Recognising Entitlements and Sharing Benefits:

Emerging Trends in Nepal's Hydropower Terrain

Dialogue on

DAMS & DEVELOPMENT: NEPAL

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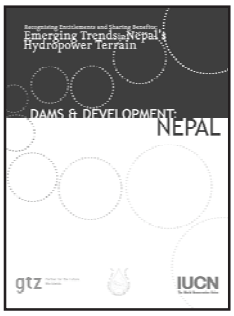

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DISCLAIMER

This Dams and Development Strategic Priorities Series summaries the findings and serves as a platform for continuing the dialogue on the issues of water resources development and dams in Nepal. This report can assist in the evolution of the policy process, but it is not the policy document of any of the organizations involved in the specific priorities series consultative processes.

Foreword

It is five years since the report of the World Commission on dams was first published on 2000. Globally, reactions to the report ranged from strong support to serious concerns. Supporters pointed to the opportunities the WCD process provided for finding ways beyond the polarised debates of the past. Others perceived the guidelines as unrealistic, and impractical claiming that they could unnecessarily delay the implementation of projects. His Majesty's Government of Nepal (HMG/N) also expressed reservations about the WCD framework and had taken a critical view of its report. In order to move beyond the polarized debate, IUCN Nepal facilitated a consultative process on January 2003 wherein representatives of government, private hydropower developers, parastatal, non-governmental research organisations, and people affected by dams participated in the process that compared Nepal's legal provisions with WCD guidelines. The report of scoping study suggested that Nepal's legal provisions cover many of the recommendations made by the WCD. Furthermore, new policies on the development and management of water and energy have been introduced in a pluralised policy terrain characterised by vigorous public debate.

The consultative process recommended that the dialogue be continued in a second phase focusing on the Strategic Priorities. Of the seven strategic priorities four were prioritized for further consultation and analysis. They were: Gaining Public Acceptance, Conducting a Comprehensive Options Assessment, Recognising Entitlements and Sharing Benefits, and Ensuring Compliance. The responsibility for dialogue and analysis were as follows: Gaining Public Acceptance – IUCN Nepal and DBS Consultancy with the representation from Department of Electricity Development (DoED); Conducting a Comprehensive Options Assessment – Winrock International with the representation from Nepal Electricity Authority (NEA); Recognising Entitlements and Sharing Benefits – Nepal Water Conservation Foundation (NWCF); and Ensuring Compliance – Water and Energy Users Federation (WAFED). IUCN Nepal facilitated the second phase of the consultative process.

This report summarises the findings of the study on Recognising Entitlements and Sharing Benefits conducted by NWCF. The study shows an evolving and dynamic action terrain where interests are being contested and negotiated. To ensure benefits of water resources development reach the people and the country, this process must continue at local level.

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Acting Country Representative
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Debates and Contestation

Water resources development in the 20th century has brought tremendous well-beings. In many developed countries, water borne diseases have been drastically reduced. Electrification has resulted in multiple benefits, and the development of irrigation was one of the factors that helped build increased food security.[1] The sharing of the benefits of water development has, however, not been equitable. Benefits have gone to some places, and to some people. Too often those whose livelihoods depend on the water bodies from which benefits are generated have received very little and, in some cases, nothing. Failure to provide clean drinking water and sanitation to every person on the planet is one manifestation of this inequity which Gleick (2004) has termed the greatest failure of the 20th century.

The assessment and allocation of benefits (who receives them) and risks (who pays the price) have been debated throughout the modern history of water development in both developed and developing countries. These issues became one of the most fiercely fought political debates in the last few decades of the 20th century. In the past, engineers and development professionals did not have to worry about questions like benefits, their distribution and associated risks, but in recent decades persistent civic movements have demanded answers. Those on the social and physical margins, the Dalits, the tribals, the environmentalists, and the proletariat mass, who, throughout the long years of industrial civilisation could safely be neglected, could not be ignored anymore in the age of information and popular democracy (Schwarz and Thompson, 1990).

The epochal changes in the global political landscape of late 1980s, which ushered multi-party democracy in many countries, including Nepal, sharpened the ongoing debate. In Nepal, the changes of 1990 indicated the possibility of a new beginning and indeed, the organic elements of democratic participation, such as freedom of press, broadened legal protection of rights, viable opposition parties and competitive politics at the grassroots, were put in place (Bissell, 2003). At the same time, domestic activism, which honed in on the question of benefits and risks from development projects also emerged. In a globalising world, civic activism transcends the nation-state, resulting in trans-national alliances centred on water development projects.[2]

It was in this social and political ferment that the debate about Arun III hydroelectric project, which had been in contention since the mid-1980s, took place. The World Bank withdrew support to this project in 1995. Arun III was one of three major projects debated in South Asia, the other two being the Sardar Sarovar Dam in India and the Flood Action Plan (FAP) in Bangladesh (Dixit, 2001). The World Bank, which was behind their conceptualisation as well, also stopped supporting both. These and other debates eventually contributed to the formation of the World Commission on Dams (WCD) in 1998. The WCD postulated five core principles, seven strategic priorities and twenty-six guidelines. Benefit sharing was one of the seven strategic priorities in WCD's report *Dams and Development* (DAD). The report's conception of entitlement and sharing benefits is encapsulated as follows:

> Joint negotiations with adversely affected people result in mutually agreed and legally enforceable mitigation and development provisions. These provisions recognise entitlements that improve livelihoods and quality of life, and affected people are beneficiaries of the project. Successful

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> mitigation, resettlement and development are fundamental commitments and responsibilities of the State and the developer. They bear the onus to satisfy all affected people that moving from their current context and resources will improve their livelihoods. Accountability of responsible parties to agreed mitigation, resettlement and development provisions is ensured through legal means, such as contracts, and through accessible legal resource at national and international level.

Explaining further, the WCD suggested that countries adhere to the following four principles for the effective implementation of this priority:

- The recognition of rights and the assessment of risks form the basis for the identification and inclusion of adversely affected stakeholders in joint negotiations on mitigation, resettlement and development-related decision-making.
- Impact assessment includes all people in the reservoir, upstream, downstream and catchment areas whose properties, livelihoods and non-material resources are affected. It also includes those affected by dam related infrastructure such as canals, transmission lines and resettlement developments.
- All recognised adversely affected people negotiate mutually agreed, formal and legally enforceable mitigation, resettlement and development entitlements.
- Adversely affected people are recognised as first among the beneficiaries of a project. Mutually agreed upon and legally protected benefit sharing mechanisms are negotiated to ensure implementation.

Recognising entitlements and sharing benefits was one among the seven strategic priorities suggested by DAD. In Nepal too, WCD's report generated mixed reaction. Some argued that the WCD's recommendations are useful to make dams in Nepal, meet the national and community needs. Others perceive the guidelines as unrealistic, and impractical and claim that in many cases they can unnecessarily delay the implementation of projects. In January 2003, national dialogue on DAD began to consider the relevance of the recommendations of the WCD in the Nepali context with the ultimate aim of recommending development and adoption of a national guideline for improved decision-making, planning and management of dams and alternatives for Nepal (Dixit *et al.* 2004). This phase came to an end in July, 2004.

At the end of the first phase, Dixit *et al.* (2004) suggested that by disbursing the royalties it earns from electricity sales to the concerned District Development Committees (DDCs) as per the Local Self-Governance Act (LSGA), the government has recognised the notion of local rights and that these allocations are means of operationalising those rights. Dixit *et al.* went on to argue that this provision can create a basis for helping involuntarily displaced families if they are made beneficiaries to the hydropower royalties. At present, however, they are not sharing the benefits beneficiaries in such more equitable ways.

