

Towards Active Utilisation of Community Forestry: Silvo-Institutional Model for Sustainable Forest Management in Nepal

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Abstract

This paper explains what we term the ‘silvo-institutional model’ for a more productive, sustainable and equitable management of community forests in Nepal. The paper draws on four years of action research in six research sites of Kavre and Lamjung districts, complemented by the review of silviculture-based forest management by Nepal government in various parts of the country. The findings indicate that first, early silviculture-based forest management initiatives have failed because they did not adequately considered the policy and institutional dimensions. Second, current initiatives, while looked promising for the active utilisation of community forests, have faced with complex regulatory and institutional barriers. We argue that a new ‘silvo-institutional model’ which combines technological and institutional dimensions, has a potential to increase the prospect of successful implementation of silvicultural-based forest management.

Keywords: Community forestry, institutions, management, policies, silvo-institutional model

1. Introduction

Underutilisation of community forests (CFs) has been widely documented in Nepal, despite growing need for timber and other forestry products in the time of earthquake recovery and reconstruction. In Nepal, with about 45% of forest in the country, it’s strongly argued that forest has potential to contribute to local livelihoods and national economy. However, studies have shown that Nepal’s forests have not provided economic benefits to its full potential (Subedi *et al.*, 2014). The central reason is that there is little or no management of these forests (Paudel *et al.*, 2014; Subedi, 2012; Yadav *et al.*, 2008; Springate-Beginski *et al.*, 2003). The question is then why these forests remain not actively managed, what are the causes and consequences and how these forests can be better managed. The paper explains one of the attempts we made as part of an action research project¹ which tested what we term ‘silvo-institutional model’ as a potential strategy to catalyse active management of community forests in the hills of Nepal.

¹ The project is implemented in Kavre and Lamjung districts with an objective to enhance the livelihood and food security through community forestry and agroforestry in Nepal.

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The Nepal government has in the past made several attempts to manage its forests through employing silviculture based interventions. However, most of these initiatives were either not implemented at all, or when implemented, failed to achieve stated objectives mainly because of weak political will, low institutional capacity and poor governance. Currently, the government is piloting an initiative within the brand of “scientific forestry”. Although the government is keen to scale out the piloting program, there are serious oppositions to scientific forestry on the grounds of inadequate consideration of institutional aspects. Therefore, it is important to analyse the previous efforts as well as review the current initiatives so as to identify and understand key issues, explore possible solutions to these issues and support active forest management through silviculture based sustainable forest management practices for materialising economic potential along with social and environmental benefits.

This paper investigates key governance and institutional elements of silviculture based forest management practices in Nepal’s community forestry. In so doing, it will seek to answer the following questions surrounding silvicultural interventions in community forestry. Before presenting the silvo-institutional model, we review past attempts of active forest management in Nepal. We then analyse the challenges of active forest management in the two case study districts. Then we will analyse the cases to present the silvo-institutional model in our discussion and conclusion.

2. Quest for Active Forest Management: A Historical Overview

Despite 45% of the country’s area under forests, the contribution of the forest sector has remained much less than the potential in Nepal (Malla *et al.*, 2003). As a result, the national discourse has now switched towards active forest management through developing and scaling out silviculture innovations. Several attempts for active forest management have been made. These have stimulated interesting debates in scientific forest management, though outcomes on the ground have remained limited. A case from the Bara forest piloting attempts by Enso, a Finish company in 1996 reveals some interesting insights. The piloting was meant to introduce modern sustainable forest management in Nepal and boost local and national economy. However, it triggered widespread opposition. Federation of Community Forestry Users Nepal (FECOFUN) and many civil society organisations launched protest campaigns across the country against the pilot project arguing that the project would convert the natural Sal forests into a barren land due to poor regeneration plan. The protesters also argued that the pilot failed to recognise the interdependencies of local communities, local livelihoods and forests. When a stakeholder consultation was conducted, it appeared that Community-Based Organisations (CSOs) and many local political representatives were against bringing the foreign company to manage forests. The forest officials in Kathmandu were divided as some maintained that rather the government should manage the forest, not a foreign company. Finally, the pilot project ended as Enso gave up the project (A memo from Finish Embassy in Kathmandu).

