Social Inequality and Collective Action: An Empirical Study of Forest Commons

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Abstract

We assess the role social differences such as caste, and other household characteristics, play on leadership and collective action, taking the case studies of forest commons. Primary data for our analysis was drawn from a survey of eight community forest user groups in the mid-hills of Nepal. The analysis shows that there is less probability for households belonging to lower castes being elected as a member of a decision-making unit within local forest management institutions (e.g. executive committee of a community forest user group). Instead local elites, often from upper caste backgrounds, are found to be advantaged in accessing the decision-making unit of the community forest management institutions.

Key words: community forestry, caste inequality, decision-making, social exclusion, collective action, resource extraction

1. Introduction

A flourishing body of literature has suggested that community management of common pool resources (CPRs) can be a viable way to achieve, economic, environmental and social development goals (Jodha, 1986; Ostrom 1990; Baland and Platteau, 1996). A significant body of theoretical literature shows that communities can develop mechanisms limiting unregulated extraction from CPRs (see Sethi and Somanathan 1996 for a discussion). Multilateral environmental bodies, including the 1992 Earth Summit and the United Nations Conference on Environment and Development have taken the position that "sustainable development" requires community management of resources (Leach, et al 1999). An increasing number of scholars advocate that decentralized collective management of CPRs by their users would be an appropriate and more effective system for governing natural resources in developing countries (Agrawal and Ribot, 1999; Agrawal and Ostrom, 2001).

The past decade has witnessed an increasing emphasis on community-based resource management, with a view that local communities are better equipped to manage these crucial resources sustainably. In Nepal, as in other developing countries, the development of community-based resource management has led to devolution of forest management from centralized government control to local user groups. This process has been developing since the mid-1980s when national forests were progressively handed over to forest user groups (FUGs). According to a recent National Database record, there are already about 14500 FUGs managing about 124, 000 ha of forests, which covers more than 35 % of the population of the country (NPC, 2007).

Despite this success, in recent years issues related to equity aspects of forest management (e.g. distribution of costs and benefits, access to decision-making) has received wide attention - what researchers refer to as second generation challenges of community forestry in Nepal (Kanel, 2008). Of special interest to the study of this governance evolution are socially constructed differences such as the caste system, which often dominates discourses related to access to resources and social exclusion in Nepal. Numerous authors reported that households belonging

to lower caste groups are disproportionately represented in decision-making authority and in benefit sharing which results in marginalization and social exclusion (Baker, 1997; Dhakal, 2006; Tiwary, 2006).

Caste is a hereditary socio-religious ranking often associated with occupation (Ostwald and Baral, 2000). Although there is a gradual breaking down of social barriers between higher and lower castes as well as the fact that the government has declared the caste system as non-existent, it still remains influential. The caste system is a significant social institution in Nepal and India, however there is a difference when comparing caste systems in these two countries. For instance, India has a much stronger affirmative action program and preferential politics as the government provides reservations for government jobs and university seats in programs of higher education for people from scheduled castes, scheduled tribes and other backward communities. Nonetheless, even with the rapid urbanization and education of India's largely rural, agrarian population, the effects of caste are slowly being eradicated, but changes meet with stiff resistance in many parts of the country. Similarly, Nepal is pursuing the issue of caste and social inclusion more vigorously than in any other time in history after recent political movements in Nepal.

This paper addresses the issue of caste and exclusion in collective action, focusing on case studies of eight different community forests in the middle hills of Nepal. The analysis looks at whether there is any relationship between caste and other household socio-economic characteristics (i.e., education and wealth status) in the probability of being elected as a member of the executive committee (forest management decision-making body) of community forest user groups (CFUGs). This research integrates the available knowledge with certain additional variables which have local and contextual significance in order to explore how attributes of households, with focus on caste, influence the access and the management of the local community forests.

To study the role of lower caste (and other socio-economic variables) in determining the composition of the executive committee of the forest user groups, it estimated a probit model to assess the role of lower caste and the other explanatory variables on the probability of becoming members of the executive committee of the CFUGs. Besides the focus on caste, the model controls for the role of participation of the household in community gatherings. Included in the set of explanatory variables are the number of lower caste attending meetings regarding community development issues at the village level.

