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**When Do Stakeholders Share Information? Insights
from Community Forestry in Lamatar, Nepal**

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1 Introduction¹

'Multi-stakeholder', 'co-management', 'decentralization' and other similar terms advocating public participation in climate change governance are prevalent in today's academia and policy making. Public involvement in climate change governance is widely believed to secure legitimate, efficient, and democratic decision-making, and has been seen as the solution to the heavy critiques towards centralized and technocratic governance in the past.² Despite the fact that some recent studies have started to empirically analyze public engagement,³ there is still limited understanding of its practical application.

This paper aims to deepen the understanding of the determinants of information sharing among stakeholders in participatory climate governance – a vital, but often-underrepresented topic in the current discourse. Understanding under what conditions information is shared is especially significant and challenging when incorporating the public into governance, as stakeholders with different incentives and information on the climate need to come to a consensus. It is generally assumed that frequent communication is a significant factor increasing information sharing.⁴ However, empirical evidence from a case study conducted in Nepal indicates that certain types of information are shared more often than others. Instead of refuting the importance of communication frequency, this study aims to further deepen the understanding of information sharing by providing insights on conditions that determine whether or not a certain type of information is shared.

This paper is divided into five sections. Following a brief review of how public participation gained its significance, section two explores the importance of information in climate change governance, and summarizes current theories on information sharing. Analytical and data collection methods are explained in section three. Section four introduces the case study conducted in Nepal, and presents the results of the fieldwork. The final section discusses the results derived from the case, and suggests policy and academic implications.

2 Literature Review

Although references to public participation can be traced back to Aristotle, Garret Hardin can be given credit for bringing the issue under the spotlight. In 1968, Hardin persuasively argued that "[r]uin is the destination toward which all men rush, each pursuing his own best interest in a society that believes

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² H. Bulkeley and A. P.J. Mol, 'Participation and Environmental Governance: Consensus, Ambivalence and Debate', 12 *Environmental Values* (2003), 144.

³ cf. H. Few, K. Brown and E. L. Tompkins, 'Public participation and climate change adaptation: avoiding the illusion of inclusion', 7:1 *Climate Policy* (2007), 46; D. Moss, 'People's Knowledge', Participation and Patronage: Operations and Representations in Rural Development', in: B. Cooke and U. Kothari(eds.), *Participation: The New Tyranny?* (Zed Books, 2001).

⁴ T. Dietz, E. Ostrom and P. C. Stern, 'The Struggle to Govern the Commons' 302 *Science* (2003) 1907.

in the freedom of the commons”.⁵ He claimed that only a cohesive system that prevents people from acting freely, or the heightening of people’s morality through education, could stop the “tragedy of the commons”⁶ from happening.

Hardin’s provoking argument aroused heated debates among scholars. Elinor Ostrom was one of the most prominent opponents of Hardin. She criticized that “Hardin confused open-access commons with commons that are the joint property of a community”⁷ and provided evidence where people were actually able to manage their resources within their own community by establishing various institutions.

During the 1990s, scholars and practitioners started to stress the importance of communities in natural resource management (NRM). As Hackel illustrated, community involvement in NRM became so prevalent within the decade that “it may soon be difficult to find a rural conservation project that does not define itself as community-based”.⁸ Facing this situation, Friket Berkes and his team at the University of Manitoba, Canada, alerted that taking community-based conservation as a panacea for the government’s failure in relation to NRM ignores the complexity of NRM, akin to what government-based conservation did in the past.⁹ As a response, concepts such as “complexity” “cross-scale”¹⁰ and cross-level¹¹ and “dynamics” gained popularity during the first decade of the 21st century.¹²

Around the same time, Berkes (2007) discovered that one commonality that successful projects have are linkages with various stakeholders across scales and levels, leading to the gradual recognition that including multiple stakeholders into the management process plays a vital role in successful NRM.

Studying the role of information in multi-stakeholder NRM is rather a new trend that appeared in the early 2000s. As Dietz, Ostrom & Stern suggest, “good, trustworthy information about stocks, flows, and processes within the resource systems being governed, as well as about the human-environment

⁵ G. Hardin, ‘The Tragedy of the Commons’, 162 *Science* (1968), 1243, at 1244.

⁶ *Ibid*, at 1244.

⁷ E. Ostrom, *The Challenge of Common-Pool Resources*, (Cambridge University Press, 1990) found at: <
<http://www.environmentmagazine.org/Archives/Back%20Issues/July-August%202008/ostrom-full.html> >.

⁸ J. D. Hackel, ‘Community Conservation and the Future of Africa’s Wildlife’, 13 *Conservation Biology* (1999), 726, at 730.

⁹ F. Berkes, ‘Community-based conservation in a globalizing world’, *PNAS* (2007), 104.

¹⁰ Scale is defined as “the spatial, temporal, quantitative, or analytical dimensions used to measure and study a phenomenon” (C. C. Gibson, E. Ostrom and T. K. Ahn, ‘The concept of scale and the human dimensions of global change: a survey’, 32 *Ecological Economics* (2000), 217, at 218.).

¹¹ Level is defined as “the units of analysis that are located at the same position on a scale”. Many conceptual scales contain levels that are ordered hierarchically, but not all levels are linked to on another in a hierarchical system (*Ibid*, at 218).

¹² cf. S. G. Cumming, H. D. Cumming and L. C. Redman, ‘Scale Mismatches in Social-Ecological Systems: Causes, Consequences, and Solutions’, 11 *Ecology and Society* (2006), 14; H. Ahlborg and J. A. Nightingale, ‘Mismatch Between Scales of Knowledge in Nepalese Forestry: Epistemology, Power, and Policy Implications’, 17 *Ecology and Society* (2012), 16; C. C. Gibson, n. 10 above.

interactions affecting those systems”¹³ is the linchpin of NRM. There are two main strands in the studies conducted to date: one that is focused on information asymmetry; the other investigating the nature of information sharing.

Information asymmetry, a situation where one party has more or better information than the other, happens due to the different scales at which stakeholders are active.¹⁴ For instance, local people living adjacent to forests tend to have a more detailed and up-to-date understanding of the resource conditions (i.e. number of trees, herbs, animals), which is difficult for the national forest agencies to accumulate. On the other hand, national forest agencies may have better access to information on new technologies, while local people may not have that privilege.

Analyzing the nature of information sharing is another research field that has started to attract scholars. Conducting an extensive review of studies on the commons, Dietz, Ostrom & Stern discovered that frequent communication, especially face-to-face communication, is important for information to be shared.¹⁵ This is mainly because repeated personal interaction will cultivate trust among stakeholders and strengthen social capital. Scholars utilizing Social Network Analysis (SNA)¹⁶ have also come to the conclusion more densely connected networks¹⁷ are benefitting more from information sharing. Haythornthwaite argues that in a dense network, information will be able to flow through various routes, and therefore will reach more people.¹⁸

Studies to date have been rather theoretical, with little focus on the actual content of information that is shared. Moreover, there is a tacit assumption that all types of information will be shared if there is frequent communication. In other words, they do not take into account that people may exchange some types information while hiding other types. This paper differs from the current studies in that it looks into the actual content of different information that is shared among stakeholders, using on-ground data.