This study follows up on the national dialogue. During this study two consultative meetings were held. The first, in which district-level stakeholders participated, was held on May 2005 in partnership with Winrock International. The second meeting, organised in partnership with Water and Energy Users' Federation (WAFED), was held on 31 July, 2005. In addition, individual consultations were held with the government officials and independent professionals. Reference has also been made to the proceedings of the workshop on the utilisation and sharing of royalties from hydropower organised by the Ministry of Local Development (MLD) and Strengthened Actions for Governance in Utilisation of Natural Resources (SAGUN) of Care Nepal held on 27-28, October, 2005 in Kathmandu. Secondary literature on hydropower development and decentralisation was also referred.[3]

The Beginning of a Paradigm Shift

The provision for sharing royalties with DDCs has emerged as a new element in Nepal's hydropower development. Analysts have suggested that the county's hydropower development is undergoing a paradigm shift.[4] In this ongoing shift, benefit sharing is an arena of dynamic action, where outcomes are being contested and negotiated. The key elements of the shift are as follows:

First, the private sector has got involved in hydropower development. The promulgation of the Electricity Act, 1992 paved the way for this development in its preamble: "It is utmost necessary to extend proper distribution system in the rural areas where electrification has not been done and also to develop hydropower of the country by motivating national and foreign private investor." The two critical objectives of the law were (1) to enhance the development of hydropower so it would meet the country's energy needs for industrial development, and (2) to promote national and foreign private sector investment in the development of hydropower. The government's new Hydropower Policy of 2001 adopted the spirit of the 1992 Act with respect to private investment.[5]

A second characteristic of the paradigm shift is the presence of direct foreign investment. The Bhote Kosi and Khimti Hydropower projects are examples of this development though concerns have been expressed over the power purchase agreements of both and a debate about the installed capacity of the Bhote Kosi plant has arisen.[6] Another example is the 20-MW Chilime Hydropower Project

in the Chilime River, which was built in 2003 by a local subsidiary company established by Nepal Electricity Authority (NEA) in 1995.

A third element is the announcement of buy-back rates (BBR) by the NEA Board, an issue of public debate in the mid-1990s. In 1998, the then Deputy Prime Minister Shailaja Acharya, who was also responsible for Nepal's water resources portfolio, announced through the NEA Board the rates at which Nepali entrepreneurs who developed hydropower plants in the range of 1 to 10 MW could sell electricity to the Integrated Nepal Power System (INPS).[7] According to this proposal, NEA was to buy electricity for Rs. 4.03 per kWh in the dry seasons (at 90 per cent capacity factor) and for Rs. 2.76 per kWh in the wet season. Rates were to escalate 6 per cent till the fifth year. Since this offer did not inspire investors' confidence, the rates were revised in November of the same year. The capacity factor was reduced to 65 per cent and new rates were set: Rs. 4.25 per kWh in the dry season and Rs. 3.00 per kWh in the wet. The plants were to begin generation in 2003 and NEA was to buy a total of 50 MW. The purpose of announcing the BBR was to encourage Nepali entrepreneurs to invest in and sell electricity to the national grid. Plants developed by Nepali investors include Piluwa (3 MW), Chaku (1.5 MW) and Sun Kosi (2.6 MW) are already in operation.

The internal unbundling of NEA, begun in 2003, is the fourth characteristic of the shift. NEA was amalgamated from the then Nepal Electricity Corporation (NEC) and the Electricity Department (ED) in 1985. After two decades of operation, NEA's generation, transmission and system operation, engineering services and distribution and consumer services have been broken up into core business groups. Twenty distribution centres (DCs), each with increased independence, authority and accountability in its operations, have also been created (NEA, 2004). These entities enjoy increased independence, authority and accountability in their operations and have a built-in reward and punishment system which operates in accordance with their performance.[8]

A fifth change was the promulgation of the Community Electricity Distribution By-law (COEDIBYL) in 2003. The 10th National Five Year Plan aims to expand grid-based rural electrification, to promote small projects where grid-based expansion is not possible, and to enhance the capacity of cooperatives to manage at local levels. The Hydropower Development Policy of 2001 envisages the involvement of community and cooperative institutions, local bodies and the private sector in the generation, transmission and distribution of hydropower. It provides for the handover of responsibility for the operation and maintenance of small hydropower plants to cooperatives. The concept of entrusting communities with the right to distribute electricity was given concrete shape in 2003 when COEDIBYL began to allow any organised community group to buy electricity in bulk from the national grid and then to retail it among themselves.[9] As of December 2005, 112 groups had entered into an agreement with NEA to begin distribution and thirteen of these have already begun managing distribution.[10]

The sixth element is the government's engagement in dialogue about dams and development with civil society groups and market institutions. The process began in January 2003. In its first phase, the dialogue helped carry out a scoping study that compared Nepal's legal provisions with those recommended by the WCD. The study showed that in theory the country's legal provisions reflect the spirit of WCD recommendations and that, in some cases, the provisions are more progressive than what the WCD recommends. Engagement has continued in the expectation that Nepal will develop its own guidelines.[11] This study is one outcome of this process.

The final characteristic of this paradigm shift is the provision of disbursing a share of royalties from the hydroelectric plant to DDCs. In 2001, HMG began disbursing royalties it obtained from a hydropower project to the DDC that housed that project. Initially, it handed over 10 percent. Later in 2003, the amount was increased to 12 per cent first by ministerial decision and subsequently by gazette. In addition, 38 per cent is distributed to the districts of the development region where the plant is located bringing the total revenue handed over to local bodies to 50 per cent. The disbursement of this amount is based on the decision of the DDC chairpersons and officials of the respective region with the approval of the Revenue Distribution Monitoring Control Committee (RDMCC). The 2001 policy on hydropower suggests that "one per cent of the royalty obtained by His Majesty's Government from a hydropower project shall be provided to the Village Development Committees (VDCs) that are directly affected by the hydropower infrastructure with the sole purpose of expanding electrification in the VDCs." The policy further proposes that "a Rural Electrification Fund shall be established for the development of micro hydropower and rural electrification by pooling in a certain percentage of the amount received as royalty." The latter provision, however, has not been implemented.

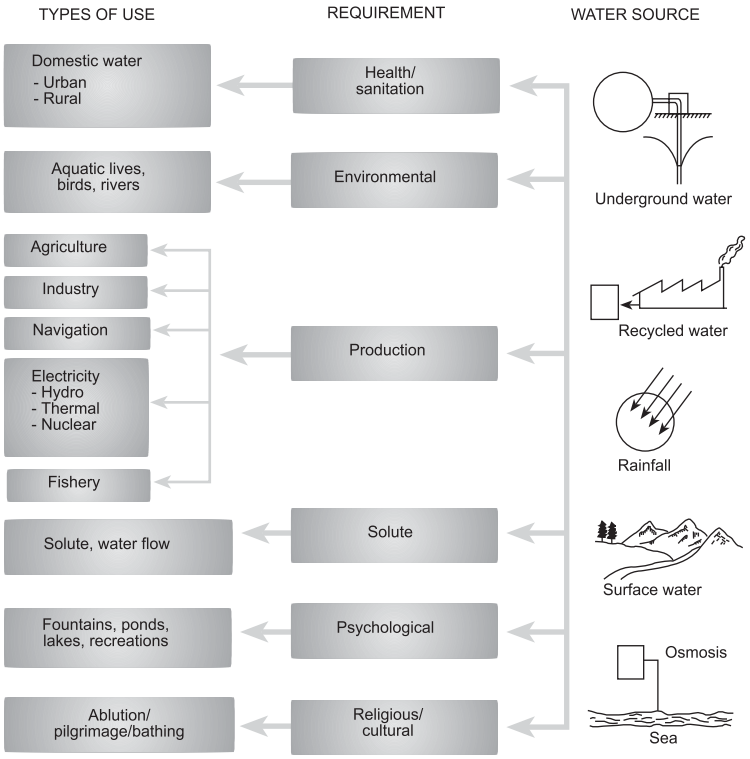
The above policy initiatives emerged in the aftermath of the many political changes in 1990, when Nepal adopted multi-party democracy and constitutional monarchy. Despite Nepal's unstable political terrain, the processes do offer opportunities for moving towards a pluralized policy environment. This study, conceived within this framework of the larger processes, focuses on the sharing of benefits of the hydropower development, the seventh element of the shift discussed above. It reviews the history of Nepal's hydropower development and places it within the discourse on decentralisation and devolution. It then traces how the voices of the periphery began to get articulated in the

corridors of power in Kathmandu, and has paved the way for formulating policies that transfer royalties received by HMG from hydropower projects to DDCs in 2001.[12] The provision of benefit sharing recognises local rights and offers opportunities for extending benefits to affected people but, as mentioned above, is not yet provided to the affected people. Furthermore, the provision of royalties and its distribution is being contested and negotiated.