In the following section of the paper, some accounts of the role of caste and access to decision-making are provided, with special emphasis on community-based development intervention and resource management. In section three, the methodological issues, survey design and data collection are discussed. Section four reports on the econometric models and section five provides the results obtained from the analysis. Section six provides the major conclusions.

2. Caste, Forest Commons and Collective Action: Insights from Literature

Like other parts of south Asia, Nepal demonstrates a distinct social stratification based on the caste system and encompasses a wider socio-economic heterogeneity (Adhikari and Lovett, 2006). The dogma of the caste system though, still remains a contentious issue; it continues to act as an obstacle in the development of communities belonging to the lower social class. An important part of the caste system is that lower caste people often face a multitude of disadvantages in land endowment, socio-economic marginalisation, participation in decision-making processes and employment opportunities (Lawati, 2005). The caste system and its attendant practices have been outlawed and declared punishable offences for quite some time, but these laws are difficult to implement. Nevertheless, untouchability still exists, to a different extent, in the hills and mountains and in the urban areas of the country. *Janajatis* (various ethnic groups) and lower-caste people such as *Dalits* still live in conditions of great poverty and social disadvantage, forming the most impoverished segment of society. About, 42 per cent of the population of the country is below the poverty line; of them 35 per cent belong to untouchable caste groups. This is largely due to economic marginalization of these groups which is further aggravated by lack of access to political decision-making by these groups.

The caste system on the Indian subcontinent started around 1500 BC when the Aryans from south Europe and north Asia came to India. They were light skinned compared to the darker natives (Dirks, 2001). Upon arrival, the Aryans set up the caste system in order to keep their power over the natives. Rajayana was the first category within this so called caste system that later changed their name to Kshatria. The second group was the Brahmans (priests). Initially, there was a long struggle between these two groups to gain control over political leadership. The Brahmans got to be the leaders of the Aryan society after this struggle. The third group was Vaisia (farmers and craftsmen). Most of the communities that were in India before the arrival of the Aryans were integrated in the Sudra Varna or were made outcast depending on the professions of these communities(Dirks, 2001).Communities which professed non-polluting jobs were integrated in Sudra Varna. And communities which professed polluting professions were made outcasts. In the newly created caste system, a son inherited his father's profession. As the caste system matured, people belonging to the same caste and profession developed social relations and organized themselves as a common community.

The caste system in Nepal can be traced back to the migration of immigrants from the Gangetic plains and the ascendancy of the Hindu religion. These events occurred during the early Christian era. The system has been modified to accept within its fold many ethnically Tibeto-Burman groups that were indigenous to the region apart from the Indo-Aryan speakers from the plains. Although the notion of caste was closely related to the division of labour in early days, later people in different professions have been named after the work they were engaged in. For instance, outcastes – who are treated as untouchables - are basically *Dalits* who are engaged in different professional activities such as *Kamis* (Iron-smiths), *Sunars* (Gold-smiths), *Lohars* (Iron smiths), *Vishwakarmas* (V.K.), *Sobh*, *Snehi Nepali*, among others. An individual who is engaged in work related to gold is a *Sonar*; the person who makes things out of copper is a *Tamta*; one who is engaged in iron-related works is a *Lohar*, in making utensils from wood, a *Chunara*; in constructing goods from bamboo is a *Parki*; a cloth weaver a *Koli* and *Sarki* for the person engaged in leather work. Pradhan and Shrestha (2005) posit that there is no agreement

concerning the exact number of *Dalit* castes in Nepal, making it difficult to estimate the exact population. For example, the National Dalit Commission lists 28 *Dalit* castes, whereas the 2001 Census lists only 16 *Dalit* castes. The largest *Dalit* group is *Kami* (blacksmiths), with 30% of the *Dalit* population, followed by *Damai* (tailors as well as musicians) 13%, *Sarki* (cobblers) 11%, and *Chamar* (sweepers) 9% (Pradhan and Shrestha, 2005).

Although a number of development initiatives try to address the issue of caste and social exclusion, the access to the broader political and economic system by socially and economically backward communities in Nepal is still considered to be inadequate. Poorer households usually affiliated to lower caste groups do not necessarily benefit as much as the relatively richer households from higher caste backgrounds in deriving benefits from local development interventions. For instance, ethnic minorities and indigenous people, who represent a significant number of landless households marred with poverty, have tended to lag behind in benefiting from any community-based development initiatives (Dhakal, 2006).

