A Critical Assessment of Scientific and Political Dimensions of the Issue of Community Forests Inventory in Nepal: A Policy Discussion Note[1]

June 2002

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Introduction

A recently enforced forest inventory directive has been a contentious issue in Nepal's community forestry. This note explores the science and politics that lie behind this issue. It is argued that properly addressing this issue necessitates adopting a scientific approach for resource inventory that is compatible with local knowledge system, while at the same time achieving the desirable level of precision, and separating 'service' from 'regulatory functions' of Department of Forest (DOF).

The purpose of this note is to further facilitate discussions by highlighting the science and politics of that lie behind the inventory intervention. In particular, it aims to facilitate debate on the following key questions so that this will feed into a more comprehensive, pragmatic policy instrument in future:

- In which political and institutional context this policy intervention has emerged?
- What are the limitations of the scientific basis of this intervention?
- How are different stakeholders responding to and interacting around the issue?

The analysis goes beyond the technical assessment, and encompass a set of complex issues including: a) the legal roots, b) the inherent politics, c) underlying science, and d) the perceptions of those who are responsible to implement the policy instrument. In this paper, I first lay out the legal genesis of the inventory issue, and summarize the ground level impacts. This will be followed by a review of responses made by various groups of stakeholders to cope with or resist the situation. I then examine the flaws and impracticalities of the scientific approach that underlie the intervention. Reasons for the contested scientific approach and impractical legal arrangements are then explicated on the very political context in which they were crafted. All this forms the basis of my conclusion that the inventory science is not politically neutral, and therefore the policy relating to it should be viewed in terms of the broader political and institutional contexts in which the inventory policy is to be applied.

The Inventory As a Policy Issue

In March 2000, Ministry of Forests and Soil Conservation (MFSC) issued a circular to all DFOs as well as FUGs to undertake a detailed inventory of community forest while prescribing harvest levels of forest products. The idea was to ensure sustainable harvesting by limiting the extraction within annual increment. In line with this, Department of Forest (DOF) issued a directive for the inventory of community forest in August 2000 to provide practical guidelines to field foresters and rangers for the assessment of growing stock and increment. It is mandatory for DFOs and rangers to follow these directives while handing over a forest to community or renewing the operational plan.

Before the forest act 1993 and forest rules 1995 were put into effect, a single document called operational plan, that specified both the constitutional and operational aspects, was used as a basis for the hand over of forests to communities. After the new forest act, the two sets of issues (constitutional issues related to the group and operational issues related to the forest management) were disaggregated, and put in two different documents: a) FUG constitution, and b) forest operational plan. Once the constitution is prepared and a FUG registered with the DFO, operational plan is prepared with detailed inventory of forest, which forms the basis of forest hand over. After this adjustment, the current policy instrument regarding forest inventory is one step ahead in drawing out policy measures for addressing the issue of sustainability.

While the inventory policy intervention was actually a result of widespread concern for sustainability of community forest management, there are however debates as regards the real impacts of these on the process

[1] I would like to acknowledge comments from Dr B K Pokharel, Naya Sharma, Krishna Paudel, Hari Luintel and Devendra Adhikari. To keep the paper short, I have avoided references, data and the contents of the inventory guideline itself. Anyone interested may consult the author for sources of additional information.

and development of community forestry. Some of the positive aspects of this include: initiation of debates and discussions on more intensive management of forests, sensitization of forest rangers and foresters on the need for more in-depth and dynamic knowledge to support community forestry, and transfer of professional knowledge to forest users through trainings.

Despite such positive changes, several fundamental problems and issues have emerged. Since implementing this directive entailed a need for significant amount of extra efforts, knowledge, and skills on the part of forest users and rangers, the process of hand over of many new community forests is delayed or even halted. On an average, there are only a couple of forest rangers in a district who can skillfully provide technical support needed to conduct the inventory. I have encountered community people who expressed their disgust over delay in forest hand over. Likewise, the renewal of expiring operational plans has been delayed, which implies a suspension of FUG use rights and management interventions. In many cases, since the government has not made provisions for alternative ways of delivering services to forest users in this regard (such as through private and NGO sector), the communities have been forced to pay rents or charges for speedy resolution. All these have weakened the hard earned trust between the government and communities, leading ultimately to far-reaching consequences both in terms of sustainable forest management and community livelihoods.

Divergent responses

There are two contrasting views on the current inventory policy instrument. Several NGOs and Federation of Community Forestry Users, Nepal (FECOFUN) activists consider the guideline as an extension of forest bureaucracy to communities in another form. They see it in the context of long struggle between local people and the forestry authority in sharing rights over the forest. In their opinion, as a result of the guideline, rangers and DFOs have got new tricks to play with FUGs for power, which will enable them to seek rents, in addition to delaying the process of CF development.