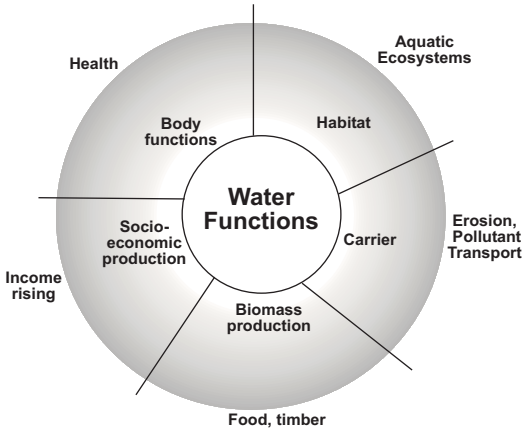
Benefits from Water

According to the Oxford dictionary, "the benefit of something is the help from it or the advantage that results from it." What does this mean in terms of obtaining benefits from flowing water ? Revisiting the basic definition of hydrology can help us come with an answer. Hydrology is defined as "the science that treats waters of the earth, their occurrence, circulation, and distribution, their chemical and physical properties, and their reaction with their environment, including their relationship with living things." This definition views water in all its multi-faceted functions, roles and forms. Professor Malin Falkenmark and Jan Lindquist present such a conception of water in their consideration of broad functions and roles, as shown in Figure 1 to which Dixit and Gyawali (1997) added a religious and cultural dimension. Falkenmark (2005) later provided a holistic framework illustrating the role and function of water (Figure 1). This broad conception comprises water's tangible and intangible qualities. While these functional elements provide us with a canvas to look at water comprehensively, translating these elements of the broad canvass to actual practice requires new rules, procedures and even concepts. The current civil engineering and economic dominated perspectives are too narrow for this task.

In their book on water resources engineering, Linsley, Frazini *et al.* (1992) suggests that water development provides benefits in the form of irrigation, water supply, hydroelectric power, navigation, flood mitigation, recreation, fish and wildlife, pollution control and mosquito control. Kuiper (1988) has classified benefits from water projects as direct (or primary) benefits and indirect (or secondary) benefits. Direct benefits are the immediate results of the project, such as the production of electricity, the prevention of flood damage or increased agricultural productivity. Indirect benefits, which follow the building of a project to obtain direct benefits, include the stimulation of industry and an increase in the general taxation level as well as an increase in the profits of all enterprises that supply goods to or purchase products from those people who first realised the direct benefits. Kuiper also suggests that benefits can be conceived of as tangible and intangible. The former are measurable in terms of financial returns, while the latter cannot be measured monetarily. Intangible benefits include greater security against loss of life; enhanced environmental quality through landscaping or pollution control; the provision of water-based recreational facilities; meeting social, religious and



Source: Dixit and Gyawali (1997)



Source: Falkenmark (2005)

cultural functions; and benefits obtained from wetlands like water recharge and the maintenance of biodiversity.

The above discussions help us focus on the question of benefits that accrue from hydropower dams. Hydropower is a direct tangible benefit as the energy produced can be sold, the amount consumed metered and users charged for using it. Pandey (1996) has provided a detailed theoretical analysis of hydropower development in Nepal as a source of both direct and indirect benefits.[13] The distinction between direct and indirect is useful but does not adequately capture the nature of benefits as discussed above. For the sake of brevity this study classifies benefits into three types: primary, secondary and tertiary (Table 1).

HYDROPOWER DEVELOPMENT: TRAJECTORY AND PHASES

The nature of the benefits from water development explained above needs to be viewed in historical perspective. It is important to ask under what circumstances the initial water development projects in Nepal were conceptualised and built because the nature of institutional evolution helps us understand the present context of sharing benefits. Nepal did not lag behind other South Asian countries in introducing European technology. Modern technology for water development was first introduced in Nepal in the late 1880s in the form of a water supply system whose construction was supervised by a British engineer. In 1848, Prime Minister Jang Bahadur Rana had brought a water pump from England, but it was never used because no local could be found to operate it and no foreigner could be employed either.[14]

The next water project built in Nepal was the 500-kW Pharping hydropower plant. This 1911 initiative and the Bir Dhara water supply system built two decades earlier in 1891 were meant to serve the elites.[15] The pursuit of ostentatious consumption rather than the enhancement of the production function of society was the guiding motive of the rulers who were the original social carriers of modern water technology in Nepal. This prevailing notion of science and technology tended to filter out indigenous arrangements. In addition, no effort was made to create the necessary social carriers for successfully operating the new

Primary		Secondary		Tertiary	
Forms	Explanation	Forms	Explanation	Forms	Explanation
Electrification	Serving rural and urban households, industries, and transport.	Roads	Build to open access to a hydropower site or contributed to build others	Market development	Increased project activities in an area leads to growth of market activities
Revenue to local government	Share of the revenue to DDC	Irrigation	Canal serving an irrigation system, conveyance water used for irrigation, or supporting development of new systems	Enterprise development	Availability of electricity induces development of new enterprises
Fish farming	In reservoirs as income generating measures	Rural electrification	A project serving rural population, or supporting initiatives to provide rural electrification	Institutional development	Help form new institutions
Employment	During and after construction of a hydropower project	Drinking water and sanitation	Providing service to communities in the vicinity of hydropower plant	Capacity development	Local industries get to participate in building of hydropower projects, and local capacity in contracting, financing and management is built.
Recreation and boating	Plying boat in reservoirs as business opportunities	Health	Providing health services by the project		
Environmental	Replacement of greenhouse gas	Education	Providing education services by the project	Social development	Improvement in living conditions and health, technical spinoff
		Rural development	Formulation of rural development package		
		Skill training	Various skill training as part of the project or in other sectors		
		Micro credit	Providing fund to micro credit activities		

Adapted from Upadhyaya (2005b)

technology introduced. The assumption of the rulers then, an assumption which is still held today, was that the social and institutional capacity for adapting or adopting the imported technology existed within the country. This was, in fact, not the case. As a result, despite the fact that modern technology had arrived, the requisite social capacity for using it effectively was missing. Furthermore, the country remained isolated from the cross-fertilisation of ideas and the knowledge gathering which prevailed when industrial changes swept across Europe.

This historical event—introducing technology as an element of luxury (Gyawali, 2001) rather than as something to enhance production—has set in motion a socio-political process that defined the broad contours of the conventional hydropower development paradigm now undergoing a shift. This approach, which entailed adding a plant whenever increased load needed to be met, is what Gyawali (2001) has termed a "flood-drought" syndrome. After Pharping, it took Nepal 25 years to build a second plant at Sundarijal in 1936 and another 7 years to build the third, Morang Hydro's 1.6 MW plant at Letang in 1943 (see Table 2).