¹³ T. Dietz, n. 4 above, at 1908.

¹⁴ Ö. Bodin, B. Crona and H. Ernstson, ‘Social Networks in Natural Resource Management: What Is There to Learn from a Structural Perspective?’, 11:2 *Ecology and Society* (2006), r2; C. C. Gibson, n. 10 above; D. W. Cash *et al.*, ‘Scale and Cross-Scale Dynamics: Governance and Information in a Multilevel World’, 11:2 *Ecology and Society* (2006), 8.

¹⁵ T. Dietz, n. 4 above.

¹⁶ SNA is a research method that tries to explain a phenomenon by analyzing social networks - “patterns or regularities in relationship among interacting units” (S. Wasserman and K. Faust. *Social Network Analysis - Methods and Applications* (Cambridge University Press, 1995)).

¹⁷ A network with higher proportion of all possible connections that are actually present.

¹⁸ C. Haythornthwaite, ‘Social Network Analysis: An Approach and Technique for the Study of Information Exchange’. 18 *Library & Information Science Research* (1996), 323.

3 Research Methodology

This study analyzes a case study on community forestry¹⁹ in Lamatar Village Development Committee (VDC), Lamatar District, Nepal. Nepalese community forestry has been seen as one of the most decentralized and inclusive forest governance policies. In particular, communities within Lamatar VDC have a systematic way of sharing information among stakeholders, and it is seen as one of the pioneering villages in Nepal. As many other places are still struggling to incorporate the public into resource management, the case of Lamatar VDC can provide some valuable lessons to further improve public participation in climate change governance.

The primary data collection method of this study was a series of face-to-face interviews. Both structured- and semi-structured interviews with key stakeholders were conducted between August 21, 2013 and September 9, 2013. Moreover, a follow-up survey was undertaken during the period from November 30, 2013 to December 12, 2013. To complement and support this, additional data has been collected as follows: statistical data collected from governmental bodies and communities; research papers and reports from research institutes and INGOs/ NGOs; meeting minutes; and official documents. Participating in one of the general meetings and walking around the field were also important means of collecting information.

SNA and Stakeholder Analysis (SA)²⁰ were blended to analyze the data obtained from the field survey. Although this mixed-method approach is rather new, it has shown its complementing value.²¹ Here, 'density' and 'degree centrality', two concepts used in SNA, are utilized to identify the information-sharing network among stakeholders, while SA is used to explain the underlying factors affecting the information flow.

4 Case Study

Lamatar VDC is one of the 28 VDCs in Lalitpur district, Nepal. Located within the Kathmandu Valley, approximately a 30-minute car ride from the metropolitan area, it has attracted numerous NGOs, international donors, and government agency projects. The inflow of these various stakeholders resulted in a dynamic interaction among them, and architected an optimal environment to analyze their information flow.

¹⁹ A form of forest management that hands over national forest handed to a users' group (Community Forest User Group: CFUG) for its development, conservation and utilization for the collective interest.

²⁰ SA is a comprehensive approach to investigate a system by identifying the stakeholders, and apprising their respective interests (R. Grimble and K. Wellard, 'Stakeholder methodologies in natural resource management: a review of principles, contexts, experiences and opportunities' 55:2 *Agricultural Systems* (1997), 173.)

²¹ cf. J. Lienert, F. Schnetzer and K. Ingold, 'Stakeholder analysis combined with social network analysis provides fine-grained insights into water infrastructure planning processes', 125 *Journal of Environmental Management* (2013), 134; C. Prell, K. Hubacek and M. Reed, 'Stakeholder Analysis and Social Network Analysis in Natural Resource Management', 22 *Society and Natural Resources* (2009), 501.

Lamatar VDC lies in the middle hills of Nepal, and experiences the typical biological environment that 75% of the community forests (CFs) national wide are facing.²² The trees are rather young, as the forest was almost completely degraded by the early 1980s.²³ In 1994, the first forest patch was handed over to a Community Forests User Group (CFUG)²⁴, in order to prevent further degradation and enhance regeneration of forests. Today, 11 CFUGs, ranging from 209 to 849 members, are managing 682.04 ha (approximately one third of the total land area) of forestland. The biggest forest area, 130.8ha, is almost 80 times bigger than the smallest which is 1.69ha. 75% of the community forests in the middle hills are under 100ha, and thus Lamatar VDC has an average plot size.²⁵ Half of the forests are naturally regenerated, while the other half is partly planted forests.

CFUGs in Lamatar have been practicing community forestry on a professional standard that cannot be expected elsewhere in Nepal. Though the quantity and quality of the forest itself can also be appraised, the two most notable differences as compared to other CFUGs are: (1) the large variety of activities undertaken by the CFUGs, and (2) the systemized administration.²⁶

4. 1. Social Network Analysis

Applying SNA, this section identifies the information network among the stakeholders in Lamatar VDC. Moreover, it compares the results with the theory that more information flows in a high-density network, and it hypothesizes the character of information flow in Lamatar VDC.

Figure 1, Figure 2, and Figure 3 illustrate the information-sharing network in Lamatar VDC in 2003, 2008, and 2013, respectively. Each node represents a stakeholder, while the lines connecting them indicate that there was some sort of information sharing between them.²⁷ The comparison of the figures shows that the information-sharing network in Lamatar VDC has dynamically developed over the past decade. Not only has the number of stakeholders increased, but also stakeholders who had no interaction 10 years ago have started to share their information. This can be seen in the increase of the proportion of the black area between the nodes, representing density (number of stakeholders / number of links). This trend is especially notable in the left area where the local stakeholders are placed.

²² Government of Nepal, Ministry of Forests and Soil Conservation (Gov. MSFP), *Review of 30 years of Community Forestry in Nepal* (Multi Stakeholder Forestry Programme (MSFP), 2012). Average temperature in the area is 15-30 degree Celsius in summer and 10-14 degree Celsius in winter. The altitude is ranging from approximately 365 meters to 1800 meters, and snow covers the higher part of the area during winter. Conifer species such as *Utis* (*Alnus Nepalensis*) and *Chilaune* (*Schima Wallichii*) can be found in the hills, whereas *Lapsi* (*Choerospondias Axillaris*) and *Paiyu* (*Prunus Cerasoides*) inhabit the low lands.

²³ K. Banskota, B. Singh Karky and M. Skutsch, *Reducing Carbon Emissions through Community-managed Forests in the Himalaya*. (International Centre for Integrated Mountain Development, 2007).

²⁴ A group of people residing adjacent to the forest that is entitled to manage the community forest.

