

Challenges before Marginalized Hill Communities for Managing Community Forests, Status of the Village Forest Council in Uttarakhand, India

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Abstract

Uttarakhand, the recently created Himalayan state has 65 percent geographical area under forest, which has been on the rise in recent years. However, because of the lack of adequate economic incentives for conservation, the local people suffering from acute poverty are finding it increasingly difficult to conserve forests. Thus though the area under forest cover is large, much of it is under stocking density that is far lower than the potential ones. Consequently forest degradation has set in many areas, resulting in denudation of trees, thinning of stocking density and loss of soil cover and decrease in crop field yield from forest resource based agriculture.

Apart from these demands of subsistence living forest are under frequent threats due to fires, spread of invasive species and unregulated extraction of non-timber forest products (NTFPs). This degradation of forest is not only going to adversely affect the local subsistence living and water resources such as springs and streams, it can also impair the flow of ecosystem services from the mountain forest to the adjacent Gangetic plains, where more than 500 million people live.

Van Panchayats (VPs: village community forest council) were introduced in Kumaun division of Uttarakhand state in India in 1920s following agitation against British Empire's expansion of control over forest areas. The VP probably represents one of the largest experiments in common property management in collaboration with the state (both State Forest Department and State Revenue Department). It has a legal backing, and an elected body, which holds responsibility of using and managing village community forest resources. However, this form of management is functioning without any financial government support covering close to 1/3 of the total forest area of the State (about 0.5 million ha).

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The VP forests normally have carbon stocks of 200-to 280 t c /ha and from the preliminary data it is evident that they sequestered approximately 2-4 tc/ha/yr. There is a need to conserve these forests, as the noble concept of managing forest resources by the communities themselves, today is facing a serious threat as a link between forests and livelihood of marginalized village communities has not been established. At the moment in the absence of opportunities for developing linkages with livelihoods the existence of community forestry is at risk, which can contribute in combating adverse effects of climatic change. Even though at present carbon sequestration by community forests is not a recognisable strategy under Kyoto (it is liable to be recognised in Kyoto phase II) an economic incentive in the form of payment to the local communities for carbon service may till the balance in favour of forest management that values 'standing forest' from which life supporting services continue to flow. As the concern for climatic change by the international community has opened the door of carbon trading the payment for carbon saved annually by these VPs may be the first initiative for conservation. This may be linked to other business opportunities by making sustainable use of NTFPs and forest biomass for enhancing livelihood by supporting livestock and compost making for horticulture and cash crops.

Key words: Community Forestry, village communities and livelihoods

Introduction

The Himalayan region encompasses close to 600,000 km² land and extraordinarily wide ecological range from tropical to alpine forests, meadows and snow and is possibly the most important eco-region of the world after Amazonia in terms of biodiversity and ecosystem services. The region contains two biodiversity hot spots of the world and a great variety of forests that have a carbon reservoir of more than 3 G t, equal to annual increment of the atmospheric carbon pool.

Uttaranchal state of India is located in the Himalayan region from where major rivers originate and nurse the great Gangetic Plain. It is because of the down stream flow of ecosystem services from the forests of Nepal and Uttaranchal, India that the Gangetic Plain supports over five hundred million people, and has been sustaining one of the greatest agriculture systems of the world for last several hundred years (Singh et al, 2004).

The young and rising mountains of Himalaya with immature topography are extremely vulnerable to land slips and erosion in absence of forest cover. More importantly the millions of people living in the region critically depend on these forests for their

livelihood and have developed one of the largest institutions of participatory forest management i.e. “Community forestry” in the world. The village forest councils or Van Panachayat (VPs) as commonly called cover over 12,000 villages in the state encompassing close to 1/3 of the total forest area of Uttaranchal (Table 1). The capacity of these forests to meet the daily needs of local people in the region and maintain the flow of ecosystem services emanating from these diverse forests for local, regional (soil and water to the Gangetic plain) and global (carbon-sequestration) use largely depends on strengthening of this participatory managed institutions to conserve the forests by means of more effective management. Through improved forest management practices, these communities can not only produce forest products needed for their daily necessity (firewood, fodder, leaf litter etc) but also produce non-timber forest products that can be further processed and marketed to bring additional income to household.