Once a plant was built, its power was used largely in the capital and in the regions close to the gradually expanding national grid. Whenever the existing supply was surpassed by growing demands, another plant was added. After 1950, these projects were initially built with bilateral assistance but, after the 1970s with both bilateral and multilateral financing. They, however, followed the same supply driven and technology-guided approach. The notion of public participation and social equity remained outside the approach's purview.

Nepal's approach was unlike that of countries like Norway,* Switzerland and China, which began developing small-scale and geographically scattered hydropower plants from the outset. Each plant supplied power to one industry or electrified one community. These countries used their plants as a base to build the in-country capability to develop the larger hydro schemes which would later be needed to expand their national grids and in the process enhancing local capacity (Pandey, 1994). Broadly speaking, the policies of these governments were based on decentralisation, self-construction, self-management, and self-consumption.

A different trajectory was seen in the United States in the early nineteenth century when large dams were built to bring human settlement to the West and rivers were used for market growth. This approach received a considerable boost during the Great Depression of the 1930s when President Roosevelt's 'New Deal' used large-scale hydropower projects to create jobs for the unemployed and to stimulate economic recovery. Projects provided employment, regulated water for irrigation, and generated electricity for industrial and domestic purposes. The completion of water projects by the Tennessee Valley Authority (TVA) helped transform the Tennessee Valley from one of the poorest regions in the United States in 1933 into a region with a strong, diversified economy and a healthy environmental base. In the aftermath of the Second World War and the beginning of an era of foreign aid, the Western United States water development model was seen as a key instrument for development.[16] The then US President Harry Truman's 'four point' Programme suggested that technology was the means to address underdevelopment.[17] The Damodar Valley Corporation (DVC) project in West Bengal was an effort to emulate the TVA model in India. The success of DVC has been mixed.

Nepal neither built several small-scale, scattered and decentralised hydropower plants as Norway, Switzerland or China did, nor did it push the Western United States model of water development to fuel the national economy by

Decade	Projects	Capacity (MW)	Cumulative (MW)
1910-1920	Pharping	0.5	0.5
1921-1930		None	0.5
1931-1940	Sundarijal	0.64	1.14
1941-1950	Letang/Sikarbas	1.6	2.74
1951-1960		None.Sikarbas washed out.	2.74
1961-1970	Trisuli, Panauti, Phewa	24.5	25.64
1971-1980	Devighat, Sun Kosi, Gandak, Tinau	40	65.64
1981-1990	Kulekhani I & II, Marsyangdi, Seti (Pokhara), Tatopani	163.5	229.14
1991-1995	Jhimruk, Andhi Khola	17.1	246.24

In addition, Nepal also had 50 MW of thermal and diesel plants.

Adapted from Pandey (1998)

Note: The MWs may differ due to inconsistencies in data available in the public domain. The Morang Hydro Plant was built in 1943 but it was not resurrected after a major landslide damaged the plant in 1961. The plant supplied power to the industrial town of Biratnagar.

* Indeed in Norway whose power system is overwhelmingly hydro, the hydro development policy was framed under the concept of "nation building."

enhancing the forward and backward linkages of the investment. Instead, the idea of exporting hydro-energy became the order of the day even though majority of the Nepali people did not have access to electricity. Nepal's national preoccupation with export has not materialised in a situation of monopsony buyer India, and it is increasingly being argued that financial revenue from selling power is not same as economic development.[18] This approach of power export has not accorded value of regulated water nor the rehabilitation of lost livelihoods.[19] At the level of the Nepali state, the sense of uncertainty is also reflected in the lack of proper articulation of irrigation and flood control benefits, as well as in the disagreement over how to allocate costs to the electricity generated from proposed high dam projects after subtracting irrigation and flood control benefits.[20]

Two distinct phases in Nepal's hydropower development can be identified: the period from 1911 to 1995 and the period after that to the present. From 1911 till 1995, INPS had an installed capacity of 303 MW, including both hydropower and diesel plants. Till 1995, most power plants, except for Tinau and Jhimruk, were built with support from donors, multilateral banks and other funding sources. Tinau and Jhimruk were built with support from Norwegian missionaries. The year 1995 was a watershed because in that year, after much debate and controversy, the World Bank withdrew from the Arun III hydroelectric project, citing risks that Nepal could not bear and funding gap as the main reasons. In the seven years, from 1995 till 2002, Nepal added another almost 300 MW of hydropower, thereby doubling in seven years, the installed capacity it had built over the previous. The additions involved three types of institutional arrangement which were international independent power producer (IPPs), national IPPs and public sector undertakings. The details of the grid-connected plants built after 1995 are listed in Table 3. The total installed capacity in Nepal's river basins is shown in Figure 2 and Table 4.

If installed capacity is taken as the indicator of success, the near doubling is indeed a remarkable achievement, brought about by major innovations, including the creation of pluralised institutional arrangements since 1995. This is not to say that the country's hydropower sector is a bed of roses: Many structural and procedural constraints that impede the sector still remain and many secondary questions have emerged. Some of these constraints are summarised below:

- The bulk of Nepal's energy needs are still met by traditional sources. Hydropower accounts for only a small fraction of total energy use. In 2005, NEA sold 39 per cent of its electricity to domestic and 36 per cent to industrial use. Agriculture and transport accounted for only 2.84 per cent (NEA, 2005);
- Limited ploughing back of investments into local economies. A weak forward and backward linkage prevailed, and still does, though smaller projects demonstrate better performance on this count. For example, Bhattarai (2005) suggests that almost 50 per cent of the investment in the Chilime Hydroelectric Project was ploughed into the Nepali economy;[21]
- Nepal's electricity tariff is high with respect to the country's low economic development (the annual per capita income was US $ 289 in 2005) and that it is poorly ranked in the Human Development Index 136 of 177 (HDR, 2005). In 2005, the average tariff was Rs. 6.53 (US cent 8.9 @ Rs 73.50 per 1 US $);
- Reconciling competing demands and avoiding disputes over water rights are serious tasks. Recent studies recount the nature of local disputes between nearby irrigation systems and between irrigation and drinking water systems.[22] Dixit (1997) discusses the dispute surrounding the operation of a hydropower plant in Kathmandu and local irrigation. Dispute among hydropower generation, irrigation and local interests was seen in the case of the Jhimruk hydropower project in Pyuthan District. When Jhimruk Khola was diverted in order to generate hydropower, the paddy fields downstream were deprived of irrigation water. Local farmers staged a protest demanding that the dam release sufficient water for irrigation. The farmers also claimed compensation for the land the project had acquired, demanded employment for local people and insisted that electricity be distributed locally.[23] The nature of the relationship, among power production and other uses of water in many existing plants, has not yet been documented, though such studies could help identify mechanisms that would minimise disputes.
- Giving recognition to social and economic rehabilitation of involuntarily displaced people, customary and traditional water rights including the need for wider public consultation are still external to the hydropower development approach.
- Despite the above innovations, Nepal's hydropower

Public Sector		International IPP		National IPPs	
Project	MW	Project	MW	Project	MW
Kali Gandaki	144	Khimti	60	Chilime	20
Modi Khola	14.8	Bhote Kosi	36	Piluwa Khola	3.0
Puwa Khola	6.2			Sange	0.187
				Indrawati	7.5
				Chaku Khola	1.5
				Sun Kosi Small	2.6
				Rairang	0.5
Sub Total	165		96		35.287
Grand Total		296.287 MW			

Source NEA (2005)

Basin	Kosi	Gandaki	Karnali	Mahakali*	Kankai	Bagmati**	Tinau	West Rapti	Total
Capcity (MW)	126.25	310.588	-	-	6.2	92	1.024	12.3	548

sector is afflicted by flood and drought syndrome. Surplus of power availability is followed by a three to four years of deficient supply. After few years of generating enough power to meet the demand, the supply has again fallen short; and in December 2005, the government announced regular load-shedding of about three and half hours a week.