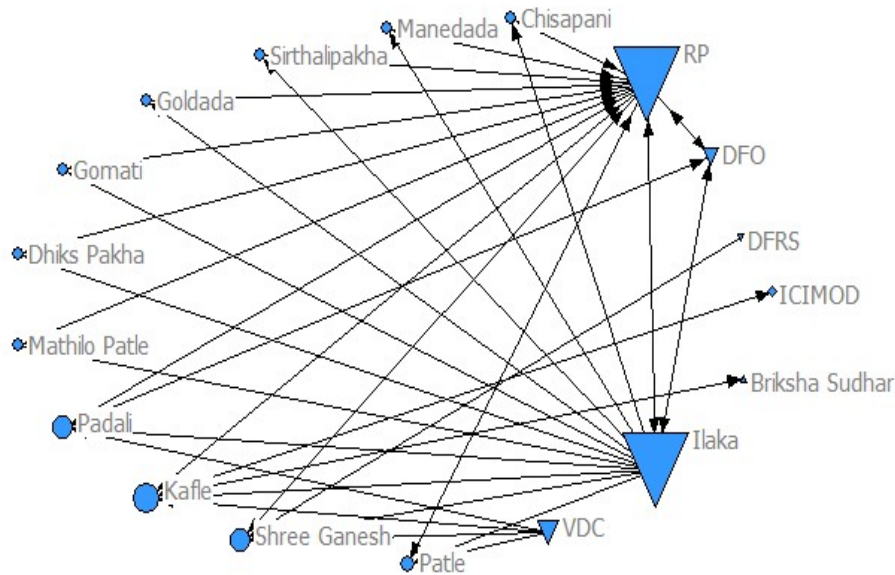
²⁵ Gov. MSFP, n. 22 above.

²⁶ K. Banskota, n.23 above.

²⁷ The author asked stakeholders with whom they had interaction, and provided/ received any information.

In 2013, network density of all the CFUGs, RP and Ilaka reached one: a fully connected network. The numeric results are presented in Table 1.

Figure 1: CFUG Information Network in 2003²⁸



Shape of the node indicates the type of stakeholder: circle = CFUG, down-triangle = government body, up-triangle = NGO, circle in box = community based organizations, diamond = half-government body, plus = company. The size corresponds to the degree centrality: the bigger the more linkages. Stakeholders are positioned according the level: international, national, district, regional, and VDC respectively from the right to left respectively. Arrows indicate the direction of information flow. Due to missing data, the strength of linkages could not be analyzed. However, all the communication is hold more than twice a year.

²⁸ Ucinet 6 for Windows, a computer software developed by Borgatti, Everett, and Freeman in 2002, was used to draw the diagram.

Figure 2: CFUG Information Network in 2008

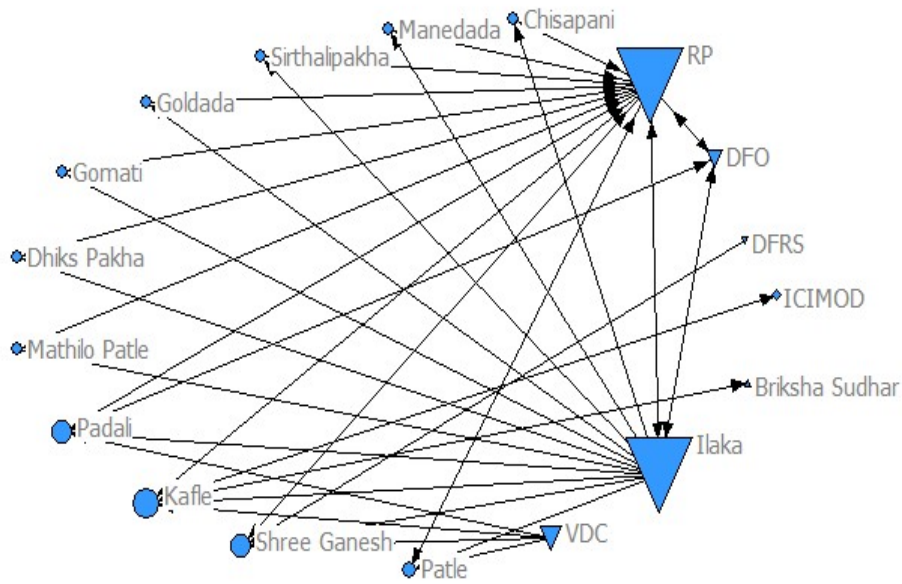


Figure 3: CFUG Information Network in 2013

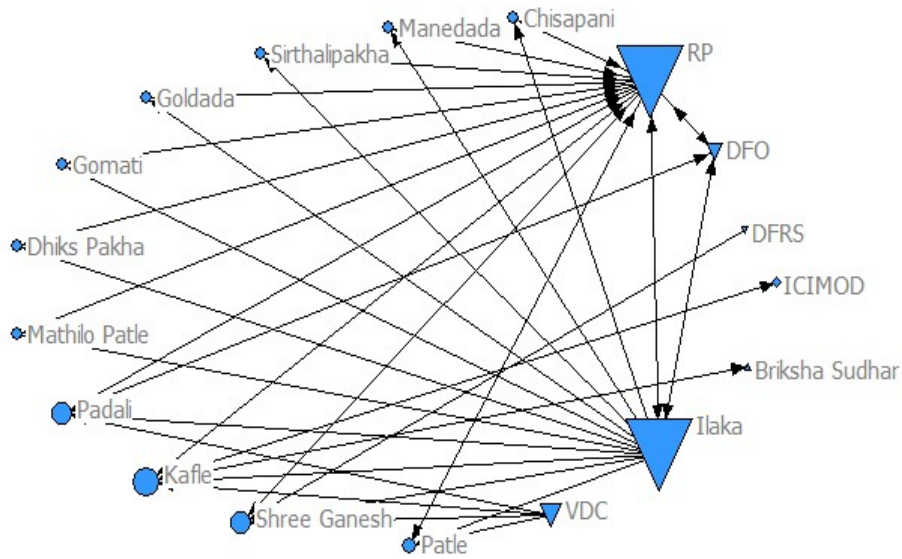


Table 1: Change in Network Density over the Past 10 Years

Year	Number of Stakeholders	Number of Linkages	Density
2003	15	42	0.045
2008	18	50	0.050
2013	28	208	0.197

According to the theory of Örjan Bodin, Beatrice Crona & Henrik Ernstson (2006)²⁹, these results suggest that there should be a good information sharing status among the stakeholders. The next section identifies the background of the evolution of the network, and tests this hypothesis.

