A. Resource specific factors**

**a) Resource centrality :** If the resource is critical for the survival of the people, they would participate in programs of resource management. In Suyalgarh, Talla Tanda , Meora and Nathuakhan participation of villages concerned is very high because people are dependent on these community forest lands for their needs for fodder and fuel totally. However, in villages like Satoli, Quarab, Paiyyakholi and Bhayalgaon, participation of the community is limited, as they are not totally dependent on the protected resource area for their basic needs.

**b) Resource scarcity:** Quantity of resource available versus demand for it has a substantial effect on how the resource would be used. In Aarohi's project area serious resource depletion and over exploitation had taken place. This could be one of the major reasons for the erosion of the collective spirit. The growing scarcity fosters a free for all situation and wherever community – enforced rules have weakened or are absent, each family only looks towards its own welfare. Increasing population, expansion of agricultural activities and encroachment on the village commons has aggravated the scarcity of the resource. There is now a growing realization among some resource users, of the need to regulate the use of natural resources. In villages like Nathuakhan, Talla Tanda , Meora and Suyalgarh communities have understood the need and have taken steps in the direction of forest protection.

**c) Gestation and uncertainty:** Besides the quantity of resource available, waiting time involved for the product benefit of collective management to be enjoyed and uncertainty about the sharing of forest produce are also important determinants of people's participation in community based natural resource management. In general, the longer the waiting time and higher the degree of uncertainty, lower is the motivation of local people to participate. The people of Talla Tanda did not take up JFM since they perceived that they would now be able to get the benefits of grass and dry leaf litter for the first 4-5 years. However, they decided to team up with Aarohi probably because they could retain these rights. They started getting the benefits of dry wood and dry leaf litter immediately after the protection and formulation of rules and regulations. Similarly, in Suyalgarh, due to high accrual of benefits, sharing started early. This helped people to co-operate and participate positively in the initiative of forest management.

**d) Resource location:** Location of resource affects people's participation by making it easier or difficult for people to have access to the resource for use and management. In general, the farther the resource is located from the habitat of its user and larger the resource area, the more difficult it is for them to participate in its management. In Suyalgarh for example, the forest is about 2 km away from the village and along a steep gradient. It is also a fairly large area of about 70 hectares adjoining the neighbouring village boundaries. Thus it is difficult for the entire community to take part in emergency incidents like fire protection. In such cases, the burden and responsibility falls on the village forest protection committee members and other motivated people in the village. Satoli, Bhayalgaon and Kool are other such villages where the protected plot is located at some distance from the village habitation.

## **B. Community specific factors**

A number of socio-cultural characters including beliefs and values of the community of resource users affect their participation in such a program.

**a) Awareness :** In many situations local people do not participate simply because they are not aware of the seriousness of the problem of resource depletion and the need for intervention. They are also not aware about the actual programs, their role in the same, and about the benefits from their participation. In the case of all the villages studied a general awareness about resource depletion and need for their protection was observed. However, specific awareness about the forests, biodiversity, the role of the community, their potential in protection and the overall program is low. Low literacy and lack of relevant literature available in local language could also be one of the reasons for this low awareness.

**b) Traditional Knowledge, Values & Beliefs:** India has an ancient tradition of protecting forests and other natural resources as part of its unique culture. The values and beliefs are deep rooted in the culture and govern the attitude and behavior of community members and their perspective towards nature. In the project area of Aarohi however existence of such traditions were rare. Only in the village of Supi there is a traditionally protected sacred grove of Seim Dev with about 5 hectares of protected forest around the temple. Research on this aspect is needed. There are passing references in literature about the existence of resource conservation traditions in the Kumaon hills. It is always easier to protect the resources in today's context if people know such traditions.