Overcoming the above issues remains central to institutionalising an environmentally and socially sensitive, self-reliant path to hydropower development in the county. It is within this context that this study has looked at the question of benefit sharing from hydropower projects. The royalty from hydropower projects made available to DDCs has begun a mechanism for supporting local decision-making by making financial resources available. The next challenge is to institutionalise a mechanism to ensure that this financial resource stream is invested productively and that those who are affected adversely also benefit. Avoiding inappropriate investments and lack of fiscal control is crucial because both can exacerbate economic, social and political risks.

Decentralisation and Development

One characteristic of Nepal's traditional hydropower development approach in a Marxist sense is that the natural resource base of the periphery was exploited to the advantage of the centre. The country's first plant served the palaces of Kathmandu while the second and third (this plant supplied power to Biratnagar and was an exception) as well as subsequent hydropower projects supplied electric power to the national grid that gradually wove around the capital. In contrast, the local regions where the plants were built had to wait many years before receiving any direct benefit including the supply of electricity. Trisuli, Kulekhani, Devighat and Marsyangdi hydroelectric projects were conceived and implemented in the 1960s, 1970s and 1980s, respectively. Although the Trisuli Project was completed in the late 1960s, the local people received electricity supply many years later (Dixit, 1994). The people of Kulekhani Valley also had to wait many years to obtain a supply of electricity (Bjonness, 1992). The villagers of Pharping and Sundarijal, where Nepal's first and second hydropower plants were built, received electricity many years later in the 1980s; and the village (Danuwar Gaon) opposite the Pharping powerhouse built in 1911 received electricity only in 2005.

To suggest that the focus was only on the centres and that nothing was done for other regions is incorrect because Nepal did begin an institutional response to serving the rural areas by establishing the Small Hydro Development Board (SHDB) in 1977. This organisation began to construct small-scale hydropower projects mostly supported by bilateral donor countries. The government also began programmes to promote alternative energy sources as well as micro hydro plants through the Agriculture Development Bank. The approach, however, was patchy with the development vision and commitment for substantive improvement in the quality of

rural life was relatively dilute.

The notion of local benefit sharing also remained outside the purview of the pursued approach to hydropower development. Supplying power to local areas was not part of the package and investment in hydropower stimulated few economic activities. Harka Gurung's observation is a case in point in connection with local economic activity. After conducting a social and environmental review of the then recently completed Marsyangdi Hydropower Project, he wrote that increased economic activity (in the project area) was due more due to the fact that it was located on the Kathmandu-Pokhara Highway than because of investments in the project *per se* (Gurung, 1989). In the Kali Gandaki 'A' hydropower project completed more than a decade later Rai (2005) found that the impact varied according to local economic status or patron client network. The assessment of the contribution of the investments on hydropower to the country's overall economic and social development requires much deeper analysis than the scope of the present study.

Hydropower development from 1970-1990 coincided with Nepal's experience with its larger efforts at development. Between 1976 and 1986, the government implemented many Integrated Rural Development Projects (IRDPs) with the objective of overcoming the obstacles that slowed the pace of development 'caused by uncoordinated and disintegrated programmes by different agencies of the government designed to solve the interrelated problems confronting the rural populace'.[24] The programmes and projects focused on specific target groups (small farmers, landless or near landless agricultural workers and the urban poor) as the means—and often the ultimate goal—of a thrust towards decentralised development. As a concept, rural development actually began two decades earlier in 1950s in the form of *Tribhuvan Gram Bikas Yojana*.[25]

Politically, the decentralisation of decision-making and, by implication, the process of allowing local issues to be addressed by local governments (*panchayats*) was initiated with the introduction of the Panchayat polity in the early 1960s. In the next thirty years, the concept underwent many revisions within the framework of this political tenet. In 1982 Nepal formulated its first Decentralisation Act. Although the concept was interpreted both as the means to, and the end of, meeting basic human needs, it remained top down, bureaucratic and hierarchic. Planning procedures were not based on the critical feature of participation, which would have provided an open process of encouraging 'bottom-up' involvement; instead, 'top down' blueprints were imposed on the people. Rural development was interpreted in terms of providing minor construction works such as drinking water supply, subsistence agriculture, small irrigation and micro hydro schemes, infrastructure advancements like health posts, rural trails and roads, and forest resource management. This approach considered participation, by and large, to be the contribution of labour, in many cases voluntarily, but in some cases through coercion; no decision-making roles were assigned to the beneficiaries. Their rights remained unrecognised.

An increased understanding of above dimensions stemming from concerns over poor success rates led to policy changes in water supply, irrigation and forest management. One main change was making the community a major actor. Hydropower projects, particularly those that served the national grid, continued to be conceptualised within the rubric of the conventional approach of technological implementation, offering little scope for local participation. The perception that electricity would be needed for the cities while those in rural area relied on lantern or *tuki* (oil lighted lamps) lingered, too. An urban bias seemed to be silently at work to the detriment of rural areas though the majority in the urban localities also did not, and still do not, enjoy affordable electricity.

The early 1990s brought changes in the nature of political discourse. First, multiparty democracy was reintroduced and a new constitution promulgated. The new constitution included decentralisation as an element in its directive principles but made no mention of the devolution of authority to local governments like DDCs and VDCs; this arrangement came about several years later, in 1999, in the form of the LSGA. The objective of the LSGA is the devolution of power and authority to local bodies, making them responsible and accountable, and building their capacity and leadership. These challenges have remained ever since the local bodies came into being in 1961 and need to be addressed by the LSGA. Such an enquiry requires much detailed analysis about of the emergence of LSGA, its implementation and as an instrument for achieving accountable governance at local level.

Hydro Royalties: Sharing with Locals

Gradually academic writings began to recognise the notion of localising benefits from hydropower development (Gurung, 1988, Gyawali, 1989, Bjonness, 1992, Dixit, 1994, Pandey, 1996; Pandey, 1998). Reviewing the lessons from water projects related involuntary displacement in the country Dixit (1994) raised the issues of access to benefits as follows. He asked "if manipulation of rivers is necessary to meet the growing needs of the economy, what measures would ensure that benefit sharing would be equitable ?" Dixit went on to suggest "How can the affected families as well as those around project locations earn livelihoods on a sustained basis are important questions. Legal and institutional safeguards for the affected families are needed to use opportunities created by development more productively and equitably."

Within such a contested political space, people in the social and physical margins thus began claiming rights to the benefits obtained from harnessing natural resources in their vicinity and demanding their share. One feature of

this process is captured by Upadhyaya (2005a) as follows:

> "Local communities in Nuwakot District did not receive electricity till long after Trisuli HEP was commissioned. This concerned local political leaders such as Prakash Chandra Lohani, who brought up the issue in a National Development Council meeting in the early 1980s even before he was engaged in active politics in the district.[26] By the time Devighat HEP was commissioned, both contestants of the then Rastriya Panchayat (National Parliament), Lohani and Arjun Narsingh KC, made it their election agendas to increase electricity for residents of Nuwakot District. The success of this endeavour prompted other political leaders to pick up the mantle of equity as well. Another political contender, Ram Saran Mahat, made a provision to spend one per cent of the electricity revenue for the rural electrification of districts affected by hydropower plants. This was incorporated into Mahat's budget speeches as Finance Minister in 1993/94 and 1994/95. Likewise another politician, Pashupati Sumsher Rana, who has served as Minister for water resources several times, is credited with increasing the intensity of rural electrification in Sindhupalchowk, his election district. Continuing this trend, in 2003 Lohani once again established a milestone in HEP benefit sharing by increasing the DDC's share of hydropower royalty from 10 to 50 percent."

