

Hydropower Development in Nepal: Local Responses to Technology and Formal Institutions

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Abstract

Currently in Nepal, there is a big push for large hydro projects as the dominant national strategy not only for sectoral gains but also as an engine for the country's overall economic development. Within this context, formal institutions (laws, acts, policies, and guidelines) provide the framework for direct technological intervention strategies. There is limited research on how these formal institutions actually translate at the local rural level in regard to distributional outcomes particularly based on notions of equity or inequity. There is even less research on how the newly implanted technology impacts on people's access, dependence and exploitation of resources, both financial and natural (land and water), whether they are displaced or not by the hydro projects.

This paper will focus on the results of a qualitative case study on localised responses to Nepal's largest hydropower project, the 144MW Kali Gandaki 'A', in mid-western Nepal, about 180km west of the capital, Kathmandu. It studies the processes through which local actors and groups access knowledge and information of the technological intervention and its associated formal institutions in both the compensatory and post-compensatory stages. It also tries to assess the influence and power within specified social structures (caste, class, ethnic group and patron-client relationships) on such access to knowledge and information and how it is further used to affect resource distribution, both financial and non-financial. This will be fed back into policy processes of large hydro, particularly dam intervention, as Nepal readies itself for grander projects. It will also help set lessons for debating further on whether large dams are the answer to a poor country's development under the current institutional context.

1. Background and Aim of the Study

Nepali rivers account for one of the world's largest hydropower potential. Energy through hydropower contributes to 90 percent of total energy generation in Nepal. Until 2002, only 1.3 percent of the calculated potential 43000MW had been realized¹. The benefits of large-scale hydropower have not flowed to the majority of the people in Nepal, 90 percent of whom lead an agrarian life. According to the population census of 2001, 39.39 percent of the people of Nepal have access to electricity, mostly urban.

The current research aimed to study the processes by which local actors and groups access knowledge and information of the technological intervention and its associated formal

¹ Total generation in 2002 approximated at 563.78MW (408MW by public & 155.7MW by private sector)

institutions (laws, acts, policies, and guidelines) to gain equal or unequal outcomes. Two main questions were framed for the research:

1. What are the outcomes when large hydropower plants and the associated formal institutions are implanted upon local communities?
2. How do social structure (caste, class, ethnicity, clans or patron-client relations) shape individuals and groups to influence the process of compensatory distribution (cash and land) and other project benefits such as employment?

2. Methods

The research took a case study approach focusing on the 144MW Kali Gandaki 'A' dam project, Nepal's largest hydropower plant. As a relatively new project, it could lead to important lesson learning for the future, especially in terms of land loss. The collection of secondary data and field research took place between September 2002 and July 2003. The time was distributed to collect project related information, conduct empirical fieldwork, input data, and write up field notes. Semi structured interviews were conducted with relevant experts and personnel from the capital Kathmandu and the Nepal Electricity Authority, the main implementing organisation. Two villages in the mid-west district of Syangja: Mirmi, the dam site and Beltari, the location of the powerhouse were taken as the field sites. People who lost a major share of their land to the project came from these two villages. To gather relevant data on environmental equity issues of natural resource sharing (mainly the river), interviews and visits were carried out with all the Bote fishing communities downstream along the 50 km river loop and upstream of the dam.

A major part of fieldwork was spent conducting ethnographic qualitative research. The intense community antagonism towards researchers at this stage did not allow for quantitative research. They were suffering from a 'survey burnout' as the project continuously monitored them for about 8 years. Therefore, to attain a true picture of the intervention, responses, and outcomes and to build up confidence with local respondents, qualitative research became the key method. In addition, key informants (local as well as current and ex-project officials) formed a major source of information. After some confidence was built up, an 8-paged questionnaire was administered to 108 households who constituted 50 percent of those heavily affected in terms of land loss in the dam and powerhouse sites.