Table1: District wise distribution of VPs in Uttaranchal covering more than 0.5 million ha

SI	District	Number of VPs	Area (in ha)
1.	Almora	2,199	69,854
2.	Nainital	496	28,068
3.	Pithoragarh	1,661	87,054
4.	Champawat	629	31,233
5.	Bageshwar	822	38,783
6.	Pauri Garhwal	2,430	52,184
7.	Chamoli	1,073	1,67,310
8.	Rudraprayag	574	20,702
9.	Uttarkashi	643	5,510
10.	Dehradun	205	7,659
11	Tehri Garhwal	1,332	14,932
	Total	12,064	5,23,289

Note: Haridwar and Udham Singh Nagar districts does not have any VPs

Source: Uttaranchal Forests Department, July, 2005

The village communities in Uttaranchal, consist of small land holders (generally less than 1 ha. per household of 5-6 person) who depend critically on community forests for subsistence living. Around 90% of their crop fields are rain-fed with food grain yield sufficient only to fulfill their need for 6-7 months in a year, situated far away from markets, people in these villages have less financial resources to undertake plantations and develop enterprises. Almost nothing has been done to provide trainings on silvicultural practices to manage community forests on sustainable basis. Though the forest cover of Uttaranchal is above 40%, the threat of degrading forces continues to be high largely because of poverty of

the people and lack of any alternative strategies for development. Forest stands in general, have lower biomass and productivity than their potentials (Singh & Singh, 1992), many species are failing to regenerate (e.g., *Quercus semecarpifolia*) and several forest stands consist of denuded trees because of excessive lopping, livestock grazing, frequent fires, poaching, and the spread of invasive/exotic plant species.

Status of Van Panchayats (VPs) or Village Forest Councils

Van Panchayats were introduced to Kumaun in 1920's following agitation against British expansion of control over forest areas. The landmark Van Panchayat Act 1931 handed over control of designated Community forests to elected VP members in place of the State Forest Department (SFD).

The Van Panchayat probably represents one of the largest experiments in common property management by village communities in collaboration with the state. It has a legal backing, and has an elected body of 5-9 members, called Van Panchayat council (forest village council) which is assigned the task of managing village forest resources. The administrative control is with the state revenue department, and the state forest department provides technical support. The ownership of these VP forests is with the government and the areas are assigned to the communities for management. The useful products and revenue generated which is generally very meager is used by the communities through benefit sharing mechanism as per the rules (Singh et. al., 2003).

These community forest of Uttaranchal covering close to 1/3 of the total forest area of the state (about 0.5 million ha) represents an appropriate example of an institution involved in "prevention of deforestation". Much of the biomass extracted is in the form of lopping of twigs of trees and collection of herbs and ground litter. As a result the complete loss of stock does not occur even though the forest may degrade over time because of incessant and unsustainable removal of the biomass in the absence of any healing measures. These are evidences to indicate that where VPs have been able to take initiatives, they have realized sustainable forest use to meet the community needs of firewood, fodder and litter for manuring crop fields and NTFP's (Singh et. al., 2004). Clearly the community forests are playing a vital role in c-sequestration. To quote an example in an area of 2865 ha outside community forests, (Rathore et. al., 1997) found depletion in carbon stock of biomass at the rate of about 5 t yr⁻¹ over a period of 16 years.

It is however, ironical that these VP's function without any outside financial support. Some of them even become dysfunctional because of lack of any motivation for conservation or where the area is inadequate to meet the peoples demand. In the present day scenario when the world is faced with the problem of increasing CO₂ levels in the atmosphere and expected climate change, the importance of these community managed forests covering an extensive area in Uttaranchal state is immense. This form of management represents a kind of empowerment to the people and people's participatory role in the functioning of the nation. It should be promoted and protected.

Linking Forest Conservation to Livelihood issues of the communities

Addressing economic issues serve as a strong motivation force for conservation among local forest communities. When local communities secure economic and managerial control over their natural resources and have access to necessary information, technical and marketing support, they have the incentive to work actively towards long term conservation of these common property resources. Thus, livelihoods linked management of common property resources i.e. VPs would be the suitable approach for the hill communities in Uttaranchal, traditionally an agrarian society, that largely depends on forests for their agricultural practices.