### **c) User Group Specific Participation**

In a geographical area like the Kumaon hills, it is difficult to get the support of all the entire village community. The village as a unit in this region is a dispersed entity. Houses are scattered and villages are divided in the form of “toks” or small settlements of homogenous caste groups. Village common forestlands are normally managed by the nearby tok. However, each village tok may not have the specified common land near their dwelling; they have to rely upon the forests protected by other toks for their fuel wood, fodder and grass needs. Therefore only the tok managing the forest is actively involved with the program. Special efforts are required to involve people from other user tok in forest management efforts. In the villages with sufficient or large common lands, people from all the toks cooperate and observe the rules and regulations of forest management. e.g. in the village of Nathuakhan there are 4 different common lands measuring about 78 hectares. Sharing of forest resources within the village with mutual understanding is also common in all the villages. Participation is directly related to the user group’s attitudes and kinship. It is necessary to develop a systematic process for regularized resource sharing to avoid conflicts.

### **C. Agency/NGO specific factors**

Aarohi initiated work ten years ago with the objective of people – planned integrated rural development. The rationale behind involving local people in the process of development was of great significance. Continuous interaction with local people and rapport building has been on for the last 10 years. The working systems, implementation, keeping deadlines, personnel capacities and policies are major factors specific to the organisation that affect meaningful participation.

#### **a) Locus of decision-making**

It is necessary for effective participation that local people make all operational decisions regarding natural resource management in their village. Similarly there has to be a free access for the community to interact with the people of the intervening organisation. Most decisions regarding program activities are taken by the village community in open village meetings.

#### **b) Attitudes, Skills and Values of organisational personnel**

The field staff handling village level activities for forestry is fully committed and understands the community process in its proper perspective. However, skills necessary to get better participation and further sustainability of the programme need to be enhanced. Their learning ability and grasping capacity has been adequately demonstrated during this study. Due to the remoteness of the area and lack of adequate transport and communication facilities a lot of productive time is spent in just reaching the village.

### **9.3 Impact of government and other NGO interaction**

The funds involved for village development in government initiatives are very high. A lot of money is spent on entry point programs to get people’s participation in the implementation of the program. People have unfortunately created the equation of funds and participation in their minds, which is actually hampering the work of smaller voluntary organisations that have to work with limited financial resources.

It is therefore important for various organisations working in the nearby areas, to come together, interact and complement their efforts and avoid futile duplication.

## 10 Recommendations

After the documentation there were some recommendations from the team of consultants and it was also clear to us, where the future emphasis of the community forestry work should lie. There is a need now to modify the approach to some extent, and to decide the expandability and of the forest management program. This could in future enhance the sustainability of the work and make village communities more self-reliant to manage their resources.

The following are a list of recommendations :

1. Aarohi must now prepare a realistic, workable plan of action for next five years. Due to constraints in getting continuous financial support; it may be difficult to avail funds for all the activities planned. Therefore prioritization of activities should be done.
2. To further the level of participation it is necessary to concentrate on different aspects of awareness generation. Village level workshops should be held to discuss and keep the debate of forests alive. Such workshops will help to organize people and their thoughts.
3. To involve and raise the enthusiasm of the younger generation special programs like slide shows, film shows, drawing and essay competitions could be organised. This will in the long run help to inculcate a sense of responsibility and a greater sensitivity in them towards natural resources.
4. Conflict resolution should be included as part of an organisational role. To achieve sound protection of community forests, it is necessary to work in the neighboring villages that had been sharing the resources before the legal owners of the resource area started protection.
5. More research is needed on issues such as the effects of modern agriculture on the fragile mountain eco-system. Help should be sought from academic institutions and research organisations as it is difficult to carry out such projects with limited resources.
6. While starting work in a new area, a systematic base line study should be conducted. More work also needs to be done on developing hedgerows or natural fencing.
7. Different Oak species other than Banj should be tried out for lower elevations. Also species that complement each other should be planted next to each other to facilitate faster growth.
8. Comparative graphs of densities, canopy cover, basal areas etc. could be made for all the villages involved which would give a better perspective to the village communities.
9. Alternative technology should be a major focus area and should be carried out in conjunction with other afforestation activities. At the same time issues such as population control which directly impact the pressure on natural resources need to be addressed.
10. Exposure visits of the team and village communities to successful participatory natural resource management efforts in the Himalayan region will give the people the confidence to work.
11. Aarohi's team of field workers could undergo orientation training for more effective use of various tools and methodologies for community participation, documentation as well as report writing.