3. Theory: Social Inequalities, Formal Institutions and Patronage politics

I focus on three concepts in this paper: social inequalities, institutions and patronage politics. Firstly, I take the stand that communities are not static, relatively homogenous entities (Leach et al. 1999) but are rather unequal based on ascribed, economic and political distinctiveness. I expand on social inequalities based on the social structure concepts of caste, ethnicity, clan and class. The paper explores how these social structure variables influence the various actors embedded within it to react and act, knowingly or unknowingly to produce the outcomes after dam intervention.

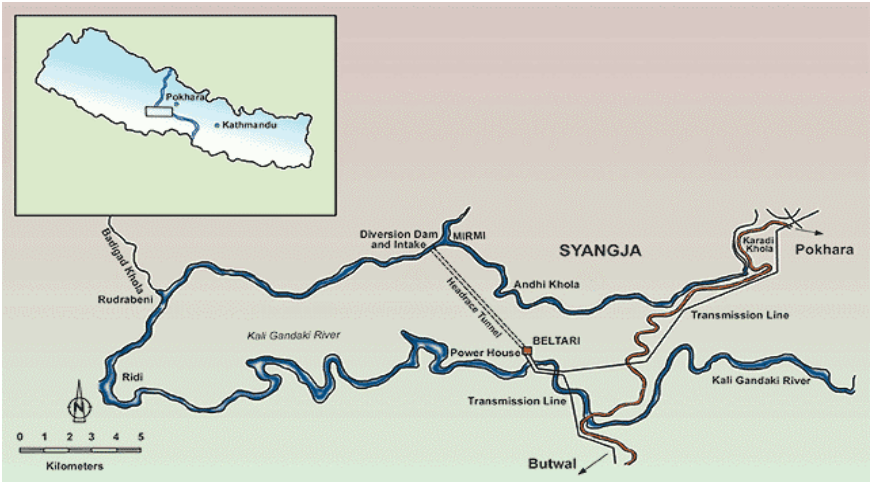
Secondly, as rural societies are largely agrarian, based on patronage politics, I take Scott's (1976) approach of focusing on relations between economic and social institutions for moral outcomes. This is explored along with Popkin's (1979) rational political economy approach. Moral economy argues that peasants and elites are moral and less calculating in pre capitalist settings. It believes that the justification of any hierarchy of status and power implies the

creation of role obligations that carry moral weight. This is mainly because mutual interests bind patrons and clients. They develop a normative framework on this basis. When patrons opt out of this frame, peasants would rebel because the moral contract is broken. On the other hand, Popkin argues that individual choice and decision making form the core concepts on why groups of individuals decide to adopt some norms while rejecting others. Political economy argues that norms are malleable, renegotiated and shifted in accordance with considerations of power and strategic interactions among individuals. The assumption is that a peasant is concerned with the welfare and security of him/herself and family, thereby being self interested and rational.

Thirdly, I take up institutional theory. Institutions hold a dual meaning, one signifying organizations and the other, the rules of the game (North 1990, Scott 1995). They open up opportunities and not just constrain choices (Acheson 1992). There is also a distinction between formal and informal institutions. According to Leach et al. (1999:238) formal institutions are rules requiring exogenous enforcement by a third party and informal institutions are endogenously enforced and agreed upon by the social actors or through relations of power and authority. This paper takes the concept of formal institutions of the State (policies, Acts, laws and rules) that form normative and regulative structures (Scott 1995).

4. Description of research area

The project area includes approximately 169km² (16,880 ha)² of land in 13 Village Development Committees (VDC). Principal facilities (power plant, dam site and reservoir) are located within nine VDCs dispersed in the four districts of Syangja, Palpa, Gulmi and Parbat. The most heavily affected in terms of land loss were the communities in Shree Krishna Gandaki VDC of Syangja district. The rest are those affected by the construction of the access road or the transmission line².