Operational Forest Management Plan (OFMP) proposed for 17 Terai districts in 1996 is another case of failure in an attempt to manage the forest more actively. While, these were good technical plans to manage the Terai forests, these plans remained only in the paper. They did not go ahead due to the lack of adequate financial resources to implement the plan, together with problems coming from the opposition of local communities and lack of political will from the government. Little engagement with local communities and stakeholders resulted

in a widespread opposition from FEOCFUN and CSOs. Many District Forest Offices (DFOs) were not aware of the plans which were prepared by the project's hired consultants. DFOs were largely excluded in the process. Consequently, DFOs were not sure about technical as well as administrative and financial details of the plans. Therefore DFOs were not prepared to implement the plan. Technical quality of the plans seemed to be poor, while DFO's capacity to implement the plan remained weak. Most importantly, there was lack of financial resources needed to implement the plan. Neither the donor who supported the planning process, nor the Nepal government provided funding or commitment to implement the program at a larger scale. Consequently, these plans remained only in paper.

Another interesting example is the Sagarnath Forestry Development Project, which covered about 10,000 ha of prime Sal forest in Nepal's eastern Terai region, initially started with support from Asian Development Bank (ADB) and the Organisation of Petroleum Exporting Countries (OPEC) in 1978. The project shows challenges with governance and institutional aspects of active forest management in Nepal. The project was intended to increase supply of fuelwood to Kathmandu (other major cities) in the context of serious fuelwood crisis of the 1970s. Unfortunately, the project could not go as planned due to three reasons. First, it was driven by outsiders' ideas, funding and technology. As a result, it had no local ownership of the project. Secondly, Sagarnath Forest Development Board – a semi government entity – was supposed to function independently outside the everyday government functioning. However, it was highly politicised because of the overt influences of politicians and senior bureaucrats in the strategies and functioning of the project. Third, over 3,000 ha of the plantation area was encroached by the landless people and the management of land conflict was a chronic political challenge in this project and beyond, across the Terai.

Based on the above analyses, it is clear that most of these initiatives were promoted by high profile international agencies, had purely driven by so-called 'objective science', and had sophisticated technical plans. However, these initiatives failed to give due attention required to anticipate, recognise and address governance and institutional aspects, which undermined the objective of those initiatives. Engagement with local actors remained limited, while it is most critical. In most cases, programmes could not garner needed local support and in some cases these even faced severe opposition. Protest of FEOCFUN in Bara case is in point where there was lack of local support in Sagarnath and the absence of political will and institutional capacity of the Department of Forest (DoF) undermined the implementation of those initiatives. The failures of these initiatives provide a strong rationale for the exploration of innovative approach to silviculture-based forest management that integrates technical assessment and planning with institutional process in practice.

The cases of passive forest management operations in the six research sites reveal deeply rooted institutional challenges to silviculture. There were problems in all three levels. At the national level, public discourse is heavily influenced by protection oriented forest management. In particular, media, political actors and Commission for the Investigation of Abuse of Authority (CIAA) actions were largely restrictive to any improvements in forest management. Policies, laws and regulation were designed accordingly. At the meso-level (district level) there is no incentive for forest officials to actively promote silviculture in their respective constituencies. Instead, they always feel insecure and threatened by any silviculture based operation. These fears are then passed on to OP, harvesting permits, sell and transportation permits. Quite often, officials interpret and adopt the regulatory instruments on their own benefit. At the community level, CF members are conditioned not to fell trees; there is serious mistrust between different groups within community forestry user group (CFUG). Silvicultural operation simply adds

risks to those CFUGs which are suffered by poor governance, internal conflicts, and weak institutional capacity. The legal and other obstacles that have posed challenges to regular forest management in these six sites has a chain effect that goes to lack of interests and investment in plantation, conservation and management of whole forests.

As reflected in the past attempts of the government, or the widespread challenges in current forest management efforts by the CF groups, the policy environment and socio-institutional contexts are not very conducive to silviculture. The predominant response to this situation is anything cannot be done unless a favourable policy regulatory environment is established at the centre. However, given the prolonged political transition, frequent changes in the government and the short term tenure of officials in any particular role indicate that policy environment cannot be changed overnight. Neither can we wait for getting the policy and institutional environment getting perfect; as they may never be perfect even in the best case scenario. During last 25 years since Bara forest case or OFMP there have been little change either in policy and legal framework or in the institutional environment of our forest agency or related other stakeholders. On the other hand there have been studies showing a huge annual loss form non-management of Nepal’s forest. In this context, a pragmatic strategy is to explore available windows in policies, laws, institutions through which one expand space and get through. In recent years at least in the discursive level there have been increased appreciations of the forest management which will provide forest officials and others a moral support to go ahead.