Upadhyaya's comment demonstrates that political pressures on political actors play a critical role in allowing local voices to be heard. His comment also shows how the traditional patron-client relationship—in appeasing voters of a constituency—is played out in the current political and social domain.[27] Although it is not within the scope of this study to dwell upon the substantive content of these processes, it can be argued that the individual politician and his/her constituency, as patron and client, respectively, played a role in shaping a new policy on sharing benefits from hydropower.

There was another dimension to the emerging dynamics. As the debate over Arun III and other hydropower projects continued, proponents attempted to influence local constituencies with promises of the largesse that would come from developing projects. Others questioned these premises, highlighting the structural constraints of the conventional path and the likelihood that benefits would not accrue as promised. Other assertions begin to surface as well, like one in mid-1990s when representatives of Sindhupalchowk, the district with the highest number of hydropower projects and the first district to receive its share of hydropower royalties, staged a demonstration in front of the central secretariat at Singha Durbar.

These contestations created pressure points within the socio-political space and introduced policy changes engendering a slight shift in the paradigm as well. One hint of such a change was seen in budget speeches as cited above and the LSGA paving way for the sharing of royalties from hydropower projects with local institutions as a positive outcome. The Act gave local bodies the authority to plan and implement projects by enabling them to earn financial income. Thus, according to Clause 220(b) of the Act, "The concerned District Development Committee shall be entitled to the amount to be obtained by his majesty's government for royalty of mines, petroleum products, forests, water resources, and other natural resources." By making the DDC a beneficiary to the revenue this provision has opened the possibilities of locally distributing primary, secondary and tertiary benefits (Table 1) from development of a hydropower project. The regulations that were ratified after the LSGA elaborate the above cited responsibility of the DDC.

According to Provision No 221, "In allocating the revenue, pursuant to section 220 of the Act, the amount to be obtained by the concerned DDC shall be as referred to in Annex 26." This annex says the DDC in which the "powerhouse is constructed and operated shall be entitled to the 10 per cent of the amount to be obtained by HMG as royalty from that powerhouse." This provision, according to Dixit *et al.* (2004), has introduced tangible salience in Nepali policies on sharing benefits. The share of revenue was increased to 12 per cent, for the DDC housing the powerhouse and 38 per cent to the development region to share among the districts of that region, when Prakash Chandra Lohani was the Finance Minister.[28] On being asked why it was raised, Lohani told the principal researcher that, "Allocating 10 per cent of royalties to the concerned district was a welcome beginning. But it did not address the issue of regional equity".

Not all villages and districts in the country are endowed with hydropower development potential. This is true of almost all Tarai districts which also suffer from problems of inundation, bank cutting and sand casting by rivers from the hill. Since some of the rivers generate royalty, these districts and less endowed regions should not be denied their share in the national resource. By disbursing 38 per cent of the royalty to the districts of the region, districts without hydropower sites could benefit from this resource.[29] The names and location of the districts in which hydropower plants with capacity higher than 1000 kW have been built, are shown in Figure 3.

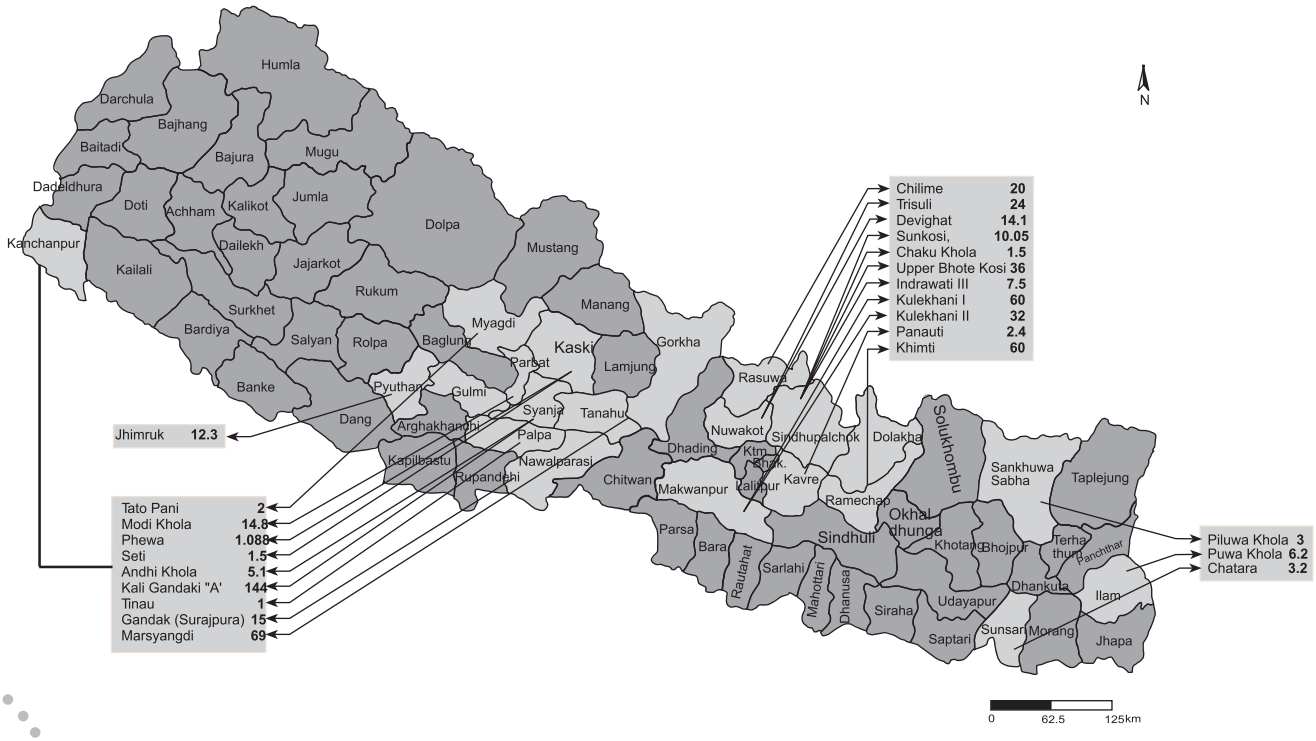
While LSGA has set the principle, new questions have emerged; How should benefits be distributed ? How should they be shared ? and who receive benefits ? Jeremy Priscoli's (1993) conception of people in plural helps to answer the last question. He suggests that there are many ways of looking at people and uses the term "public" to indicate them. He claims that there are not one but many publics. There are formally organised publics and informally organised publics. In the case of water projects we may find a public,

which is directly affected, and one, which is indirectly affected. We can thus consider people at the following three scales: the public at large (national or regional/district levels), the local public, and the directly and indirectly affected public.

A. The public at large includes the general beneficiaries of any investment in hydropower project development and the linkages such an investment would create in the national economy. These beneficiaries include those who already have access to good services (like water and electricity), those who still have a poor level of services and those who gain no service at all as a result of the project. They also include industries, suppliers, consulting firms, transport and business, and other stakeholders.[30]
B. The second group consists of those at the project level who have poorer access to services those in above category. Their interest in a project stems from the benefits they hope to obtain. They may not be negatively affected.
C. The third group lives in the vicinity of a project and are affected by its interventions.[31] These include people who, for example, lose a portion of their assets, like land or crops due to the project. They are the partially affected public. Others lose their homes, land and livelihood and are considered directly affected. Changes in a river regime can impact fishing communities and reduced flow may affect an existing irrigation system, water mill or drinking water supply system. In all cases, livelihoods can be lost. The de-watered portion of a river may experience adverse ecological, socio-cultural or religious impacts. At this scale, social exclusion, gender discrimination and poverty are critical issues, particularly in the practical sense. The affected also include those whose properties fall directly under high voltage transmission lines, but they are rarely acknowledged as the affected.