4.2. The Status of Information-Sharing

The development of the information sharing network is mainly owing to the Resource Center (RC), a cross CFUG platform, which was established in July 2009. The RC was built with the cooperation of ForestAction Nepal (ForestAction) and DIFD, as a platform to support the CFUGs in Lamatar VDC. According to Dr. Naya Poudel, one of the founding members, the RC was established in order to (1) increase collaboration among CFUG and government bodies by lowering the hurdle to talk to government officers, and (2) to serve as an information sharing platform for solving problems at local level.³⁰ Moreover, as to improve the communication among government bodies and CFUGs, the board of RC consists of chairpersons³¹ from the 11 CFUGs in Lamatar VDC, one representative from the VDC office, and one representative (ranger) from the DFO.

In practice, information sharing among CFUGs and the RP can be summarized as follows:³²

(1) Formal data collection as determined by orders from the top

The RP is ordered to create an annual report on: (i) the activities in the CFUGs; (ii) the beneficiaries of those activities; and (iii) the amount of collected forest resources, which is handed it to the DoF.

(2) Patrols by the RP ranger

The RP ranger inspects forest conditions, especially degradation, irregularly, as the RP lacks human resources.

(3) Informal reporting by CFUG members (committee and ordinary members)

²⁹ O. Bodin, n. 14 above.

³⁰ Personal communication, Sep. 20, 2013.

³¹ Each CFUG has a committee board that is in charge of defining management policies for the CFUG. The committee board is led by a chairperson, and supported by a secretary.

³² This categorization follows the framework proposed by J. Sato, 'Informational Basis of Policy Judgments: The Case of the Royal Forest Department of Thailand' in: M. Inoue and H. Isozaki (eds.), *People and Forest - Policy and Local Reality in Southeast Asia, the Russian Far East and Japan* (Kluwer Academic Publisher, 2003).

CFUG members do not visit on regular basis. They mainly visit the RP when they need technical assistance to fall trees or collect fodder. Small problems beside that are usually solved at the CFUG level.

(4) Annual, monthly, or “by request” CFUG committee meetings

CFUG chairpersons hold regular meetings usually once a month, on the first Saturday, and additional meetings on request. Besides sharing their daily activities, they share concerns on community forest management, and search for solutions. For instance, the list of agenda items for the annual meeting of the fiscal year 2012-13 was as follows: (1) forest conservation, (2) forest protection, (3) forest utilization, (4) investment on infrastructure, and (5) investment on education. One representative of each CFUG reported on each issue in front of the RP ranger and CFUG members. The meeting was open to all.³³

Interviews with CFUG committee members revealed that the RC has had positive impacts on CFUG members as they had better access to information. In particular, since the RC deals as a point of contact from outside the village, information about workshops, seminars, or projects were easier to obtain.³⁴ CFUG members also had better access to legal documents, as they were stored at the RC for perusal.³⁵

Despite of these positive impacts of increasing the interaction among stakeholders, it has been difficult for the RP ranger to collect information on INGO/NGO activities conducted in some CFUGs. Within the interview process, the RP ranger could not identify two out of ten INGOs/NGOs active in Lamatar VDC. Also, he could not specify the activities done by five NGOs out of the identified eight NGOs. Two out of the remaining three were working on the same project and one was a local NGO, which was easier to identify. The RP ranger expresses his difficulties as follows:

INGOs/ NGOs come and carry out activities on their own without informing the RP. When their time period is finished, they do not support CFUGs to sustain the activities, and we need to support them. This is a serious matter as we cannot document all activities carried out in the CFUGs, and therefore cannot allocate the limited budget and human resource equally.³⁶

Distrust and non-collaboration among INGOs / NGOs and government bodies is not a new story and can be seen all over the world, particularly in developing countries like Nepal, where government transparency is still weak and the government lacks governance capacity.³⁷ However, the RP ranger explained that information on forest conditions, plantation, harvesting, and investment in infrastructure

³³ Observation, Sep 23, 2013.

³⁴ Shri Ganesh, CFUG chairperson, personal communication, Sep. 11, 2013.

³⁵ Padali, CFUG chairperson, personal communication, Sep. 11, 2013.

³⁶ Personal communication, Sep. 11, 2013 [Pers. Sep.11].

³⁷ Cf. W. Li, 'The Role of Government and NGO in Managing Non-Traditional Security Issues in East Asia' in: Y. Zhang (eds.), *State and Civil Society in the Context of Transition* (World Affairs Press, 2005); M. Bratton, 'The Politics of Government-NGO Relations in Africa' 17:4 *World Development* (1898), 569; F. Mirafteb, 'Flirting with the Enemy: Challenges by NGOs in Development and Empowerment', 21:4 *Habitat International* (1997), 361.

and teaching materials was relatively easy to collect.³⁸ In other words, there were some types of information that were better shared others. This raises two questions. Firstly, why doesn't the RP ranger gather information on INGO/NGO activities himself? And secondly, why do CFUGs share certain information but not information relating to the activities of INGOs/NGOs?

4.3. Stakeholder Analysis

By historically analyzing each stakeholder's interests in community forestry, this section reveals the structural problem resulting from the RP's lack of awareness of INGO/NGO activities. Government, INGO/NGO, and CFUG are the three stakeholders that are analyzed over a period from 1970s to 2010s.

(a) Government

The government's attitude towards community forestry varies according to the area and level of governance, and viewing this attitude as monolithic would overlook the dynamics *within* the government. At the national planning level, within the Ministry of Finance (MoF) and the National Planning Commission (NPC), community forestry is perceived as a legitimate way to prevent further forest degradation and propel reforestation.

Community forestry policy in Nepal developed as a response to the heavy critiques that the Nepalese government received during the 1970s for its technocratic policy and incompetency in the face of forest degradation. In 1988, the MoF and the NPC decentralized Nepalese forest policy by:

- (1) legitimizing and empowering Community Forestry User Groups (CFUGs) as independent and voluntary organizations responsible for national forest management;³⁹
- (2) transferring the rights of forest access, use, management and withdrawal to CFUGs; and
- (3) providing extensive re-orientation to forestry staff and community members so that forests could effectively carry out their advisory role and local communities could better manage their forests.⁴⁰

By 1995, forest regulations allowed the CFUGs to "collect, sell and distribute the forest products as per the operational plan, but should conduct reforestation after the harvesting".⁴¹

On the other hand, officials at the Division of Community Forestry were skeptical about the decisions of the central government. The comment given by Mr. Ajeet K. Karn, the District Forest Officer of Lalitpur District Forest Office, is a comprehensive summary of the difficulties the sector has:

³⁸ Pers. Sep.11, n. 33 above.

³⁹ CFUGs were officially legalized in the Forest Act 1993

⁴⁰ K. Raj Kanel and D. Prasad Acharya, 'Re-inventing forestry agencies: Institutional innovation to support community forestry in Nepal' in: P. Durst *et al.* (eds.), *Reinventing forestry agencies: Experiences of institutional restructuring in Asia and the Pacific* (Food and Agriculture Organization of The United Nations Regional Office for Asia and the Pacific, 2008).

⁴¹ S. Gurung, 'Impact of Policies and Legislation on Nepals Forests and its Future', *49:2 Journal of Forest Economics* (2003), 1, at 7.