The above cases show that all past initiatives on silviculture based forest management have failed to fully implement and achieve their stated outcomes. The cases also show that these initiatives were undermined by poor governance and inadequate considerations of institutional dimensions of active forest management. These include lack of proper engagement with local communities and concerned stakeholders, lack of transparency in the process, weak ownership of the relevant actors, and inadequate financial and other support mechanisms.

3. Institutional Challenges in Community Forest Management in Kavre and Lamjung

Forest management, particularly timber management, is at the heart of community forestry process. Yet, forest management in CF is seriously undermined by a series of governance and institutional challenges, when one considers the issue of timber management. These include intra-group conflict within the CFUGs, lack of trust between the leadership and CF members, the delivery of support from DFO, and legal cases at DFO, court or with CIAA. Table 1 below presents a few sample cases from Kavre and Lamjung districts that have blocked or seriously hindered timber harvesting, transportation or sale.

Table 1. Governance challenges in community forest management.

Sites	Year	Legal case
Dharapani	069/70	Financial embezzlement by EC chair, CIAA case, auctioned timber could not be sold and fire damaged 950cft later in the year.
Chappani	072/73	Timber harvested after receiving DFO permit could not be sold. Reconstruction related circular was cited as a reason. Later 800cft damaged by fire.
Langdi Hariyali	073/74	Round wood were taken to saw mill after harvest as per the permit, police confiscated it and a legal case was launched. DFO is looking at the case currently.

Sites	Year	Legal case
Langdi Hariyali	071/72	Few trees were felled due to Mid-Hill Highway construction; the road authority was much higher and powerful, and therefore, CFUG was not involved at all in tree felling. Yet, DFO took action against CFUG. That seriously, killed forest management enthusiasm and a plan by the CFUG.
Aapchaur	071/72	Difference between Chapan and actual harvest volume lead to a legal case that delayed release of timber for trade. Damaged timber sold at cheap price. It resulted in conflict between CF members and leaders and also with DFO staff.
Kalopani	072/73	Despite harvest permit, CFUG leaders could not harvest trees, as people were yet to construct houses due to delayed release of grants by the reconstruction authority.

As shown by Table 1 above, a range of governance and institutional issues have hampered active forest management initiatives at the local level. In most cases, issues of poor transparency, embezzlement, lack of trust among CF members and their leaders, and weak institutional capacity of CFUGs in handling such cases are evident. This is particularly visible where there is a potential to earn substantial revenue from the sale of timber. The second type of issue is related with the technical and administrative support from DFO. In many cases, CFUGs are not getting the expected constructive support from DFOs, who demonstrate their own explanations. However, DFO actions have often resulted in loss of timber (from fire), financial and physical costs, psychological torcher and alienation from being actively involved in forest management. The third type of issue is related to national policies and legal framework such as cases from CIAA, or that of circulars from National Reconstruction Authority.

Most of the studied sites have a good stock of pine forest. There was a massive plantation in the early 1980s by an Australian Forestry project. If one follows the best advice from silvicultural sciences, these forests must have been harvested by now. Unfortunately, policy, governance and institutional related issues we discussed above have seriously hinder the forest management activities in these forests. This provides a strong rational in exploring innovations that can address these rather subtle issues while advancing silvicultural based forest management initiatives. Below we present how technical and institutional aspects can be integrated through a silvo-institutional model that we developed in the research sites.

4. Developing Silvo-institutional Model through Integrating Technical Science with Institutional Processes

In this section we describe our integrated approach to establishing silviculture demonstration plots in three research sites: two in Kavre and one in Lamjung. This is what we term ‘silvo-institutional model’ in this paper, in which we have combined technical aspects of resource assessment, establishing demo-plots, actual felling and timber distribution with the institutional aspects involving various level of consultation, developing governance safeguards, prepare required documentation and getting the institutional process right. While this is time taking and slightly costly, it provided a secure, effective and sustainable pathway to silviculture based sustainable forest management in the respective sites.

This approach builds on works that have emphasised integration of science and participation, adaptive and collaborative learning (King *et al.*, 1990; Banjade, 2006; McDougall *et al.*, 2007) and deliberative scientific practise in Nepal’s forest management (Ojha *et al.*, 2010).

In many cases, it has spill over effect to neighbouring groups. A summary of step-by-step process is given below (Figure 1) and detailed stories of the process in the text that follows.