On the contrary, many DFOs and forest rangers consider this as a necessary requirement. What they think lacking is the adequate allowances and facilities, which they seek from government and/or FUG budgets. Most of the foresters who believe in the application of scientific traditional forestry as an approach to managing community forests see this intervention as an opportunity for them to actually apply the tenets of forestry.

Bilateral forestry projects, which continue to remain a strong institution in Nepal's forestry sector, have shown a different response, which is neither critical nor fully supportive. They have tried to engage in massive training process to enhance the capacity of rangers, NGOs, forest guards and users in doing forest inventory through a range of methods and tools. These initiatives to some extent recognize both technical and institutional aspects as being crucial for sustainable forest management. However, even in the areas supported intensively by these projects, the scenario is not much different as there is a great backlog of operational plans waiting for hand over or renewal.

A fourth type of response, such as the one by this paper, involves limited groups of people and institutions, who view resource inventory as both a technical and political process, and in order to achieve the intended technical and political goals, we need to facilitate better understanding of these two facets of the issue among the stakeholders so that they can negotiate options that address institutional, political, economic and technical issues of sustainable forest management. An increasing number of government foresters who believe in the devolution of authority to local forest user groups also share this view, and contends that the current policy instrument has to be further simplified for speedy implementation. They even recognize the need to invite service providers outside of DOF in facilitating the sustainable forest management.

The Limitations of Current Inventory Approach

The current approach and practice of resource inventory has several limitations, which are as follows:

First, this fails to build on changing paradigms of ecological sciences, which consider human beings as part of larger ecosystem. This means that the science of inventory is understood in a narrow sense of analyzing resource attributes isolating inextricably linked human perceptions, knowledge and actions. This means that an emphasis is put on assessing resource situation from outsider's perspective, ignoring the way local people understand and respond to the ecological issues. Simply because of the approach of science we have emphasized, we are not making use of the vast amount of knowledge that has emerged and sustained through local knowledge system.

Second, the scientific element that underpins the principle and practice of forest inventory as stipulated in the guidelines to collect too much data, spending a lot of time and resources, leading to a significant delay in decisions and actions. This ignores the strengths of adaptive management, which encourage learning by doing even in complex situations. In the recent advances of adaptive management, there are more conscious ways to maximize learnings through integrating monitoring systems with action plans, thus making it possible to move

under conditions of uncertainty. The current inventory science involves using a huge amount of efforts at the beginning, while also allowing limited opportunities for incorporating learnings during the process.

The level of precision needed in knowing the direction and speed of a landing plane is not same for a FUG trying to estimate how much fuel wood it should expect next year from the community forest. Forest users would not be prepared to invest a tremendous amount of effort to elevate the precision of firewood estimation from quintal to kg. Also, it is important to know how essential for them to know beforehand such a detailed strategy. They would rather prefer to distribute among themselves whatever amount would accrue at the time of harvesting, using spatial control approach to sustainable harvesting, and the time thus saved would be used in farming or earning wages. This does not mean a denial of science in forest management, but seeks to raise a question as regards which approach to science we should take while suggesting the standards and procedures of resource analysis to forest users.

In many interactions and gatherings, I have heard forest technicians complaining over the inadequate sampling intensity of the research. It seems they want to be too sure to their conclusion by having a large sample even though that meant a tremendous delay in decision and action. They fail to recognize that sampling varies with the variance of the parameter being measured, and the expected level of precision. Irrespective of the research question (which indicates variance) and the management context in which decisions are made (which indicates the degree of certainty anticipated), they emphasize higher sampling intensity. I would ask: if you are entering for the first time on earth from the moon, and want to find out the number of legs of 6 billion human population on the earth, how many persons you would take as a sample? Obviously one, and if you want to be extra sure by avoiding random selection of accident-hit people with one or no legs, you may take 2 or 3 persons.

Third, the current focus of the inventory is on assessing the stock and increment of timber products, and there are limited techniques recommended to assess a wide range of non-timber forest products that are available in community forests. Most of the inventory data are quantitative, and no qualitative insights are collected as part of developing wisdom for forest management. A mechanistic and quantitative technique suggested in the guideline does not allow villagers' common sense to get incorporated into the analysis process. This creates limited understanding and ownership on the part of forest users, even though there is a huge supply of external scientific services. I encountered a FUG secretary in Dolakha district, who told me that, after finishing the field inventory and calculation by a forest ranger, none of the local members could believe at the figure of Chiraito stock that was estimated by the ranger. In this situation, neither the ranger's technique of inventory can persuade the users how the estimation came, nor the latter challenge ranger's analytical scheme. The result is that there is a scientific inventory, with limited insights and uses to local people.