Caste discrimination is a strong determining factor for exclusion in various forms of collective action. In the context of natural resource management, the debate is that households belonging to higher caste groups often have privileged access to village leadership and decision making processes of the local commons. For instance, in his study of 39 traditional canal systems in India, Baker (1997) concluded that upper-caste farmers are always in a better position to use more water, as they are located at the head-end of irrigation water supplies. Further, Tiwary (2006) systematically explored water resource access structures and highlighted the cumulative inequality that scheduled caste groups' face in rural India. In his study, aimed at analyzing community-based organizations (CBOs) and local democracy in Nepal, Dhakal (2006) points out that, 'the males and high caste groups are, for instance, dominant in terms of number and influence in CBOs compared to low caste groups and women and that the CBOs, which are usually considered to be a key mechanism for social inclusion, can be liable to elite capture.'

Beteille (1983) noted that in Indian villages, access to local common-property resources is often restricted to privileged caste groups. The outcasts or schedule castes [1] are often among the poorest of the poor and are frequently excluded in the decision-making process. With regard to joint forest management in India, Hildyard et al (1998) noted the structural dominance enjoyed by more powerful groups in joint forest management. They argue that participation requires wider processes of social transformation and structural change to the system of social relations through which inequalities are reproduced and that without this transformation marginalized caste groups could not get enhanced access to the resource base. Quite a few studies highlighted the association and dependency of scheduled tribes on forest resources in eastern India (Poffenberger, 1996). At the same time others identified that there was no role for groups in forest management decision-making due to their lower social status (Sundar, 1997).

Graner (1997) argued that the shift in forest management from state control to community ownership in Nepal has not necessarily helped the poor people, but has often worked to their disadvantage. In many cases, the poor are not included in the forest management decision-making body (i.e. forest users committee), as fuel wood sellers and other occupational

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[1] Traditionally fell outside the caste system and was called "untouchables" and later given the name Harijans (Ostwals and Baral, 2000).

households are not effectively represented in the operational regime. Thapa et al. (1998) posits that even if a person from the lower caste group is represented on the committee, their views are often disregarded and have less bargaining power at community meetings and assemblies. In terms of resource exploitation, Adhikari et al (2004) observed that lower caste households are benefiting less from community forests than households belonging to higher caste groups. Singh (2004) noted that the dominant caste generally leads in regulating water management affairs in India. In his study on power, equity and conflicts in South Asia, Bhatia (1997) pointed out that, 'while some conflicts in community-based resource management are caused by disagreements related to access and distribution of community forestry resources, in many cases the causes are actually based on class, caste, gender, and power but manifest themselves in the guise of community forestry'.

However, these claims are also contested by other scholars. For instance, a study conducted by Sharma (2002) concluded that the use of forest products from the community forests by wealth and caste fails to reveal any discrimination against the poor or lower caste people. He further argued that community forestry still remains a viable strategy for securing basic needs as it can contribute to poverty reduction because the poor and low caste households have easy access to forest products.

Pokharel's (1997) work on community forestry in Nepal highlighted the role of community-based approaches as a vehicle in bringing change in social processes such as empowering the poor and disadvantaged members of the community. The CF program is able to raise awareness among marginalized members of the group in matters related to inequality, social injustice and their exclusion from social and political processes including the benefits from mainstream development. In terms of participation, the CF program is a significant contributor to increasing participation of many marginalized sections of the community due to increased representation on users committees. As a result many of them have begun to voice their concerns in meetings and assemblies.

These reports indicated that caste, social exclusion and access to natural resources are still contentious issues with regard to community-based forest management. Though caste aspects of rural development and issue of social exclusion have been well studied in India, no systematic effort has yet been undertaken in Nepal other than few studies on historical aspects of caste system. In this context it is interesting to examine how the caste system influences the participation of rural households in managing the local commons. The focus of this paper is concentrated around how caste influences the probability of households being represented in the decision-making authority of forest management institutions and in the regulated form of common property resource management.