Ecosystem Services (ESs)

Ecosystem services (ESs) can be defined as service generated as a consequence of interaction and exchange between biotic and abiotic components of an ecosystem (Singh 2004).

Ecosystem services are always in flow they were flowing even when there were no humans on the earth. However, their use and valuation depends on humans living both inside and outside the ecosystems. Because of the river connections the ESs flowing from Uttaranchal have played a major role in shaping the rise of culture in the Great Gangetic plains (GP), at present inhabited by about 500 million people. The ecosystem services emanating from the forests of Uttaranchal are approximately worth 2.4 billion dollars/yr (Singh et al, 2004).

Payment for the measurable ESs emanating from the community-managed forest can be an economic motivation for the communities. The apex planning body at Government of India, the Planning Commission's Mid Term Assessment has endorsed the efforts being made by Uttaranchal state for management of its environment (Box1).

Box 1: The Mid Term Assessment (MTA) of Planning Commission of Government of India has following views on Environment sustainability, which has a reference to the Additional Memorandum, submitted by Uttarakhand Government. This following is reproduction of some of the sections from a monograph written by the then Chief Secretary Uttarakhand, (August, 2005):

"Environment sustainability is not an option but an imperative. Clean air, pure water conservation of forest and wild life and generation of greenery are the essential for a healthy environment. Preservation of degradation of land, controlling floods and droughts, preventing desertification, conservation of fragile eco- system, prevention of deforestation, conserving bio- diversity and mitigating water and air pollution all present challenges for planners and policy makers. " (MTA, page 427). Echoing the same sentiments government of Uttarakhand pleaded for recognition of these " eco system services " rendered by forests and reflect them in national accounting system. In its additional memorandum to the Twelfth Finance Commission (TFC) Uttarakhand government pleaded for grants for "maintenance forests" and the TFC has acknowledged the same by providing a sum of Rs. 1,000.00 crores (for a period of 2006-2010) under the head "maintenance of forests", Uttarakhand receiving a sum of Rs 35.00 crores, on pro-rata basis. Uttarakhand took a lead in this respect and is perhaps the only state, which has propounded the concept of eco- system services before the Twelfth Finance Commission, Government of India as well as Planning Commission of India.

Of the several ecosystem services, the most talked about is carbon sequestration by forests because of the threats of expected global climate change. That is why carbon credits have become an acceptable way for making payment for preventing deforestation and developing new carbon sinks (see Kyoto protocol). In Kyoto Protocol, afforestation and reforestation are eligible for C credits, but C-Pool size and c-sequestration by Community managed forest has been neglected (likely to be accepted in coming years). But it is essential to point out that what matters is C pool size, not the rate which c cycles through this pool (Steffen et al 1993). The slow refilling (through raising plantations) of c gap created by previous logging is a small counter weight to the release of C by ongoing logging with regard to efficiency, a dollar's "C value" per unit of preventing forest clearing would be for greater than the gains from a dollar invested in raising a plantation (Korner, 2001).

However, before an advocacy for the inclusion of community forestry under Kyoto is made at the international level it was essential to collect data from community managed forests in different countries on c-sequestration. The basic question was do community forests act as c-sink or as net releasers of c. To answer this question multi national project Kyoto: Think Global, Act Local was taken up in 5 countries under the leadership of the University of Twente, The Netherlands. The two-year data on c- sequestration collected from 3 VPs in Uttaranchal having eight forest strata clearly indicate that the community managed forests sequester carbon (Table 2). The mean rates of sequestration across different stratas in these VPs is $3.9 \text{ t c ha}^{-1} \text{ yr}^{-1}$

Table 2 C in forest biomass (aboveground + belowground), and C-sequestration rates in different forest strata in 3 VPs (Dhaili, Toli and Guna) collected over a 2 year period. B₁ is C in 1st year, B₂ C in 2nd year and ΔC carbon sequestered.