After the implementation of CF policy, the DFO needs to do controlling / monitoring of the CFUG activities, as well as facilitating various stakeholders active in the community forests. The fund from the department is limited, and we also have only a restricted number of personnel, which makes our work difficult. For instance, we used to support medicinal plantation in Lamatar VDC; however, due to cut of budget we had to withdraw the project.⁴²

In particular, local government bodies are suffering from severe human and financial resource scarcity. For instance, the RP has only one regular ranger, who needs to oversee all 11 CFUGs as well as the national forests. It is nearly impossible to deal with all the requests from the CFUGs, while also going out to the forest for patrolling.⁴³

(b) Donors, INGOs / NGOs, and CBOs

The forestry sector in Nepal has attracted numerous international donors over the past decades. It is estimated that donors have invested more than 656 million USD since the late 1970s.⁴⁴ The Ministry of

⁴² Mr. Ajeet K. Karn, personal communication, Sep. 4, 2013.

⁴³ R. P ranger, personal communication, Sep. 11, 2013.

⁴⁴ B. Acharaya, *Watershed Management in Nepal: Recent Experiences and Lessons* (Office of Agricultural and Rural Development United States Agency of International Development, 2000); AGEG, *AGEG Projects-Churia Forest Development Project (ChFDP), Nepl*, found at: <http://www.ageg.de/_ageg/ageg-long-term/forest_nepal.html>; Asian Development Bank, *Project Records*, found at: <<http://www.adb.org/projects/search/499,21268>>; B. Mahottari, *Churia Watershed Management Project*, (Churia Watershed Management Project, 2001); CARE Nepal, *SAGUN Program, A Synthesis Report of Strengthening Actions for Governance in Utilization of Natural Resource (SAGUN) Program*, (CARE Nepal, SAGUN Program, 2009); Department for International Cooperation, UK, *Multi-Stakeholder Forestry Programme – Nepal*, found at: <<http://devtracker.dfid.gov.uk/projects/GB-1-200773/documents/>>; Devex, *Churia Forest Development Project (ChFDP)*, found at: <<https://www.devex.com/en/contracts/churia-forest-development-project-chfdp?lang=ja>>; E. Phillip, R. Suwal and N. Thapa, *Upper Mustang Biodiversity Conservation Project: Final Report of the Terminal Evaluation Mission*. (United Nations Development Programme, 2006); FAO Representation in Nepal. *Nepal and FAO Achievements and success stories* (FAO Representation in Nepal, 2011); Foreign Affairs, Trade and Development Canada, *Nepal – International Development Projects*, found at: <<http://www.acdi-cida.gc.ca/cidaweb/cpo.nsf/fWebCSAZEn?ReadForm&idx=00&CC=NP>>; L. Good, *Nepal: Conservation and Sustainable Use of Wetlands in Nepal* (United Nation Development Programme, Global Environment Facility, 2006); Gov. MSFP, n. 21 above; Institute of Forestry, *National Forestry Curriculum Workshop Proceedings* (Institute of Forestry, 2009); Japan International Cooperation Agency. *Activities in Nepal*, found at: <<http://www.jica.go.jp/nepal/english/activities/agriculture.html>>; K. Raj Kanel, n. 37 above; K. Otsuka, *Regeneration of the Disappeared Forest: from fields in Asia and Africa*. (Kodan Sha, 1999); Snowy Horizon Treks and Expedition Pvt. Ltd., *Sagarmatha Community Agro-forestry Project (SCAFP)*, found at: <http://www.trekkingagencynepal.com/sagarmatha_community_agro_forestry_project.php>; J. W. Widdows, *Audit of the USAID/Nepal's Rapti Zone Rural Area Development (Project No. 367-0129)* (Office of the Regional Inspector General for Audit/Singapore, 1986); World Bank, *Project Completion Report Nepal: Second Forestry Project*. (World Bank, 1993); World Bank, *AgInvestment Sourcebook - Module 5 - Community-Based Natural*

Forest and Soil Conservation (2012) described the 1980s as “the decade of the donors”, and claimed that the early years of CF – from the late 1970s to late 1990s – saw an immense inflow of aid, with a concentration on experiments, CFUG formation and institutional capacity building.⁴⁵

MFSC (2012) concludes that foreign aid decreased during and after the civil war (1996-2006), and estimates by the MoF⁴⁶ are consistent with this finding. Although data prior to 2003 were not available, it is estimated that by the late 1990s, 80% of the government community forest budget came from foreign aid,⁴⁷ which would be a huge difference compared to the post-2000 period. Nevertheless, this contradicts findings from a survey on foreign aid project implemented in Nepal over the past 40 years. Table 2 below compares the number of projects and amount of budget flowing into the CF sector, between 1975-1999 and 2000-2011. It indicates that aid in reality did not decline even during the civil war, but was constantly flowing into the CF sector.

Table 2: Numbers and Budget of Foreign Aid Projects from 1975 to 2011

Period	Number of Projects		Funding (Million USD)	
	Total	CF	Total	CF
1975-1999	28	15	360.6	267
2000-2011	20	11	292.5	249 ⁴⁸

Resources *Management,* found at:
 <<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTARD/EXTAGISOU/0,,contentMDK:20936031~menuPK:2758192~pagePK:64168445~piPK:64168309~theSitePK:2502781,00.html>>.

⁴⁵ Gov. MSFP 2012, n. 22 above.

⁴⁶ Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2003/2004* (Government of Nepal, Ministry of Finance, 2004); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2004/2005* (Government of Nepal, Ministry of Finance, 2005); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2005/2006* (Government of Nepal, Ministry of Finance, 2006); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2006/2007* (Government of Nepal, Ministry of Finance, 2007); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2007/2008* (Government of Nepal, Ministry of Finance, 2008); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2008/2009* (Government of Nepal, Ministry of Finance, 2009); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2009/2010* (Government of Nepal, Ministry of Finance, 2010); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2010/2011* (Government of Nepal, Ministry of Finance, 2011); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2011/2012* (Government of Nepal, Ministry of Finance, 2012); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2012/2013* (Government of Nepal, Ministry of Finance, 2013); Government of Nepal, Ministry of Finance, *Estimates of Expenditure for Fiscal Year 2013/2014* (Government of Nepal, Ministry of Finance, 2014).

⁴⁷ R. Bista, ‘Foreign aid policy and its growth effect in Nepal’ 3:1 *EconoQuantum* (2006), 109, at 115.

⁴⁸ Exchange rates were calculated as follows: 1 British Pound Sterling = 1.65 USD (2014/01/12), 1 Euro = 1.37 USD (2014/01/12), 1 Swiss Franc = 1.1085 USD (2014/01/12).