3. Survey and Variables

Data for this paper is drawn from a survey conducted in 2000 in two districts in the middle hills of Nepal, Kavre Palanchok and Sindhu Palanchowk. The middle hills comprise the central area of Nepal with a mixture of agricultural and forested land. The majority of the population in this area are subsistence farmers, depending on the surrounding agricultural and forested land, with livestock playing an important role in their livelihood options (Adhikari, 2003). The middle-hills

run from east to west across the center of the country, sandwiched between the low laying Gangetic plains (*Terai*) and the snow-capped Himalayan Mountains. Altitude in the middle-hills ranges from 300 m in river valleys to 5,000 m on hill tops. Land uses in this region are categorized as cultivated land, non-cultivated inclusions, grasslands, forestland, shrub lands and other types of land use.

Given that community forestry has been in existence in the middle hills for up to twenty years, the lengthy timeframe provides a suitable environment in which to study the resource use patterns by gender and caste. Since there is a fair degree of variability within the two districts in terms of bio-physical and socio-economic characteristics, deliberate selection of sites was considered likely to yield more information on the nature of project impact for a minimum level of study resources than would a strictly random selection of sites (Collett *et al.*, 1996).

The next task was to select forest user groups (FUGs) from the two districts under consideration. In order to address the research questions, four Forest User Groups (Saradadevi FUG, Jyala Chiti FUG, Mahavedsthan FUC and Thuli Ban FUG) in Kavre Palanchok districts and four FUGs (Gaurati FUG, Shree Chhap FUG, Janghare FUG and Karki Tar FUG) in Sindhu Palanchowk district were selected.

Within these FUGs a sample of households was selected randomly for interviews based on their wealth ranking. This wealth ranking was constructed after carrying out a participatory rural appraisal exercise that ranked households according to criteria that the villagers themselves considered important in assessing a household's position within the village (Adhikari, 2003). Households were consequently divided into three income groups – poor, middle and rich based on the amount of land owned, the amount of off-farm income, food sufficiency and the quality of land ownership within each household. A total of 330 interviews were conducted, with twenty one questionnaires being excluded from the final analysis because they were incomplete. The survey focused on obtaining demographic information, land holding and tenure information, use and management of the community forest and awareness on decision-making aspect of FUGs. More importantly, the focus was on participation and membership of households in FUGs according to the caste of sample households.

From the survey a set of variables was selected for inclusion in the econometric model. The variables used in this analysis are summarized in Table 1, which defines the explanatory variables incorporated in the econometric analysis.

Table 1 Definitions for Summary Statistics for the Explanatory Variables

Variables	Definition	Mean	Std deviation	Min	max
Participation	Attendance in meetings in village meeting related to the management of the forest	4.32	5.04	1	36
Lower caste	Household belonging to the untouchable caste (if untouchable caste =1, 0 otherwise)	0.120	0.326	0	1
Rich	Household belonging to the rich group (if rich =1, 0 otherwise)	0.297	0.458	0	1
Membership	Household belonging to the FUG committee (if yes =1, 0 otherwise)	0.18	0.86	0	1
Education	Average education of adult family members (in years)	4.640	3.918	1	16
Age	Age of the household head (in years)	43.708	12.900	22	84
Labor	Units of labor per household	1.15	0.77	0.07	5.7

4. Analysis

To analyze the role of lower caste status, other socio economic variables and the level of participation on both the probability of becoming a member of the FUG committee, the study estimates the role of the set of explanatory variables in determining the probability of that specific household having one of their members on the FUG committee. This equation is called the "membership equation." Therefore, socio economic characteristics (rich, education, age and lower caste), participation and the labour units (time spent in transaction costs related activities

such as meetings, monitoring etc.) per household are also assumed to be determinants of the memberships in the common property forest. The membership equation is given as:

$$M_i = w_i'\delta + \eta_I \qquad (1)$$

Where M_i is a binary variable that is equal to 1 if the household has a member in the FUG committee and 0 otherwise, w_i is a vector of covariates for household i, δ is a vector of coefficients for the membership equation and η is the random disturbance.
The assumption is that the extraction equation is linear. To test for the presence of collinearity, the computation of the variance inflation factors (VIF) was implemented. The results were VIF values of all the explanatory variables were between 1.03 and 1.2. Thus, no evidence of collinearity was found.