12. Finally it is important for any organisation working in an ever-changing scenario, to continuously monitor and evaluate their process and the impact of their work periodically for improvement.
- 13 It is important to coordinate with neighbouring organisations to strengthen efforts and seek means to collaborate with Government schemes.

## 11 Acknowledgements

We acknowledge with thanks the assistance from Winrock International, New Delhi who supported the idea of this documentation and provided the finances to conduct it. We would like to thank here the village community of the all the villages where this study was conducted, for the time they always take out for various works which may be for the greater understanding of those who are assisting them. Thanks are due to Prof. Jeet Ram of the Kumaon University, Nainital for his enthusiastic help and teaching of the methods for the ecological survey, which have been picked up by the Aarohi team; to Dr. Archana Godbole and Jayant Sarnaik of the Applied Environmental Foundation, Pune for their contribution and thoughts on the community processes. We would also like to acknowledge the sustained financial support, which we have had for the last seven years from Find Your Feet of London, which has made this effort possible. We would like to thank Mr. Kanai Lall of Chirag, who formed the nidus for change in this region 15 years ago, Rajesh Thadani who continues to guide us in our effort and Kalyan who along with Oona had been the prime source of starting this wave of greening of the Himalayas

## 12 End notes:

### List of local terms used

<i>Chowkidar</i>	Forest guard
<i>Shramdan</i>	Voluntary labour
<i>Samiti</i>	Committee
<i>Tok</i>	<i>Hamlet</i>
<i>Jaal</i>	Headload of grass ( approximately 30 kg.)
<i>Chulah</i>	Stove
<i>Sarpanch</i>	Head of the Van Panchayat
<i>Loota</i>	Haystack

### Some definitions:

**Seedling:** plant with a circumference of less than 10 cm taken at collar height (the first node). Their density indicates the regeneration pattern of the forest.

**Sapling:** plant with a circumference of between 10 – 30 cm taken at collar height (the first node) Their density indicate the regeneration pattern of the forest.

**Young tree:** plant with a circumference of between 30 – 60 cm taken at collar height (the first node)

**Tree:** definition differs for various tree species and accordingly they are called old or mature.

**Rootstock** Those plants which have been grazed or cut at either the seedling or sapling stage and have represented through underground perennial parts are considered as rootstock.

**Shrub** is defined as small woody plants generally less than 3 metres in height.

**Soil Texture:** Texture was categorized into three types viz. sand (0.02 – 0.2 mm size), silt (0.002 - 0.02 mm) and clay (less than 0.002 mm). Sandy texture of soil indicates degradation of the forest. Sandy soil has low pore space, low water retention capacity and poor nutrient status. Thus, these conditions are not suitable for the growth and development of many important late successional species especially the oaks. A greater proportion of smaller particles i.e. clay and silt are good.

**Moisture content:** In terms of soil water potential, more than 1.5 MPa (Megapascals) is good.

**Soil pH** is a measure of the acidity or alkalinity of the soil. The ideal soil should be as close to neutral or a pH of 7.0. A lesser pH value is indicative of acidic soil (found mainly in pine forests) and a greater pH is indicative of an alkaline soil. A low soil pH (more acidic) indicates low decomposition rate of organic matter. The pH range for Himalayan forests varies between 5 to 8 for different forest types.

### Soil Texture (%) and moisture content (%)

Site	Comparison Forest						Protected Forest					
	Texture				Moisture Content %	pH	Texture				Moisture Content %	pH
Coarse Sand	Fine Sand	Silt	Clay	Coarse Sand			Fine Sand	Silt	Clay			
Quarab	76.0	10.8	10.4	2.4	9.6	6.6	66.6	16.2	13.6	2.4	9.3	6.2
Simayil (Sehpani)	72.3	12.6	5.9	0.8	6.4	6.7	71.5	14.7	12.1	1.7	12.6	6.4
Simayil (Ghotigad)		do	-	-	-	-	80.3	10.5	7.6	1.6	13.2	6.2
Nathuwakhan	-	-	-	-	-	-	45.2	20.8	30.2	3.6	12.8	5.7
Satoli	63.5	18.2	16.5	1.8	16.0	5.8	62.8	21.8	12.6	2.6	11.1± 0.6	5.7
Tall Tanda	55.4	20.4	21.2	2.4	19.8	6.2	57.4	18.2	21.4	1.8	21.5± 0.5	5.7
Meora Panchayat	-	-	-	-	-	-	45.4	26.0	26.0	2.0	13.9± 1.6	5.5
Suyalgad	45.0	16.2	31.2	2.2	15.1	6.6	49.0	22.8	23.2	4.2	15.1± 0.4	6.2