The dam site rests on one of Nepal’s holiest rivers, the snow fed perennial Kali Gandaki. The 44-meter high dam wall is built close to the confluence of the Andhi Khola River in the mid western district of Syangja, about 180 km west of the capital, Kathmandu. A reservoir 5.5 km long spread over 65 hectare is created by the dam. Water is water is then diverted through a 6km tunnel from the dam to the powerhouse. The project includes a 132kV transmission line that runs from the power plant to substations in Pokhara (66kms) and Butwal (44kms) ready for national grid distribution.

² The transmission line runs through settlements in Rupandehi and Kaski districts. These sites are not covered by the current research. Altogether 350 towers were installed, each tower displacing 25m² of land. In the process, 46 houses, 217.1ha of cultivated land, 29.1 ha of forestland and 82.1ha of shrub land are directly affected.

5. Results: Formal Institutions, Social Inequality and Patronage - Influences and outcomes

The role of formal institutions, social inequality, and patronage politics in influencing actors to shape outcomes after dam intervention is the main theme of this section. For clarity, two main interventions that have influenced outcomes are taken into consideration in this study: acquisition and compensation of land and project employment after dam intervention.

Formal Institutions

The State is directly assigned the institutional right to water and in case of 'public interest', acquirement of private property. In comparison to past hydropower project implementation in Nepal, the current dam intervention took serious consideration of state policies and plans in its implementation. An Environment Impact Assessment (EIA) was conducted with a detailed project monitoring and mitigation plan. The NEA acquired about 53.7 hectares (1054 ropani³) of land and 57 houses for the access road. A further 148.62 hectares land was acquired (of which 94.2 hectares was private and *guthi*⁴ land) for the main facilities that included dam, powerhouse, and office sites (Kali Gandaki Environmental Management Unit 2002).

All families whose lands were appropriated had to produce legal land ownership certificates to receive the compensation. Those who lost 50 per cent or more of legally registered land and/or their living quarters and experienced loss of income greater than 60 per cent were declared as Seriously Project Affected Families (SPAFs) and those individuals losing less than 50 percent of land were categorized as Project Affected Families (PAFs). There were 263 SPAFs and 1205 PAFs (KGEMU 2002). These included families that lost land and assets in the main facilities area (damsite and power house site), road access, Pokhara substation and the corridors of transmission lines (detailed in section 4.3.1). The contractors and the NEA were to relocate twelve Bote households displaced by the construction activities and dam inundation⁵. This did not exist in the hydropower compensatory packages of past projects.

An Acquisition, Compensation and Rehabilitation Plan (ACRP) was developed as a pre project document following the process established in the Land Acquisition Act of Nepal of 1977. According to the same Act, a Rate Fixation Committee was formed led by the Chief District Officer. The Committee laid down provisions of compensation as per rules and all SPAFs and PAFs were paid cash accordingly. Majority (65.7%) of the respondents in the field survey for this study answered that they had no problems receiving compensation money itself. However, people who did not have legal land certificates for their land were unable to receive compensation. About half the respondents (46.3%) replied that they have received information regarding the project before the intervention. A majority of respondents (82.4%) agreed that they were provided time to carry crops and materials. Respondents satisfied with the compensation amount were the ones who immediately made decisions to buy alternative land. According to a survey conducted by the project on 100 affected

³ 1 hectare land equals 19.6 ropanis

⁴ Committee managing religious institution; land ceded by individuals or the King for financing such religious or social institutions.

⁵ The figures later raised to 18 Bote households. In 2002, only 8 houses were built.

households, only 41 households (41%) bought replacement land out of which 24 households bought *khet*⁶ land (Sapkota 2001). This was the most productive outcome.

However, institutional conditions such as categorization of affected people, outdated rules on compensation, non inclusion of indirect affectees in compensatory procedures and lack of strong consultation processes created additional gaps that determined outcomes differently amongst those affected by the dam intervention. The gaps in the formal institutions allowed local people to influence outcomes towards their favour.