Fourth, the approach is highly generic, and fails to address specific contextual issues. In one instance, I observed a ranger suggesting a thinning formula to forest users: 'measure the girth, multiply by sixteen and measure that distance between the two trees; this would give the distance between the trees to be retained'. This is basically a generic rule of thinning that he has learnt, and I argue that if he gives this training to all forest users, and if they also apply the same formula, all community forests of Nepal would look perfectly similar after some years, irrespective of species, community needs and environmental conditions. My proposition is that we as technical foresters should not impose our generic and abstract conceptions in the specific contexts that vary across time and space. Instead, the guideline could have provided some strategies through which foresters and forest users could learn together what works and what not in specific contexts.

Fifth issue is related to the understanding of sustainability, which is taken in the narrow technical sense. Building on this assumption, the current policy instrument specifies the technical arrangements of resource use, which essentially interferes with users' independent decision on the harvesting levels. Political scientists regard this as a process of limiting 'constitutive choice' of FUGs, which will lead to limited motivation and enthusiasm on sustainable forest management. In other words, if a FUG feels bad or gets discouraged through a technically sound guideline, the institutional base of sustainable forest management is ruined, and the outcomes may sometimes be counter-productive. It is essential that sustainable forest management should be understood in terms of the interactions of social, economic, political and ecological systems.

Sixth, the policy has legitimized a knowledge system that is not owned by or accessible to large number of users, who are supposed to participate in forest management decisions as well-informed resource managers. This has put many users in difficult position in terms of participation in the decision-making as informed resource managers. This means that mandating extra technicality in the FUG system involves cost in terms of participation, particularly of those who are illiterate, poor and disadvantaged. If this is the result, then the policy instrument may go counter to the community forestry goal of equitable livelihoods.

Seventh, current inventory approach necessitates several supportive quantitative research data such as biomass tables, growth rate, and several others, which are hardly available for all important species in many different

bio-physical contexts. This lack of supportive information base is a critically limiting factor of the current approach to resource assessment.

In summary, the externally imposed, detail-oriented, quantitative science that is behind the inventory guideline is neither useful nor desirable for community forest management, and it only serves the hidden political interests of powerful bureaucratic and professional elites. Introduction of this type inventory obligations to FUGs widens the power gap that already exists between the forest bureaucrats and users. Since the inventory has been set as a pre-condition for forest hand over, and that the service is delivered only through the government staff who are limited in number to provide services, many FUGs/communities are desperately waiting for service. This compels FUG to be loyal to and comply with any conditions set by the staff.

The political dimensions

With the expansion of community forestry, there has been a growing concern for sustainability of resource system. This came particularly within the MFSC circles, in view of a very few extreme cases in which excessive harvesting was reported. In the mean time, struggles between the advocates of people-oriented forestry and those who wanted to retain technocratic role of government was in peak. This was co-incident with the more anti-community forestry bureaucrats in power. These conditions together led to a technocratic response to sustainability issue, and the MFSC order and the inventory guideline were a result. This also indicates that there was limited room for the FUGs and other stakeholders to express their views and concerns at the time of making such policy decisions.

It seems that government has always remained worried on the over harvesting, which according to its assumption, is due to the lack of technical management. This was equated with the lack of technical knowledge among the forest users, although there have been substantial evidences of rich ecological knowledge and indigenous management practices among forest users. The guideline has failed to build on these knowledge systems, and has sought to transfer formal technical knowledge, which is based on inadequate understanding of the institutional and political contexts.

On the other side, the claim of forest bureaucracy as regards having technical knowledge on forestry is loosing its foundation. One of the reasons for this is that there are very few cases in which government foresters have got opportunities to apply and nurture their knowledge systems. Except plantation forestry in Sagarnath, there are very few cases of government-initiated scientific forestry practices in natural forest. At worst, many forest technicians and officials who have professional degrees of forest management from national and Western Universities are hardly in a position to offer the kinds of technical advice that forest users demand for. Most of their time is spent on judicial, administration and managerial job, with little chance of practicing a specialist job of forestry.

There is yet a small force of government foresters who have attempted to maintain their technical expertise and would like to offer the technical services to complement the local knowledge but working environment is such that these types of professionals are disempowered, and are positioned in such areas where they get frustrated and are leaving the jobs. There are some who have knowledge and commitment and are trying to bridge the local and scientific knowledge that professionals and villagers hold, through informal strategic alliances across government, NGOs and communities.