### Forest category distribution in Uttarakhand

Category	Jurisdiction	Area (Ha)	% of total forest area
Reserve Forest	Forest Department	2,375,571	68.92
Civil and Soyam	Forests Revenue Department / Gram Sabha	578, 550	16.78
Van Panchayat Forests	Van Panchayats / Revenue Department	469, 326	13.63

Private, Cantonment and other	Miscellaneous	23,262	00.67
<b>Total</b>		<b>3,446,655</b>	<b>100.00</b>

**LIST OF SPECIES AND THEIR LOCAL NAMES THAT HAVE BEEN PLANTED OVER THE YEARS**

<b>Sr</b>	<b>Local Name</b>	<b>Latin Name</b>
	<b>Trees</b>	
1	Banj	<i>Quercus leucotricophora</i>
2	Padam	<i>Prunus cerasoides</i>
3	Angu	<i>Fraxinus Micrantha</i>
4	Cypress	<i>Cupressus torulosa</i>
5	Quiral	<i>Bauhinia variegata</i>
6	Kannaul	<i>Bauhinia retusa</i>
7	Deodar	<i>Cedrus deodara</i>
8	Utis	<i>Alnus nepalensis</i>
9	Thouni	<i>Robinia pseudoacacia</i>
10	Morpankhi	<i>Thuja compacta</i>
11	Kharsu	<i>Quercus semicarpifolia</i>
12	Tilonj	<i>Quercus floribunda</i>
13	Majina	<i>Salix babylonica</i>
14	Shahtoot	<i>Morus serrata</i>
15	Mehal	<i>Pyrus pashia</i>
16	Kharak	<i>Celtis australis</i>
17	Bhimal	<i>Grewia optiva</i>
18	Faniyat	<i>Quercus glauca</i>
19	Pangar	<i>Aesculus indica</i>
20	Acacia	<i>Acacia asiatica</i>
21	Kafal	<i>Myrica esculenta</i>
22	Toon	<i>Toona ciliata</i>
23	Silver Oak	<i>Grevillia robusta</i>
24	Maharukh	<i>Ailanthus spp.</i>
25	Bakain	<i>Milea azadrachta</i>
26	Mau	
27	Poplar	<i>Populus ciliata</i>
28	Jacaranda	<i>Jacaranda spp.</i>
	<b>Shrubs</b>	
1	Rambans	<i>Agave americana</i>
2	Kunj	<i>Rosa macrophylla</i>
3	Mayflower	<i>Rosa spp.</i>
4	Ghingaru	<i>Pyracantha crenulata</i>
5	Ringal	<i>Arundinaria falcata</i>
6	Didonia	<i>Didonia spp.</i>
	<b>Grass</b>	<b>English names</b>
1	Rai	<i>Perrenial Rye</i>
2	Dholni	
3	Auns	
4	Haathi ghas	<i>Hybrid Napier</i>
5	Gucchi ghas	<i>Trifolium spp.</i>