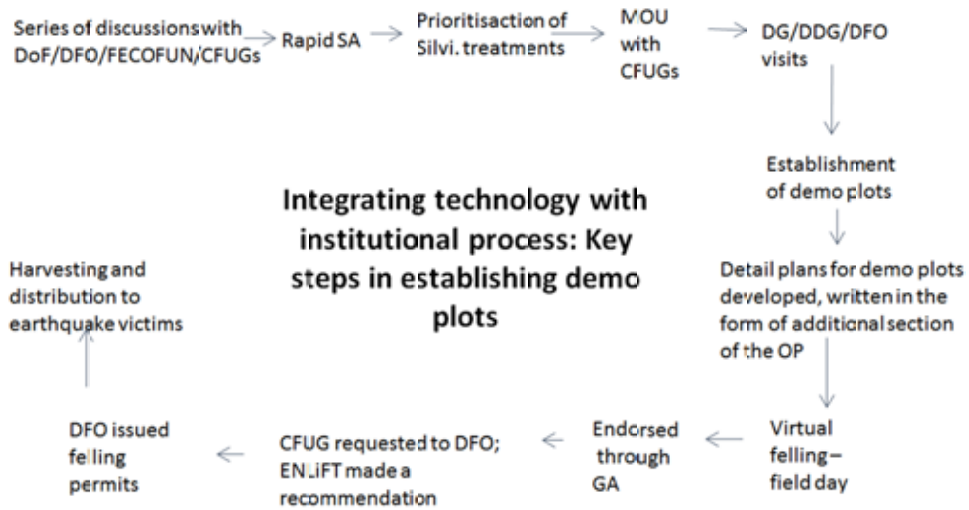


Figure 1. Process adopted in establishing demo plots in research sites in Kavre and Lamjung.

While the above process provides generic steps taken in all research sites, there were some minor variations in specific sites based on particular socio-ecological characteristics. The above process can be clustered into four broader aspects which are elaborated below.

- i) **Creating favourable institutional environment:** Initially when we started early consultation with the DFO and CFUGs they indicated a number of risks and expressed feeling insecurity and therefore reluctant to go ahead. We organised a series of informal and formal meeting with DoF officials, DFO staff, FECOFUN and CF leaders. We presented the technical details of how we want to proceed, showed the policy and legal windows of secure operation and benefits of taking this initiative. We also organised meeting with media and political leaders in the district and forged meaningful and productive dialogue amongst these actors. These meetings resulted in collective commitment, increased enthusiasm and confidence. These processed provided us a strong but cautious mandate to go ahead with the proposed plan.
- ii) **Resource assessment and planning:** Next we carried out a participatory rapid assessment of the resources, particularly the forest stock, regeneration status, etc. and assessed it against the management priorities of the CF members. Gradually we arrived at preferred management objectives and treatments which were turned into demonstration plots. At the same time, we discussed on the potential threats such as loss of endemic species, fire, wind, grazing, heavy drought etc. Similarly, we also discussed on the expected inputs and distribution of potential harvest among the CF members.
- iii) **Endorsement and approval:** While relatively informed CF leaders were involved in the above process, the plans had to be discussed and endorsed by larger mass of CF members. This has political as well as instrumental and mandatory objectives. Accordingly, the plans were presented; feedback and comments were received and adjusted. As the plans were approved along with few comments, these were then finalised and submitted to the respective authorities for approval. Some field visits and small meetings were organised between the CF members and DFO staff.

- iv) **Action and monitoring:** After the approval, tree felling was carried out, proper measurements were carried out and products were distributed. A proper documentation was carried out and a regular/periodic monitoring of the ecological responses (regeneration etc.) and social responses (responses from CF members' responses, SHs, media) were conducted. Later on actions were refined based on these responses.

We now bring specific cases, where these principles were experimented with some minor variations based on their particular contexts and needs.

5. Application of Silvo-Institutional Models: Processes and Outcomes

5.1 Lampata CFUG, Lamjung

Lampata CFUG in Madhya Nepal Municipality has 84 ha of mixed Sal forest in lower belt and Chilaune-Katus in upper belt. They used to practice low thinning that neither helped growth of matured trees nor provided needed timber to the CF members. CF members were frustrated with low productivity of the forest and huge gap between demand and supply. In this context, we established a demonstration plot there.

The establishment of silviculture demonstration plots in Lampata CFUG involved an intensive engagement with diverse actors at various levels. After an initial meeting and understanding with the CFUG executive committee (EC), we identified the types of treatment, identified the site for demonstration plot and worked out on preparatory work. The chairperson of the EC was assigned with the responsibility to oversee the overall plantation activities, make arrangements for the plantation, including mobilizing user group members to dig the pits, and plantation. In addition, the staffs of EnLiFT, including an LRP, supported CFUGs in seedling supply and plantation. While the major human resources required for the plantation was managed by the CFUG.