This implies that government should look at its own service providing capacity before embarking on any policy intervention. The issue of sustainable harvesting is not limited to technical knowledge, but is influenced more by institutional and political factors within which both FUG and forest technicians operate. The very foundation of this intervention does not clearly articulate with the prevailing institutional and political contexts, and despite good intentions, this may result in unintended consequences.

Since the inventory guideline ignores the full application of participatory wisdom, this creates higher differences in power between the government forestry staff and local people. Within community, there are differences in power and position in terms of class, caste, gender, ethnicity, education and age, the possible alliance between government officials and local power elites may result in the use of science to reinforce their power by denying the access to resources that poor people (who have no private trees) need from community forests. The lack of committed people within and outside government and community organizations, and competent and politically committed service providing agencies and individuals, who could challenge the power of both government officials and the local power elites further exacerbate the situation. In some cases these type of intervention by which local power elites will be trained, legitimizes their power and authority together with the addition power of 'formal knowledge' as human capital. They in most cases have monopolized the power and knowledge. It is however not to say that all local power elites are bad. There are numerous examples that 'good leadership' has contributed to positive outcomes at resource and livelihoods level. The discussion presented above clearly indicates that any policy intervention option has to be analyzed from political perspective. Not all concerned

benefit equally, and the cost is not so distributed either. Although science could be neutral, the application of it cannot be neutral, and so are its outcomes.

The policy framework of 'inventory' is not comprehensive, and fails to work out strategies of delivering services needed to implement the more rigorous procedure of resource assessment. While the guideline specified the kind of procedure to be followed for an inventory, it was not put clearly in the context of existing capacities of DOF, thus ignoring the need to set out policies that would address the service supply side. While it was clear that this would require tremendous amount of technical support, which is beyond the prevailing supply capacity of DOF, there was no policy to encourage service delivery from the NGO or private sector. This left DOF as the monopolist in the delivery of technical services, which not only limited choices to people for competitive services, but also led to non-availability of services and reinforcement of bureaucratic power discouraging and patronizing forest user groups who are legally independent of DOF.

Since complying with this requirement involves a huge amount of efforts on the part of FUGs as well as the service provider. In many cases, since there is no adequate budget at DOF, rangers have openly sought consultancy fee from FUGs, which some times is many times larger than waht FUG can afford. The monopoly of power, knowledge and service provisioning with forest bureaucracy has created conditions for exploitation of people through rent seeking.

An argument for the massive training to FUG representatives to transfer the capacity of doing professional inventory is also not a viable approach. Although there are evidences of some educated community members learning to practice this external scientific technique through training, this does not mean that larger public has gained a capacity to get engaged in informed participation in the forest management debate. This will elevate a few community elites to a position in which forestry professionals can work and communicate with, but this raises a question of participation of all the poor and marginalized members of the community. In this sense, the current science of inventory undermines the very essence of participatory democracy within FUG.

In summary, the policy intervention has a possible impact of reinforcing the alliance of two sets of power elites, one in the government organization and the other at community organizations. The unintended effect is that it serves the unstated interests of powerful bureaucratic, professional elites, and community level power elites, leading to weakened institutional base for the sustainable forest management, and livelihoods of the poor and marginalized groups of people in the community. .

A Perspective and structure for further debates

To address this issue, a new perspective in both the science and politics is needed, that would carefully balance knowledge and power. This will only resonate, in true sense, with the concept of devolution and decentralization of natural resource management. Possible strategies in this line include:

- Analyse who benefit and lose the most from the intervention taking the composition of bio-physical and social elements into account.
- propose a scientific strategy that is compatible with the political and social context that favours the poor and disadvantaged groups of people and recognise their local experience and knowledge
- recognise adaptive approach to forest management that emphasize learning by doing through conscious action and monitoring, rather than seeking a costly precision and certainty in terms of time and resources
- review the current role of Forest Department in the light of escalating service demands of communities, and separate the service providing function from the greater monitoring role of the DOF and provide better political spaces to private sector and civil society in delivering scientific services to communities
- allow flexibility in the guideline to address context specific situations such as in terms of ecological region, management objectives (commercial vs subsistence)
- recognize policy as an experiment and try a range of options at small scale before going to national level scale

Since imposing a policy instrument on forest inventory in community forestry is a highly political issue, implying a potential change in power, positions and interests of stakeholders involved, an adaptive collaborative approach of change is recommended in which all concerned, including the representatives of the communities themselves, engage in a process of effective communication, negotiation, collaboration, and even conflicts so that they would be able to arrive at negotiated visions, strategies and policy instruments that better address the issues and opportunities. The debate should take place in all aspects of the issue – technical, political, institutional, service delivery, and economic. A framework for furthering the debate is presented in the diagram below.

Dimensions and questions related to the issue of community forest inventory: A framework for policy debate