Considering the public in its plurality allows us to conceive of water development and management in Nepal as a process that should balance micro- and macro-level benefits. The focus must be on the people at the physical and social margins but without loosing sight of the other two. To help the third category of people identified above and ensure that they obtain some of the benefits listed in Table 1, in some areas affected by hydropower project, social upliftment programmes have been implemented as mitigation measures suggested by Environmental Impact Assessments (EIAs). In some projects, the extent of benefits is negotiated by the hydropower producers with the local people. Institutionally, two provisions exist.

One is the Land Acquisition Act of 1977, which makes provisions for compensating those whose assets are acquired for the development of a national level hydropower projects. This legal provision does not cover the sharing of benefits but addresses the issue of compensating properties acquired falling short of meeting the spirit of the



constitution of 1990. The hydropower development policy recommends that operators of a project give opportunities to local people and that its construction result in the fewest possible adverse effects on the environment.

The second is the LSGA which allocates a portion of royalties to districts and regions. This policy is one institutional vehicle for sharing benefits though, at this stage, it does not yet cater to the directly affected people. Still, opportunities do exist to move to that stage. The questions are how and what does this mean in terms of policy on royalties ?

The conception of royalties from hydropower project is not new to Nepal. The Kosi agreement of 1954 mentioned that Nepal will receive royalties from use of power generated by the Kosi Project. Clause (6) of the agreement said "The Government (HMG) will receive royalty in respect to power generated and utilised in the Indian Union at rates to be settled by agreement hereafter: Provided that no royalty will be paid on the power sold to Nepal." India has, however, not paid the royalties it owes to Nepal as stipulated in the Treaty for energy generated and used in its territory. Within Nepal, the government levied royalties of Rs. 0.075 per unit of electricity sold by the then Nepal Electricity Corporation (NEC) till 1980. In 1981 the World Bank under its covenant for providing loan to Kulekhani I hydropower project forced the government to waive the "surcharge". Four years, later in 1985, the NEC was amalgamated with the Electricity Department (ED) to create the NEA[32] and nothing was heard of royalty from hydropower until it re-emerged later.

The 1992 Hydropower Act specified that a private producer of hydroelectricity had to pay royalties to the government for getting a licence to generate, sell and receive profits from such a transaction. Earlier, income from selling electricity used to go to the government's coffers and allocated through the development budget. There was no provision for the payment of royalties because independent power producers did not invest in or generate electrical power. The royalty rates suggested by the 1992 Act are shown in Table 5, while the revised rates of 2001 Hydropower Development Policy are listed in Table 6. An IPP sells the power it generates to NEA according to the Power Purchase Agreement (PPA).

The 1992 Water Resources Act (WRA) states that 'the ownership of the water resources available in the Kingdom of Nepal shall be vested in the Kingdom of Nepal.'' This provision implies that the State has primary entitlement to any benefits from water in its territory; it allows it to make interventions in the resource base, including the generation of hydropower, and to allocate benefits as it deems necessary. At the same time decision-making authority and fiscal responsibility has been devolved to the local governments. The provisions of LSGA contradict those of the WRA and need to be reconciled as per the spirit of the former. The LSGA accords to the local governments 'functions, funds and functionaries' as parts of its four pillars of decentralisation: expenditure assignment, revenue assignment, inter-governmental fiscal transfer and sub-national borrowing.[33]

Both IPPs and hydropower plants under NEA's jurisdiction pay royalties to the DoED.[34] The power generated by IPPs is supplied to the INPS and then to the consumers. The DoED disburses royalties to the DDCs. To obtain its share of the royalties, a DDC needs to request the money it is entitled to the DoED, which then transfers it. A flowchart of the transaction is shown in Figure 4. In fact, except for districts in the Far Western Region, all other districts receive some amount of the regional share. The royalties from the plants shown in Figure 3 are summarised in Table 7. The royalties provided to development regions in 2001 and estimates for 2004 are shown in Table 8.

Till the fiscal year 2003/04, the DoED received about Rs. 4.774 billion in royalties determined on the basis of the installed capacity and energy sales of all the hydropower projects in the country (Table 7). Royalty began to be distributed to the concerned DDCs in 2000/2001, when sixteen districts received shares. In 2000/2001 Makawanpur and Nuwakot, the two districts in the Central Development region containing hydropower plants, received the highest share of royalties, Rs 1.8 crore (32.8 per cent) and Rs 1.7 crore (30.2 per cent) respectively. While the Central Development Region received over 60 per cent of the money disbursed, the Far Western Region received nothing, which indicates regionally unbalanced development of hydropower.

The total entitlement between 2000/01 and 2003/04 increased to Rs. 2.07 crore. Till December of 2003/04 the districts received 10 per cent of the revenue. In 2003 five more plants—Piluwa Khola in Sankhuwasabha, Sun Kosi and Indrawati III in Sindhupalchowk, Chilime in Rasuwa and Kali Gandaki 'A' in Syangja District (Figure 3)—began

Electricity Capacity	Up to 15 years		After 15 years	
	Annual capacity Royalty Rs/kW	Energy Royalty /kWh (%)	Annual capacity Royalty, Rs/kWh	Energy Royalty /kWh (%)
1 Up to 1 MW	-	-	-	-
2 From 1 MW to 10 MW	100	1.75	1000	10
3 From 10 MW to 100 MW	150	1.85	1200	10
4 Above 100 MW	200	2.00	1500	10
5 For captive use	1500	-	3000	-

Source: Hydropower Policy (2001)

operation. As a consequence of this and the fact that the rates of royalties were increased to 50 per cent[35] the amount disbursed increased. In July of 2005, Chaku Khola in Sindhupalchowk also began production.

In 2003/04, royalties of Rs 8.55 crore was not disbursed because the DoED did not receive the stipulated royalties from NEA and the IPPS. The amount due was cleared only in the following year and the DoED assured the DDCs that the royalties of 2003/04 would be disbursed in November 2005. Another shortcoming is that not all DDCs have received the total amount they are entitled to. Palpa District received Rs. 20 lakh as royalties in 2002/03. Palpa is entitled to 12 per cent of the revenue that accrues from the Tinau hydropower plant: it is also entitled to a portion from Kali Gandaki 'A' since it is one of the four districts directly related to the power generation and supply system. The officials of the Palpa DDC said that DoED did not inform them about the details. The officials of other DDCs had a limited understanding about the proportion of regional share of royalty that a DDC was entitled.

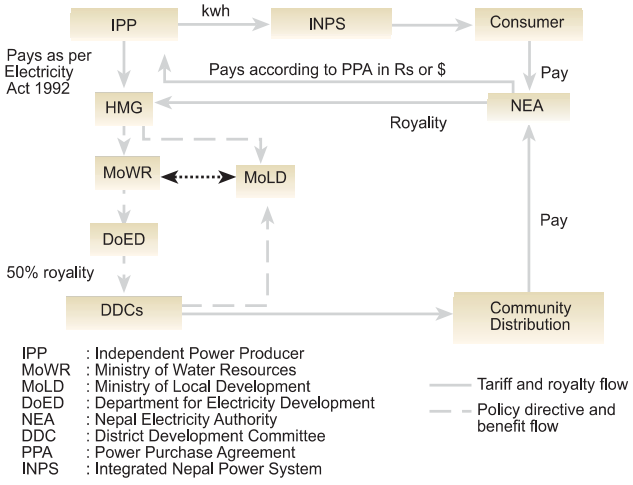
Year	From projects		Total
	owned by NEA	owned by IPPs	
1993/94	171,182,660	1,197,420	172,380,080
1994/95	187,058,960	1,446,586	188,505,546
1995/96	226,976,050	4,488,211	231,464,261
1996/97	268,832,540	5,018,301	273,850,841
1997/98	348,856,020	5,374,414	354,230,434
1998/99	379,842,700	5,290,073	385,132,773
1999/00	519,116,130	16,443,890	535,560,020
2000/01	519,471,540	60,168,921	579,640,461
2001/02	533,980,000	81,672,320	615,652,320
2002/03	660,212,000	81,549,772	741,761,772
2003/04	606,091,130	106,327,410	712,418,540
Total	**4,421,619,730**	**368,977,318**	**4,774,471,582**

Source: DoED and Upadhyay (2003)

Note: The above figures show the calculated royalties. The power producers are not prompt in payments, however. The districts received 10 per cent of the amount that the producers paid and not the total royalty entitled.