Dhaili forest strata	Carbon mass (t ha^{-1})		C sequestration rate ($\text{t c ha}^{-1} \text{ yr}^{-1}$)
	B ₁ (t ha^{-1})	B ₂ (t ha^{-1})	ΔC
Even aged banj oak forest	172.1	176.5	4.4
Dense mixed banj oak forest	255.7	260.2	4.5
Mixed banj oak chir pine degraded	18.8	20.8	2.0
Toli forest strata			
Young banj oak with chir pine forest	156.9	161.2	4.3
Chir pine forest with bushy banj oak	58.9	62.4	3.5
Young pure chir pine forest	69.5	74.0	4.5
Guna Forest Strata			
Young pure chir pine forest	10.3	14.1	3.8
Mixed banj oak forest	154.0	158.4	4.4
Mean c- sequestration rate			$3.9 \text{ t c ha}^{-1} \text{ yr}^{-1}$

C-trade and Mechanism of Payment

The C-credits are already operational in some parts of the world. Carbon is a commodity, which can be traded at national and international levels with no cost of

transportation and quality control. The rates of carbon generally vary between 10 to 13 dollar/t (Singh et al, 2004). The community forests of Uttaranchal covering close to 0.7 million ha sequester close to 2.7 M t C yr⁻¹ valuing close to 35.1 million US dollar at the rate of US\$ 13 per t c.

It is not possible to conserve these forests for long without enabling the poor people to have access to modern, efficient energy sources who depend heavily on firewood as a source of cooking energy. There is a need to replace the present subsidy of firewood by providing subsidy on modern energy sources such as LPG, electricity in lieu of income earned by community forest through carbon trade. This is essential as transfer of funds cannot be to the communities directly but to the federal or state governments. This would enable them to save the carbon sinks of Uttaranchal. The extent of subsidy for enabling people to have excess to the modern energy sources can be worked out.

Non-Timber Forest Products (NTFP's) based enterprise

However, as carbon sale (as and when c-sequestration by community managed forest get recognition under Kyoto) alone may not be able to fully alleviate poverty, improve livelihood, and help forest conservation on a sustainable basis it is essential to explore and exploit other NTFPs on a sustainable basis from community forests. The need is to progress towards a 'fully valuation of the forest goods and services and to make the rural community aware of the same. Experiences show that alternative livelihood based on sustainable harvesting of NTFPs by community enterprise raises the economic value of the forests for the local people and provides incentives for conservation.

It is essential to expose the communities to various alternative natural resource based enterprise as a single enterprise runs the risk of not achieving enterprise viability. The various NTFP enterprise that can be promoted in the community forests of Uttaranchal include.

Oak tasar enterprise

Oak tasar production activity uses oak leaves (*Quercus semecarpifolia*, *Quercus floribunda* and *Quercus serrata*) as food for the silkworms during rearing stages. In this enterprise sustainable harvest of oak leaves has to be assured. The returns to the communities in this enterprise are assured as Himalayan silk is already being marketed both in India and abroad.

Beekeeping and Honey Production

In ecological terms, bees serve as efficient pollination agents. This results in better seed production in forests and pastures, which contributes to better regeneration. The conservation approach of the communities towards blossoming trees/plants increases, which directly and indirectly leads to forest conservation.

Collection processing and marketing of medicinal and aromatic plants

There has been considerable unsustainable harvesting of aromatic and medicinal plants in the entire Indian Himalaya and many species have been lost due to commercial gain by middleman and traders. In spite of having tremendous potential education to the communities in sustainable harvesting, value addition, processing and direct marketing can boost the conservation drive.

An Agenda for Action

There are various other NTFP based enterprise that can be promoted for poverty alleviation in the entire Himalayan range depending on the dominant species, elevation etc. But it is evidently clear that for promotion of forest conservation it is absolutely essential to link it with the economic development. People will conserve forests only when their livelihood depends on them. However, before we venture into such as approach it is essential to train the communities in sustainable harvest of NTFPs and build their capacity through workshops and trainings to actually measure and market carbon. The communities need to be informed about the forest policy issues particularly the policies that exist to protect and benefit them.

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