These seemingly contradictory results can be explained by the transformation of money flow after the mid-1990s: donor agencies channeled their funds through INGOs/NGOs and Community Based Organizations (CBO), rather than through the government. For the first time in the country's history, the Constitution of Nepal of 1991, along with the Social Welfare Act 1992 and Ninth Plan document 1997-2002, enabled local NGOs to gain legal and political recognition, which led to a rapid increase of NGOs in Nepal.⁴⁹ According to the Social Welfare Council, numbers of NGOs registered increased from 249 in 1990, to 30,284 in 2010.⁵⁰ From 1992 onward, local NGOs became the new mediator through which foreign aid flowed. The fact that the central government was not intact during the civil war also enhanced the role of local NGOs as implementers.

One of the most significant characteristics distinguishing NGOs and CBOs from government bodies, particularly in the context of CF, is that their activities are more based on the people's needs. In other words, they place more focus on income generation activities (IGA) rather than the protection of the forests. The Federation of Community Forestry Users Nepal (FECOFUN), funded by Department for International Development UK (DFID), the Swiss Agency for Development and Cooperation (SDC), the Danish International Development Agency (DANIDA), and others, is a typical case of this.⁵¹ In 2001, FECOFUN filed a case against the government's decision to impose a 40% tax on the sale of extra timber from community forests, which would strongly hinder the ability of CFUGs to harvest their mature trees in order to gain profits from them. The Supreme Court revoked the policy as it was against the principles of the Forest Act that granted CFUGs the right to decide how to use their forest resources.⁵²

(c) Community Forestry User Groups (CFUG)

People's interests in CF today have largely changed from the early stage of CF in the late 1970s. In case of the forest users in Lamatar VDC, there have been mainly two drivers that shifted their interests: the tree value, and the availability of alternative resources.

The first driver is the value increase of trees. By the late 1970s, the forests in Lamatar VDC were nearly degraded⁵³ and the trees had no value as timber. However, the past 30 years of planting, protecting and managing have enabled community forests in Lamatar VDC to improve forest condition, and have increased the supply of forest products. Today, community forests in Lamatar VDC also regained their value as timber, and people's demand of timber rose in these years for building houses or for sales. "People want to harvest the fruits they took care of for a long time," comments a CFUG

⁴⁹ A. Singh and N. Ingdal, *A Discussion Paper on Donor Best Practices Towards NGOs in Nepal*, (Norwegian Agency for Development Cooperation, 2007).

⁵⁰ Social Welfare Council, Nepal, *NGOs affiliated with Social Welfare Council (2034 - 2067 Ashad masant)*, found at: <http://www.swc.org.np/SWC_NGOs_Total.pdf>.

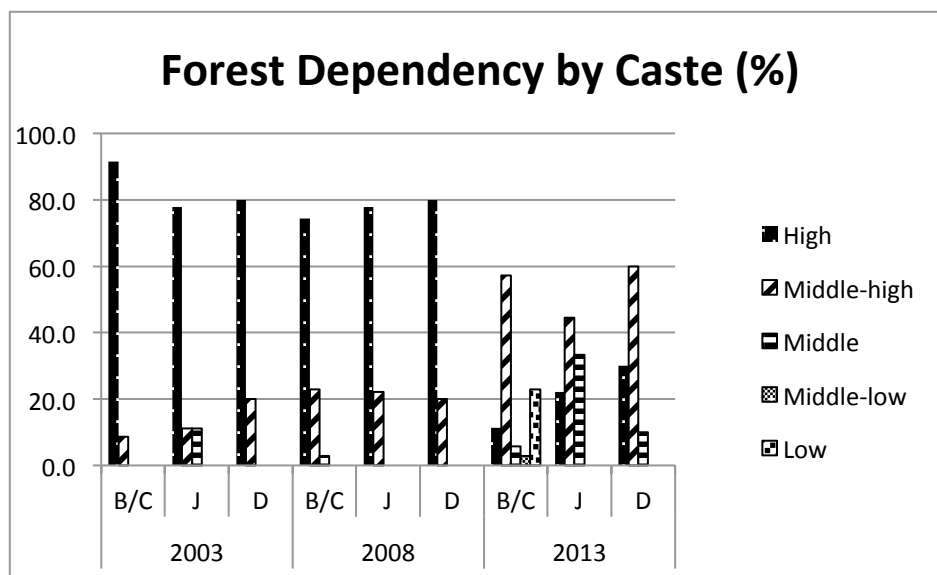
⁵¹ N. Timsina, 'Viewing FECOFUN from the Perspective of Popular', *2:2 Journal of Forest and Livelihood* (2003), 67.

⁵² K. Raj Kanel, n. 40 above.

⁵³ CFUG chairperson, personal communication, Sep 3, 2013.

chairperson, demonstrating people’s interest in utilizing the resources in their community forest.⁵⁴ However, to be able to get permission to fell a tree, people need to go through four or five administrative steps.⁵⁵ Thus, in reality, harvesting timber is not commonly practiced and people’s demands are not satisfied.

Figure 4: Change of People's Forest Dependency⁵⁶



The second driver is the decrease in people’s forest dependency and the increase in alternative resources. Figure 4 presents CFUG members’ response to the question “would it be difficult to live without the resources from Community Forestry?”⁵⁷ The results reveal that people who were highly dependent – in other words, would find it very difficult to live without the resources – decreased from around 80% in 2003, to below 30% in 2013. In contrast, people who were middle-highly dependent on the resources increased threefold over a ten-year period, while middle-highly dependent people started to appear as well. Although Janajatis and Dalits seem to be higher dependent on the resources, these trends could be observed across all three castes. It must also be noted that the proportion of

⁵⁴ Anonymous, personal communication, Sep 3, 2013.

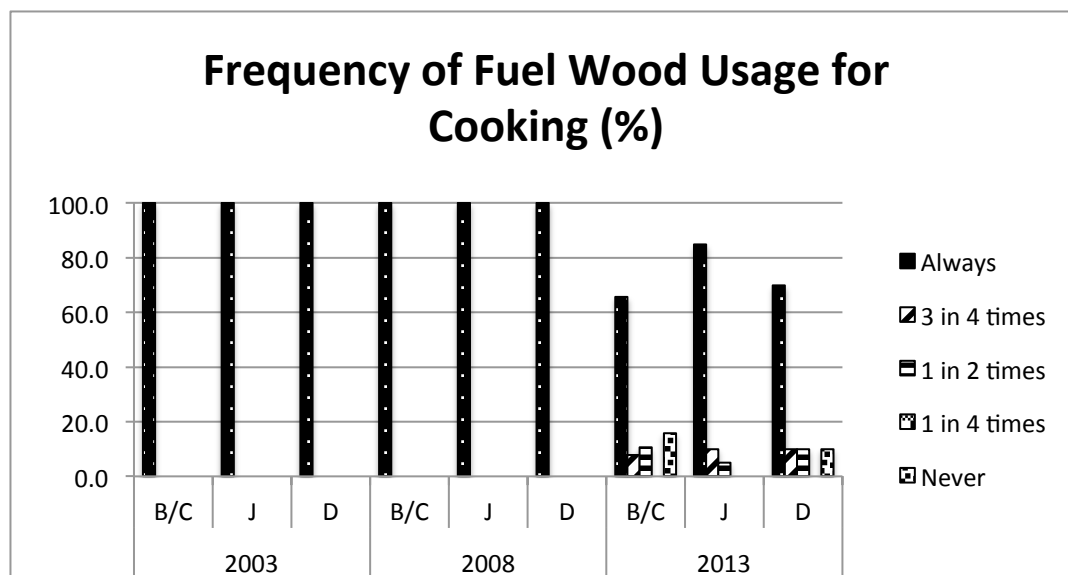
⁵⁵ Godavari Ilaka Forest Office Ranger, personal communication, Sep 19, 2013.