## LIST OF SPECIES FOUND IN THE FOREST

Sr. no.	Local name	Latin Name
<b>Trees</b>		
1	Chir pine	<i>Pinus roxburghii</i>
2	Aiyyar	<i>Lyonia ovalifolia</i>
3	Buransh	<i>Rhododendron arboreum</i>
4	Bains	<i>Salix alba</i>
5	Lodh	<i>Symplocos crataegoides</i>
6	Giwai	<i>Elaeganus umbellata</i>
7	Chetula	<i>Rhamnus virgata</i>
8	Kannual	<i>Bauhinia retura</i>
<b>Shrubs</b>		
1	Bhatula	<i>Andrachne cordifolia</i>
2	Darin	<i>Punica granatum</i>
3	Ghara	<i>Randia tetrasperma</i>
4	Ghari	<i>Myrsine africana</i>
5	Tung ( Ranel)	<i>Rhus parviflora</i>
6	Kuri	<i>Lantana camara</i>
7	Ghenu	<i>Vivernum cotinifolium</i>
8	Kilmora	<i>Berberis asiatica</i>
9	Pati	<i>artemisia vulgaris</i>
10	Hisalu	<i>Rubus ellipticus</i>
11	Timur	<i>Zanthoxylum alatum</i>
12	Titmolia	<i>Viburnum coreaceum</i>
13	Sakina	<i>Indigo heterantha</i>
14	Jatialu	<i>Princepia utilis</i>
15	Kairwa	<i>Asparagus racemosus</i>
16	Bhaiysia	
17	Randia	
<b>Grass/ herb</b>		
1	Bimolsia	<i>Pennesetum polystachium</i>
2	Malsa	<i>Sitavia glauca</i>
3	Siro	<i>Imperata cylindrica</i>
4	Kumeria	<i>Themeda arundinaca</i>
5	Dub	<i>Cynodon dactylon</i>
6	Babila	<i>Cymbopogan spp.</i>
7	Kans	<i>Saccharum spontaneum</i>
8	Chatkura	<i>Gallium spp.</i>
9	Silphora	<i>Bergenia ligulata</i>
10	Vach	<i>Acorus calamus</i>
11	Ratpatia	

**DETAILS OF GRASS HARVESTED FROM PROTECTED FORESTS**

<b>Year</b>	<b>Jaals *</b>	<b>Amount earned from sale of grass( in Rs)</b>	<b>Actual value of grass (Rs)</b>	<b>Families benefited</b>	<b>No. of villages benefitted</b>
1994	912	3,866	54,720	137	5
1995	1114	5,565	66,840	108	6
1996	798	8,515	47,880	149	7
1997	3289	8,829	197,340	128	7
1998	1670	6,320	100,200	123	6
1999	1506	6,046	90,360	99	6
2000	1586	8,143	95,160	141	8
2001	1887	7,057	113,220	111	5
<b>TOTAL</b>	<b>12762</b>	<b>54,341</b>	<b>765,720</b>		

\* I Jaal is approximately 30 kgs

Grass is valued at Rs. 2/- per kg

**STATUS OF VILLAGE SAMITI ACCOUNTS**

<b>Sr No</b>	<b>Name of Samiti</b>	<b>Village</b>	<b>Date of Contact</b>	<b>No. of households</b>	<b>Funds at Post Office (Rs)</b>	<b>Funds at Aarohi (Rs)</b>	<b>Total (Rs)</b>	<b>Amount Utilised</b>	<b>Purpose</b>
1	Gram Sudhar Samiti	Kool	Mar-93	86	4,404	900	5,304	2,052	Remuneration for Forest guard
2	Pragati Vikas Samiti	Quarab	Sep-93	98	2,427	425	2,852	6,500	Repair of temple
3	Chetna Vikas Samiti	Simayil	Nov-93	40	2,974	nil	2,974	2,000	Purchase of Community Vessels
4	Gram Vikas Samiti	Satoli	Feb-94	36	1,206	4,650	5,856	5,000	Purchase of Community Vessels
5	Adarsh Vikas Samiti	Suyalgarh	Feb-94	25	11,431	nil	11,431	23,981	Purchase of Community Vessels, Tents
6	Meora Van Samiti	Meora	May-99	70	403	nil	403		
7	Van Samiti	Nathuakhan	Jul-99	220	710	nil	710		
8	Van Panchayat	Talla Tanda	Dec-99	20	nil	900	900		
9	Mandir Samiti	Supi	1-May	60	nil	nil	nil		
10	Gram Vikas Samiti	Bhayalgaoan	Feb-94	60	4,866	1,650	6,516		

					<b>28,420</b>	<b>8,525</b>	<b>36,945</b>		<b>39,533</b>
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Of a total amount of Rs. 73,874 that had been collected in these accounts, Rs. 54,341 were from the sale of grass and the rest were community contributions from small village development activities like the construction of sanitary latrines, small rainwater harvestngs structure and the building of village paths.

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