Plantation of fodder trees was carried out in rows in the demo plots which are mostly covered with hill Sal trees. During the three day long plantation event, total of 16 CFUG members were involved, including 4 women. The members also discussed on ways to protect the plantation sites from grazing and fire. As a decision, grazing was banned, while road/trails around the plantation sites were considered as fire lines. Besides, the CFUG members were involved during the plot establishment, selection of trees, and harvesting which ensured that they could continue the work in the future as well.

Apart from the engagement with CFUG members, the process of establishing demo-plots involved the District Forest Office (DFO) in order to obtain harvesting permits. Moreover, series of discussions with the concerned stakeholders including the DFO and FECOFUN was conducted to seek their views. Prior to preparing the MOU with the CFUG, a rapid silvicultural appraisal was carried out in order to have a better understanding of the type of species in the forest. Following the establishment of demo-plots, a management plan was prepared incorporating the details of harvesting within the plots, which was later endorsed by the general assembly of Lampata CFUG. The felling of the trees was carried out following the permission from the DFO. Besides, visits from the Department of Forests, including the Director General

and DFO was organized which was primarily aimed at seeking on-site feedback for enhancing the effectiveness of the demo-plots.

5.2 Kalopani CFUG, Kavre

Kalopani CFUG in Dhungkharka has 175ha of natural pine (*Abies pindrow*) and Khasru forest (*Quercus semicarmifolia*). The Pine forest is 20 years old and really dense (1300 poles/ha). While it needs a heavy thinning, there is no such provision in the OP and therefore DFO did not provide permit. It has seriously hampered growth of the poles. Similarly, the Khasru forest, a key source of fodder to contribute to the dairy enterprise, is heavily infected by Mistletoe parasite and is gradually dying.

After initial discussion with the EC and the AFO of the area, different plots were established as a step on silviculture management, where one plot was established in the mature stand to demonstrate Shelterwood system, and two plots were established in the young stand to demonstrate selection silviculture. Plots with size of 60m x 70m with a total area of 0.42 ha were established for Thingre salla. Likewise, 40 trees were selected in order to demonstrate silviculture options for Khasru.

The EnLiFT team members held meetings with the CFUG EC and other members to mainly discuss on the establishing demo-plots in Kalopani. The plots were mainly targeted for Khasru and Thingure Salla management and three different types of treatments were conducted. As a result, the Kalopani CFUG members opted for its management by establishing demo-plots. Most importantly, the CFUG members were involved right from the initial phase of plot establishment, selection of the mother trees, harvesting techniques among others.

In addition to the support, the EnLiFT team organized a visit of the DG of DoF to Kalopani CF which provided a type of confidence among the CFUG members to carry out silviculture intervention in their forest. Moreover, people had a sense of fear when it came to felling trees, however following the visit of the DG, the misconception that felling of trees is not always illegal as long it is under the OP has been established.

5.3 Dharapani CFUG, Kavre

Dharapani CFUG in Bhumlu Gaupalika has 40 ha of plantation pine forest (*Pinus patula*). It is already 35 years old, reached to its rotation cycle. Unfortunately, the forest management has been limited to removal of 4D trees. The CGUG is weakened due to its poor internal governance, embezzlement and is suffering from a legal case at CIAA. Last time, it could not get DFO permit to sell its harvest and lost about 950 cft due to fire. This has been an unfortunate group which has been unable to benefit its good and mature forest stock.

The case of Dharapani is another illustration of how technical and institutional aspects should be integrated for silvicultural intervention. Realizing the need for proper forest management around Chaubas area, a visit of DG of DoF was organized by the EnLiFT project. The visit team had an impression that there is a need for silvicultural intervention in the forests of Chaubas including Dharapani CF. Following this; a training program was organized by the DFO Kavre along with EnLiFT project where CFUG members of Dharapani were invited along with other user groups in the region. A demonstration of shelterwood treatment system was carried out in Chapani CF. Citing the relevance of the treatment in their forest, CFUG members of Dharapani

expressed their interest in carrying out the intervention to the EnLiFT project. The time was perfect in the sense that the OP of Dharapani had expired and there was a space to incorporate the silviculture management aspect in the document. The EC called for a meeting and decided to incorporate silviculture management in Dharapani CF, which was later endorsed by their general assembly.