⁵⁶ B/J: Brahmin/Chettri (priests and scholars/ warrior and ruler, highest caste group), J: Janajati (indigenous population), D: Dalit (the so called "untouchables", lowest caste group).

⁵⁷ 68 HHs were chosen out of Padali, Patle, and Goldada for a HH interview. The interviewees were chosen on basis of well-being ranking⁵⁷, and caste: the two big factors affecting forest dependency. 30HHs, 24HHs, and 14HHs were chosen from Padali, Patle, and Goldada respectively. The proportion of each well-being ranking and each caste has been kept the same in the sample.

Brahmin/Chettri accounted for 87% in Padali, and 60% in Patle, which means that this trend was also highly represented in the whole village. One interesting finding here was that, contradictory to the often given explanation that people from lower castes have been more dependent on forest resources, this interview revealed that, at least until 2008, there was not a big gap among the castes.

Figure 5: Change of People’s Frequency of Fuel Wood Usage for Cooking



One reason is that people are gradually using fewer community forest resources in their daily lives. Figure 5 (above) shows the change in people’s frequency of using fuel wood for cooking: a primary reason for their dependence on community forest resources. All people in Lamatar VDC seemed to have been using fuel wood for all their cooking needs until 2008, at which point they gradually began to shift away from fuel wood to liquefied petroleum gas (LP gas). Although the sample number was small, and the interpretation needs to be done carefully, the data shows that around 20% of Brahmins / Chettris and Dalits were using LP gas all the time. Other reasons for using LP gas were: when in rush and fuel wood takes too much time; when sick or tired and fuel wood is too troublesome; and for business use. Moreover, a chairperson of one CFUG claimed that those who use fuel wood almost exclusively still have LP gas for emergencies. The only reason they use fuel wood is because it’s cheap and easy to get (CFUG chairperson, personal communication, Sep 11, 2013).

4.4. Stakeholder Dynamics

Combining the analysis above for each stakeholder, the structural factors that determine information sharing can be summarized in Figure 6 (below).⁵⁸ There are three main structural factors, indicated with numbers in the figure, which hindered the information flow on INGO/ NGO activities.

⁵⁸ The plain lines indicate the flow of money. The thick lines in the graph of <2000~>, represents the main channel of the flow of budget. This figure represents the major trend, and therefore is intentionally simplified.

The first factor, number 1, is that the RP is unable to monitor the activities done by the INGOs/NGOs. As the CFUGs and NGOs do not share the information, the only way to find out about the activities would be to go to the forests or villages and directly monitor their activities. If the RP could validate the information by him/herself, CFUGs and NGOs may choose to report everything rather than get caught hiding. However, the RP is short of human resources and is overloaded with other work, meaning that it cannot collect all information by patrolling.⁵⁹

The second factor, number 2, is the entry of NGOs into community forestry. The community forestry projects in the 1980s and 1990s were mainly concentrated on experiments, such as the formation of CFUGs or building governance capacity. However, after local NGOs gained more legal and political recognition in the early 1990s they became the new mediator through which foreign aid flowed. What differentiated local NGOs from the RP was that they were conducting activities that were of more interest to the CFUGs, so that the CFUGs wanted to keep their support.

The third factor, number 3' and 3'', was the change of CFUGs' perception towards the forest. As the forest value rose due to heavy protection and plantation, people wanted to receive benefits from their efforts. At the same time, CFUGs became less dependent as they started to obtain alternative resources such as LP gas. This may also have led to a decreased incentive to protect the forests without gaining revenue from them.

Additionally, although CFUG committee members did not explicitly express why they do not share certain information, they were present at the moment when the RP ranger was expressing his distrust and willingness to cut budget for the CFUGs getting support. It can therefore be assumed that the CFUGs selectively chose not to provide information to the RP ranger.

⁵⁹ RP ranger, personal communication, Sep. 11, 2013.