Employment: In addition to land acquirement and compensation, employment of local people in the project was also taken as a variable in the research to see the outcomes. Local people placed employment in a high priority before, during and after project intervention. As part of the mitigation strategy of the EIA Plan, at least one person from all SPAF and PAF families were to be provided employment in the project. The contractors were provided with a list of these families for the provision of employment to locals. According to the project, as of May 2001, the total project employment was 2132 out of which 1012 (47.45%) were from the local area. Altogether, 94 SPAFs (35.7%) and 190 PAFs (15.7%) were employed in the project (NEA 2001:2).

The survey results of the current research show that 65 per cent of the 108 respondents knew about the SPAF/PAF employment opportunity before the project. However, not all availed from this institutional provision. The families who lost more land complained that it was unjust that the same rule applied to all the affected families. While those who were educated received better employment, those who did not have any skills lost out in the end. The duration of employment differed according to people's status and influence, either political or social. As for gender distribution, only 3 per cent of the total employees were women, the reasons cited in the report being 'low educational levels, patriarchal social values and the nature of job' (Sapkota 2001: 9).

Patronage Politics

Patronage relations were based on political affiliation in addition to ascribed caste/ethnic groups or class and clans. In a nascent democracy⁷, political party leaders were chosen into ward and regional level offices forming crucial patrons linking them to the state. According to Pfaff (2000), the political parties are often viewed as best suited allies to the state, which increasingly interferes or provides for the people. Apart from political leadership, social and village elders formed a core of the hierarchical informal institutional structure within the village.

In the case of the Kali Gandaki 'A' intervention, as prominent political party and village leaders lost major share of land, it made a crucial difference in the determination of outcomes. Compensation was low in the first acquisition process for the access road. Once the leaders formed a proper base of knowledge and with their own interests, they initiated negotiations with the project officials and set a higher amount of compensation suited to the changing land economy after project intervention.

Project officials relied on the high influence of local social and political leaders at the beginning of the project particularly to mediate on behalf of the whole community. This worked for sometime. However, akin to Popkin's assumptions, the slow invasion of a cash

⁶ Irrigated lowland terraces

⁷ Nepal became a multi-party democracy in 1990.

economy and the patronage of influential officers started to break this influence. It was mostly through the local Village Development Committee (VDC) or District Development Committee (DDC) leaders, political party or elites that families and individuals started to channel the influence to gain employment⁸ and other benefits.

One of the first dismantling of local power channels resulted out of the newfound alliance between local leaders and project officials. This was also a strategy that worked for the project officials to curb revolt in the village. The self-interest of leaders led to the decay of the prior existing loyal relations of political and social patronage. Clients opted out of their loyalties to their patrons, especially political leaders to forge their own alliance supporting Scott's moral economy argument. Alliances with the intervening actors were built particularly to provide jobs for their family members. A majority of respondents (60%) said that they have a direct relation to the project staff rather than through political or social affiliations. Individualistic gains were found to be more common, supporting Popkin's political economy argument.

Social inequalities

One important result was that compensatory rules for land acquirement were clear. Once cash compensation rates were set, it was provided to all despite people's class or caste relationships. Therefore, the direct outcomes that resulted from ethnic favouritism were sporadic. In this particular research site, the Bahuns in comparison to the few Bote and Magar families endured almost 90 percent of land loss. This made it difficult to see or measure outcomes in terms of ethnic or caste affiliation. However, the overall outcomes favoured the Bahuns as they dominated in the social and political sphere in the project area. Their access to information was stronger because of the close physical proximity and social relation to the main project office and contractors. They also garnered strength through political pressures and protests. This shifted the peripheral Magars and occupational caste groups into the background from gaining project benefits.