5. Empirical Results

Table 2 reports the econometric results for the membership equation. As already discussed, probability of being elected to the executive committee of FUGs is a related to caste and other socio-economic characteristics of participating households. This relation can be specified as follows:

Prob [Memtype=1] = F (constant, lower caste, rich, age, education, participation, labour) (2)

To control for institutional and other unobservable forest user groups effects on fuelwood collection and FUG membership the models include both fixed and non-fixed effects. To appreciate the qualitative difference between these two models, Table 3 presents both results. The Huber/White/sandwich estimator of variance was used. Further, for the 308 households belonging to the eight different FUGs that manage a specific forest, the allowed observations were not independent within groups (although they still are independent between groups). Therefore, the observations are independent across groups (clusters) but not necessarily independent within the group.

From the inspection of the latter we found that the probability of becoming a member of the FUG committee is sensitive to socio economic variables. The estimated coefficient for lower caste is negative and statistically significant (at 1% level). This implies that belonging to the caste of the untouchables, is negatively correlated with the probability of being elected as a member of the FUG executive committee. This supports the argument that untouchable households are marginalized and are not part of the decision making and governing body of the forest user groups. Relatively better off households, instead, have a positive estimated coefficient (statistically significant at the 5% level). This observation is similar to that of Singh (2004) who argued that leadership in water management issues is exercised by the senior group from the dominant caste in India.

More educated households are also more likely to become part of the FUG committee. Indeed, the estimated coefficient for education is positive and statistically significant at the 1% level.

Age, instead, negatively affects the probability of membership. However, the estimated coefficient is statistically not significant. The level of participation in community meetings (meetings related to various aspects of forest management) seems to play an important role in determining the probability of being elected to the executive committee of the FUG. Indeed, the estimated coefficient is positive and highly significant. Households that allocate time to participate in community meetings that relate to forest management have better chances to become part of the decision=making body. Labor units per household, instead have been found to be highly insignificant.

Table 2 Probit Equation Results

Variables Std err	Coeffs	Std Err	Coeffs	Std err
	(A) Without FUG fixed effects		(B) With fixed effects	
Lower caste	-0.6***	0.017	-0.79***	0.1932
Rich	0.32**	0.14	0.45***	0.1916
Education	0.38***	0.013	0.0377***	0.0154
Age	-0.3	0.35	0.10	0.171
Labour	0.003	0.21	0.1479	0.195
Participation	0.85***	0.15	0.86***	0.179
Constant	-0.32	1.38	-1.63***	0.381

Model (A) Log Likelihood; -91; Wald chi2 (6) = 402.76; Prob > chi2 = 0; Pseudo R2 = 0.33 − Model (B): -91; Pseudo R2 = 0.3536

Significance levels are denoted by one asterisk (*) at the 10 % level, two asterisks (**) at the 5 % level, three asterisks (***) at the 1 percent level ; N=308;Note: Robust standard errors are used.

The calculation of the marginal effects highlighted the relative importance of the variables lower caste and rich. The former displayed a marginal effect equal to -0.1 and the latter equal to 0.07. An equation for this would be helpful too. The marginal effect calculated for variable education was 0.075. Therefore, among the socioeconomic characteristics, lower caste has the largest impact on the probability of membership on the FUG executive committee. The level of participation has been found to have the largest impact of all the explanatory variables (0.16). This result stresses the importance of household participation in community meetings.

The model prediction is satisfactory as 81 per cent of the cases were predicted correctly. The most important variables that affect probability of being in the decision-making units in our models are caste, education, economic status and how often a household member participates in a variety of meetings on forest related activities, which are usually voluntary in nature. Better off households could afford attending these meetings, but poorer households, often wage labourers,

could not do so because of the opportunity costs associated with these meetings. Caste is a social construct and there is no silver bullet to eliminate it from the society instantly as well as addressing inequities associated with it. But representation of lower caste households could be enhanced through a gradual process of empowerment. With regard to education, obviously both formal and informal means of education could enhance their participation at the decision-making level.