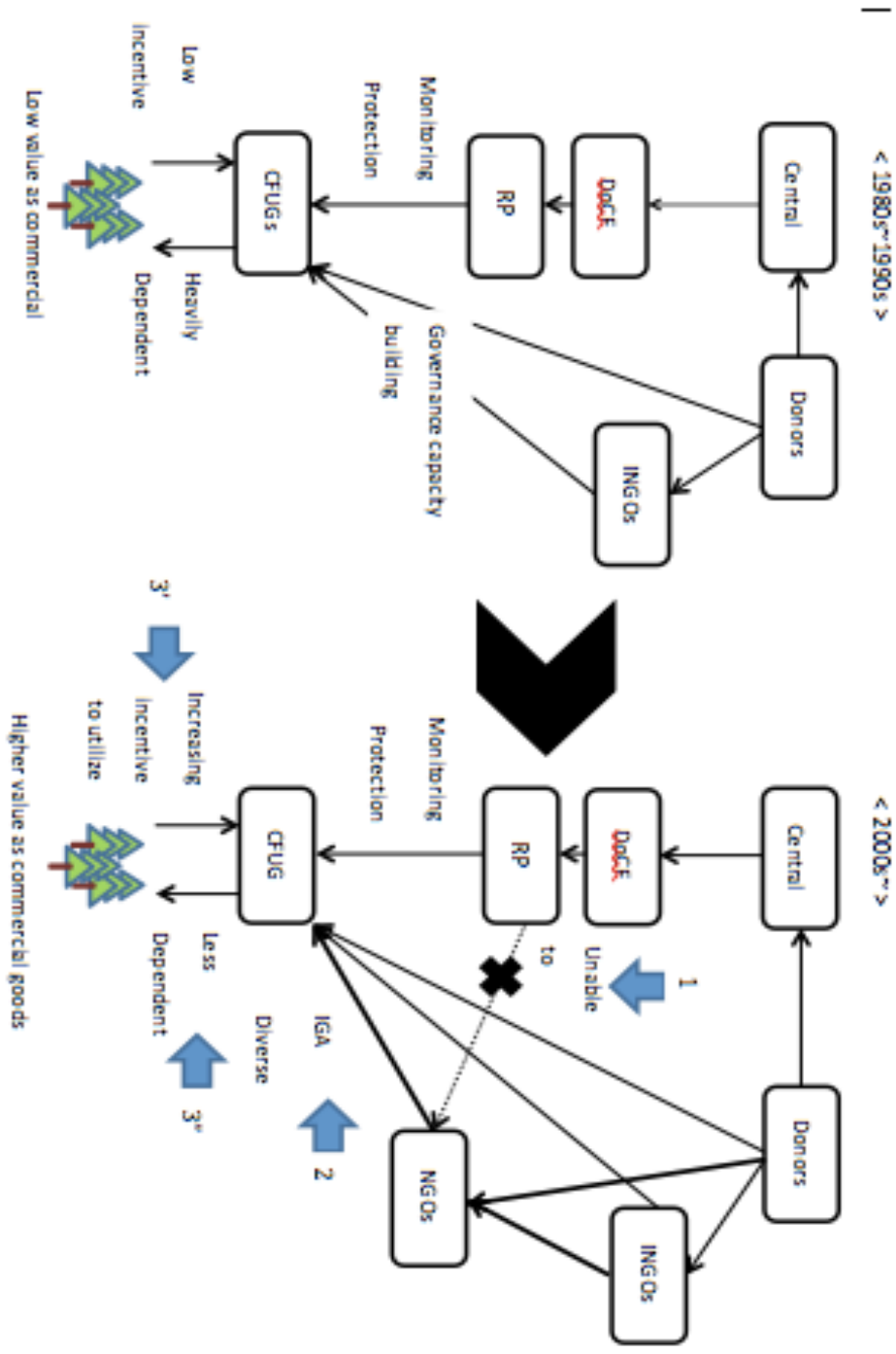


Figure 6: Structural Factors Affecting Information Sharing

5 Discussion and Implications

As multi-stakeholder natural resource management has become a popular approach to manage natural resources around the globe, scholars have started to study appropriate methods of decision-making. Information sharing is seen as a vital component to assure effective and equal NRM.

This paper challenges the often given assumption that frequent communication, especially face-to-face communication, leads to better information sharing, as trust – also called social capital – among stakeholders increases.⁶⁰ Similarly, a conventional assumption in the scholarship of SNA is that more information flows in high-density networks. This is mainly because information can be transmitted through more paths,⁶¹ and because greater trust is built.⁶² Emerging studies on information sharing, especially in NRM, do also often overlook the possibility that some information may be selectively hidden, while other types of information are well transmitted.⁶³

By analyzing 11 CFUGs in Lamatar VDC, Nepal, this paper highlights the nature of the relationship between the frequency of communication and the completeness of shared information. Moreover, after providing counter evidence, it investigated the conditions that determine whether or not certain types of information are shared.

SNA shows that network density in Lamatar VDC has developed over the past 10 years due to the establishment of a cross-CFUG platform that links CFUG committee members and the RP ranger. However, in-depth interviews revealed that CFUG members did not share information on INGO/NGO activities taking place in their vicinity, while they did share information on forest conditions, plantation, harvesting, investment in infrastructure, and teaching materials. As the forest area is relatively small, and except for the communities up the hills, the settlements are concentrated, it is hard to imagine that CFUG committee members would not know which activities are taking place in their community forest. The only remaining possibility is that CFUG committee members selectively hide some information. The RP ranger also stated that “the communities may not necessary want to share the information even they have it. They are able to hide them.”⁶⁴

Results from the SA showed that three structural factors hinder the flow of information on INGO/NGO activities. The first factor was that the RP was incapable of monitoring the activities done by the INGOs/NGOs. The RP was short of human resources and overloaded with work; thus patrolling was impossible to perform. The second factor can be seen in the RP-NGO relationship. While local NGOs are implementing activities that are matching local needs, sharing information would possibly hinder their activities as the RP ranger distrusted the NGOs. Moreover, the fact that the RP would cut funding if

⁶⁰ J. Pretty, ‘Social Capital and the Collective Management of Resources’, 302 *Science* (2003), 1912; T. Dietz, n. 4 above.

⁶¹ C. Haythornthwaite, ‘Social Network Analysis: An Approach and Technique for the Study of Information Exchange’, 18 *Library & Information Science Research* (1996), 323.

⁶² M. Granovetter, ‘Economic Action and Social Structure: The Problem of Embeddedness’ 91:3 *American Journal of Sociology* (1985), 481.

⁶³ C. S. Seixas and F. Berkes, ‘Community-based enterprises: the significance of partnerships and institutional linkages’, 4 *International Journal of the Commons* (2010), 183.

⁶⁴ RP ranger, personal communication, Sep. 11, 2013.

there was NGO support may have also lead people to selectively hide information. The third factor was CFUGs' interest in CF. As strict protection raised the value of the forests, locals started to develop an incentive to utilize the forests, rather than merely protect them. Moreover, people in Lamatar VDC were also becoming less dependent on the community forest, and have alternative resources that they could utilize.

To take the discussion further, this paper proposes that the characteristics of types of information are also a key factor that defines whether information is shared. Information is not equally easy to validate. The condition of the forest, the area of plantation, the quantity of the harvest, and investment in infrastructure are all types of information that can be objectively verified. For instance it would be hard to hide information regarding the number of trees, or the construction of roads. On the other hand, INGO/NGO activities – such as capacity building for women (Consortium for Land Research and Policy Dialogue: COLARP), workshops on income generation activities and good governance (ForestAction Nepal, Sangam Development Community), Training for mushroom farming (NEFUJ), and Carbon stock measurement and training (International Centre for Integrated Mountain Development: ICIMOD) – may be harder to quantify. If not informed of their activities beforehand, these types of information could be difficult for actors such as the RP to obtain. Given that the stakeholders may have conflicting interests, it is less likely that some types of information will be shared.

Lastly, some practical implications for the case of Nepal are as follows:

- NGOs with a mission to support the least privileged can contribute to this mission by facilitating the diverse stakeholders in the region. As the case of Lamatar VDC showed, information on NGO activities tends not to be shared amongst stakeholders, especially with the government, which can cause the marginalization of certain groups.
- Local governments lacking the human and financial resources to manage CFUGs can outsource some of their activities to NGOs, and divide their work to lessen their burden, rather than trying to compete with them.
- Governments with a lack of trust in NGOs can create a system that monitors their activities. In the case of Nepal, the Social Welfare Council should be further empowered in order to develop its capacity to regularly investigate NGO activities. This, however, should be done in a manner that doesn't heighten the entry hurdle for NGOs.
- The entry of new information, or new stakeholders, plays a significant role in changing people's perceptions relating to resources. Current studies often overlook that the value of a resource is not predetermined but can be changed. Although this was beyond the scope of this study, facts suggesting this could be found, and should be further explored.

The main objective of this study was to highlight the importance of analyzing the nature of information sharing among stakeholders – in other words, when do stakeholders share information? In

an era where information asymmetries are common, this paper aims to open up new debates on how information will and should be shared in climate change governance.