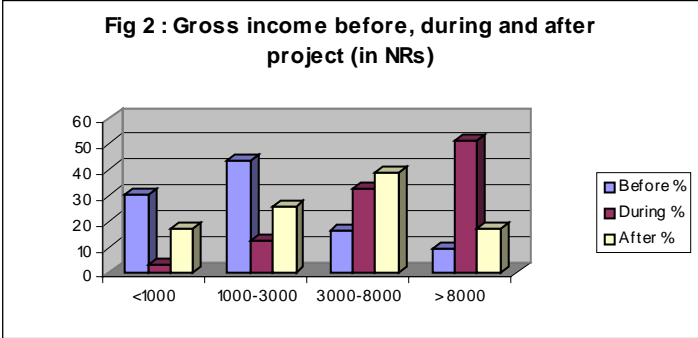
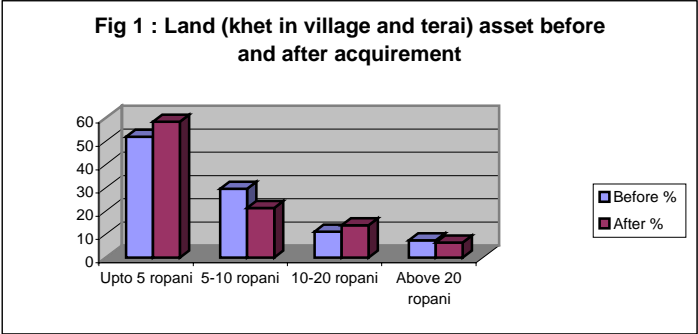
In terms of project employment, figures showed that upper caste and Newars dominated in the project employment (62%). However, if some of the project personnel were from the immediate project area, there was a greater tendency to help their own clan members. Such cases were found with some Magar families. In the main affected villages of Beltari and Mirmi, large clans existed. After loss of land in these Bahun dominated villages, co-operation and cohesion among members were found to be weak as pointed out earlier. In the presence of scarce resource and competition, most of the respondents identified with their own immediate nucleated family rather than the larger extended family or clan. This supports partly Scott's thesis that peasants insured themselves socially through reliance on own kin and friends rather than the state (for example, DDC / VDC members).

Although, state formal institutions and project plans were implemented, various power positions and alliances changed and bended rules, especially in project employment, to give way to different outcomes. Often, the richer and powerful elites stood to gain, although in a few cases, with bad investment of their compensation money, they lost power and prestige. With better education, higher and medium income families also tended to be placed in better employment positions strengthening not only their position but mitigating the risk of the land loss itself as they bought alternative land in the terai⁹ with the additional earnings (see fig 1).

⁹ Southern plains of Nepal

The two figures on the right show results that land and income¹⁰ of the project-affected group did not go down considerably.

The poor did not become worse off but this will need to be investigated over a longer period. They were starting to accrue loans again and this might lead them to be worse off in the long run. Despite all the changes, the gap between Bahun and Botes (or any other group), or that between rich and poor remains.



Source: Field Survey 2003

6. Conclusion and Recommendations

The research was carried out to understand the dynamics of social responses when a large hydropower dam intervened. The research shows that implementation of formal institutions determine definite outcomes. However, it was also found that local actors play a role in strategizing and determining outcomes towards their favour. Under scarce resource constraints, power play was significantly high. Linkages within and to the corridors of power (both new and old) were important to access employment or project benefits. Participatory and interactive institutional processes need to be developed particularly by the implementation agency to lower such responses.

The study shows that even within a small geographical unit of intervention, there are numerous social conditions that produce variation in outcomes. It is very important to note that this particular case of the Kali Gandaki ‘A’ is specific to the region. Lessons learnt from one case will not always reflect the same situation in another region. Intervention policies and processes also need to take into consideration social differentiation. The strong implementation of policies and laws is required otherwise the forces of a differentiated society will continue to play its decisive role in bringing about inequitable outcomes. Unless compensatory mechanisms are well laid out and implementation of plans made transparent, larger plants would be a disaster in a country like Nepal with its limited land resources and intricacies of power within social relations. Only then can it reach a more equitable solution at the local level.

¹⁰ Figures in Nepali rupees (NRs). 1US\$ equivalent to approximately NRs74 in 2003.

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