The overall analysis suggests that distinct patterns exist in relation to caste and leadership in collective action, wherein the households belonging to the higher castes were consistently represented more in decision-making units of community forestry than the lower or so=called untouchable castes. The differences in leadership in common property institutions by caste groups is likely to be a combined effect of the low levels of influence of lower caste households in village level political spheres as well as decades of the social exclusion of these groups in village decision-making. As already discussed, obstacles still exist for participation in the decision-making authority (FUG committee) by the most marginalized sectors of society because of barriers of caste, gender and socio-economic status. It was observed that while some lower caste and occupational households have adopted agricultural livelihood strategies and have increased their use of forests, it remains questionable whether lower castes, as a distinct social group, have actually gained any political control over the village commons. However, the part of the problem which warrants further study is the social aspect of caste. Lower castes, even if encouraged to sit on FUG committees would require considerable skill building and other support mechanisms to make their representation meaningful. It would be interesting to conduct a research program around this to scrutinize the finding of this study on the impact of caste. Perhaps, further research is required, as this analysis is more suggestive than conclusive.

It is obvious that the long-term viability of community institutions is often dependent on an equitable sharing of costs and benefits as well as access to the decision-making units by all households in forest management. Further, legitimacy of decisions made depend on whether or not institutions manage to capture the expectations of resources users from diverse socio-economic status, most importantly households from lower caste backgrounds. The inability to maintain dynamic and balanced institutions, represented by legitimate resource users, can result in the sudden collapse of these institutions and the failure of collective action.

6. Conclusions

Community-based management of common pool resources has been gaining momentum in many developing countries due to their contributions on rural livelihoods and environmental conservation. However, there is a strong debate among scholars as to whether a community-based approach to CPR management is more equitable in heterogeneous society with a number of socio-economic differences among its actors. And that these types of resource management regimes would be able to empower the marginalized and poorer sections of the society. This paper focused on some of these issues related to socio-economic differences such as caste and collective action taking case studies of community forestry in Nepal.

This study stresses the important role that lower caste and local elites may have. Caste is playing an important role in local level collectives, as represented by membership to the governing body of a FUG. Econometric evidence shows that while richer and more educated households are

more likely to be part of the governing body the untouchables are somehow less represented. Their participation in the FUG executive committee and the decision making process appears to be lower than their upper caste counterparts.

Local elites are found to be advantaged in accessing the decision-making committee of the forest management institutions. The overall observation is that despite the enormous potential of CF to significantly improve livelihoods and poverty reduction in the Nepal's mid-hills, the poverty alleviation agenda set by the government through the CF program is unlikely to be achieved unless intervention related to empowering and increasing the participation of the lower caste and marginalized groups within the community forestry program are properly implemented. This study points out caste related to equity issues that need urgent attention if the long-term sustainability of CF initiatives is to be realised. Mechanisms in representing lower caste households in forest management institutions and their increased participation, if left unaddressed, could generate conflicts threatening the survival of community-based approaches to forest management.

Perhaps some affirmative actions are required in order to address the current status of inequitable participation of households into the decision-making authority of forest user groups. However, scholars also challenge the simplistic view that a targeted programme will enhance the increase of number of poorer households in realizing benefits from programmes aimed to poverty alleviation. In their study of the cost-effectiveness of anti-poverty outlays such as the Rural Public Works (RPW) and the Integrated Development Programme (IRDP) in India, Gaiha et al. (2001) observed that the targeted interventions of anti-poverty efforts were no different from those of a random selection from the aggregate rural population. They further noted serious targeting failures, implying substantial leakages to the affluent. But this study proposes that this usually happens when there is a mismatch between the targeted programmes and the actual need and capacity of the socio-economically unprivileged groups for appropriating benefits from such interventions. It would be useful to study what aspects require affirmative action such as empowerment through training and education, income support, and to address other deficiencies and inequities in managing the village commons, especially those related to the caste aspects of rural development.

Few recommendations include promoting the national debate and media campaigns as well as human rights education to sensitize the population in order to avoid social exclusion based on caste prejudices. International development organizations and aid agencies could also assist in this effort through putting some pre-condition on development assistance and supporting economic and social empowerment of Dalits and their representation in decision-making process. Caste inequality, as well as other socioeconomic characteristics, could undermine the success of community-based approaches to resource management as well as inequitable outcomes of poverty alleviation measures unless local institutions are strong enough to tackle the inequity in access and opportunities for all segments of society to benefit at the local level.

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