The CFUG members were involved during the selection of the mother tree in addition to applying harvesting techniques. The members were previously applying negative thinning, which too did not properly follow the guideline. However, following the introduction of shelterwood system, the user groups are optimistic on growth of the trees. With the onsite training provided by the EnLiFT, the user group members are now capable to carry out the treatment in the future.

6. Key Issues and Lessons

As described above, our action research in Kavre and Lamjung tried to develop a silvo-institutional model, that integrates technical measurement and assessment with institutional process towards effective and sustainable outcomes of silviculture based forest management. As presented in Table 1 above, it includes four major elements:

- First, creating a supportive institutional environment at all levels through formal and informal engagement with range of actors beyond forest officials and CF members. This provides a secure working environment and increases the confidence of the officials and CF leaders.
- Second, measurement, assessment and planning that involves science and civic perspectives. Unlike the dominant practice where technicians carry out technical assessment, prepared plan and share with CF members, we integrate these rather technical measurement and assessment with civic participation and consent. This is not only to inform the people about science, but at the same time, the assessment and plans being influenced by indigenous and local knowledge, practice and priorities.
- Third element – endorsement and approval is to align technical assessment and plans with administrative, legal and institutional practice for their refinement, legitimacy and authenticity.
- Fourth, action and constant monitoring is because, we take the silviculture science not as static end product, instead a moving, dynamic science which has rooms for improvement and refinement.

The experimentation with silvo-institutional model in Kavre and Lamjung have shown a promising early success not only in garnering local support, stakeholder support, assurance to the forest officials, but also getting the technology right, relevant to local needs and aspiration. Silvo-institutional model also works by building capacity of forest technicians and CF leaders. The rigorous process of decision, measurement, assessment planning and implementation help develop both technical and institutional capacity of the relevant actors.

The experimentation with the silvo-institutional model is on-going. We continue to monitor, measure and document the biophysical (regeneration, growth, viability of the stock, fire, grazing, wind) and institutional (CFUG governance, management of increased funds, distributional arrangement, stakeholder responses, future planning of CFUG) responses. As these processes are conducted locally with a low cost, we do not foresee major challenges in terms of replicability.

Of course, there needs a better appreciation of the Model by the forest officials, FECOFUN and other support agencies.

Similarly, in order to institutionalise and incentivise the capacity aspects within the DoF, the field staff's SFM achievements can be linked with periodic performance review so that there is a clear incentive attached to his/her initiatives in forest management. Reforms in all concerned agencies like government institutions, community and other service providers are vital to bring a national momentum on silviculture based forest management.

The SIM option we have presented can help overcome unproductive polarisation of forest management approach among various lines. A new wave of intensive forest management initiatives including a 'scientific forestry' have been piloted and expanded in various part of the country. As these initiatives are in their early stages they must be carefully monitored, documented and lessons should be drawn. We should be careful for not to be a die-hard fan of any particular approach and instead be open, reflective and prepared to reform and revise. Underpinning silvo-institutional model (SIM) is an adaptive learning approach that integrates scientific, technological aspects with civic consent. This approach can help learn from past and current initiatives and tackle ongoing challenges to develop and promote silvicultural innovations towards productive, sustainable and equitable forest management in Nepal not only in CF but across the national forests.

7. Conclusion

This paper has introduced the silvo-institutional model as it was practiced in Kavre and Lamjung in few research sites. Informed by the past failures and recognising the continuing challenges of intensive forest management in the project areas, we piloted an approach to active and equitable forest management, which we now call silvo-institutional model (SIM). We considered four key elements in the SIM: creating favourable institutional environment; integrating science and civic consent during measurement, assessment and planning; scrutinise and legitimise the planning process through endorsement and approval processes; and action and continuous monitoring, documentation and reflection.

The initial result shows that a thorough and integrated approach to technical and institutional process which underpinned SIM has led to a good silvicultural based forest management in action research areas. Though these are very small and specific cases, these processes do not involve huge transaction cost and can be scaled out elsewhere. This means adopting a genuinely engaging process that brings scientific process into public scrutiny and community consent with proper documentation and periodic reflective learning amongst SHs that feeds into the policy process and help achieve sustainable forest management objectives.

This research further points to the fact that more works need to be done to explore and identify SIM pathways that can work best for the poor and disadvantaged groups in the community. What is also needed is to test SIM tools that can work for various forest products and services which are marketable and have the potential to raise incomes to the unemployed rural youths.

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