Royalty	Up to 15 years	After 15 years
Annual capacity royalty	Rs. 100/kW	Rs. 1000/kW
Annual energy royalty	2% of average tariff/kWh generated	10% of average tariff/kWh generated

Based on: Schedule 11 relating to Electricity Act (1992)



Royalty Percentage
District housing plant 12 (District Share)
All districts of concerned Development Region 38% (Regional Share)

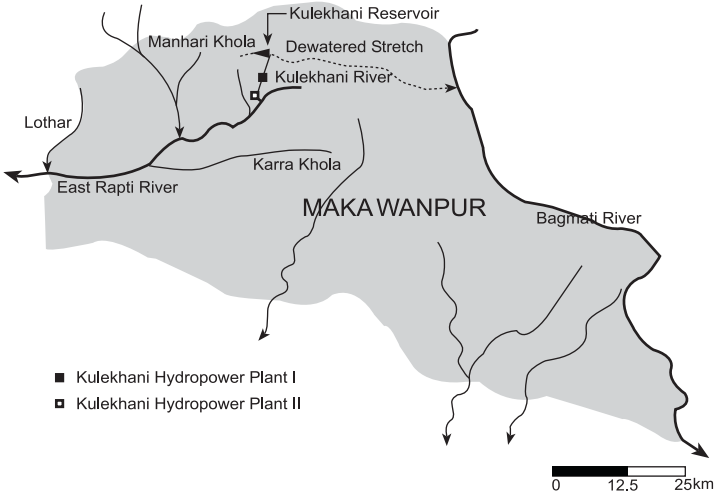
Development Region	Royalties		
	2000/2001		2003/2004*
	Amount Rs x 10^6	Per cent	Amount Rs x 10^6
Eastern	0.314	0.54	1.57
Central	46.5	80	232.5
Western	11	19	55
Mid-Western	0.3	0.5	1.6
Far-Western	None		None
Total	58.1	100	290.67

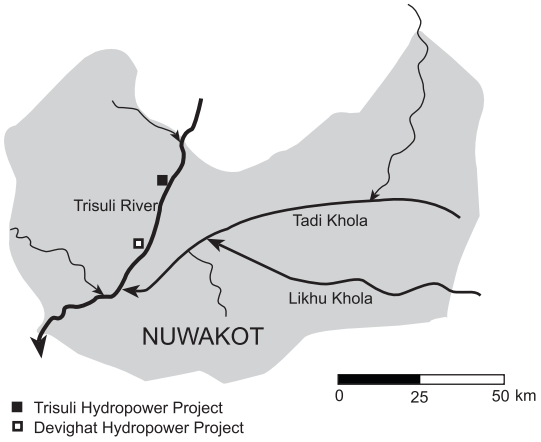
Source: Upadhyaya (2003)

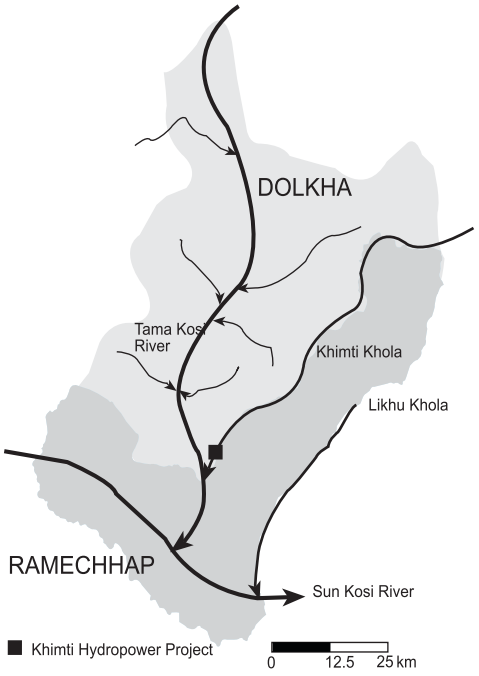
* This estimate is calculated on the basis of royalty disbursed in 2000/2001 but at 50 per cent. It is not the amount disbursed to the regions. Fifty per cent of the royalty translates to substantial resources allocated to the regions and districts, as the table shows. The actual amount disbursed would be different.

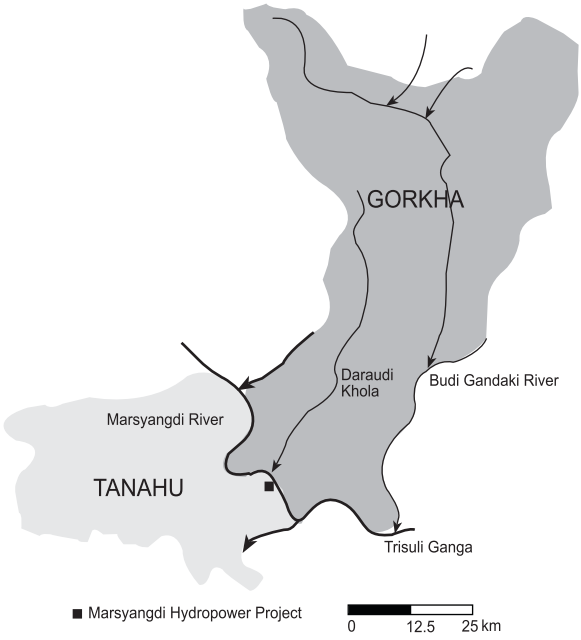
ISSUES OF ALLOCATING AND DISBURSING ROYALTIES

The allocation of royalties is straightforward when a single district is involved. Makawanpur District, where Kulekhani hydropower plants [I and II] and the Kulekhani watershed are located (Figure 5a) is an example. Similarly, allocating royalties from Trisuli and Devighat powerhouses (Figure 5b) to Nuwakot District is not difficult. When a hydropower project crosses districts, the difficulties are pronounced. The Khimti powerhouse system, for example, encompasses Ramechhap and Dolakha (Figure 6a), the Marsyangdi hydropower system encompasses Tanahu and Gorkha (Figure 6b), and Kali Gandaki 'A' hydropower system encompasses four districts—Syangja, Palpa, Parbat and Gulmi—though the dam and powerhouse are located in







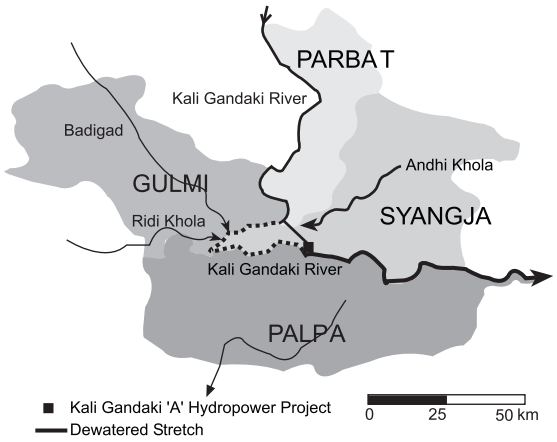


right banks Kali Gandaki downstream of where the dam is dewatered (Figure 7). Another issue is distribution of regional share which will be discussed in the next section.

Sharing among districts: Difficulties exist when more than one district need to share the 12 per cent district royalty. At present, four hydropower systems need to deal with sharing among districts: Kali Gandaki, Marsyangdi, Modi and Khimti. On 9 June, 2003, MoLD and representatives of the four districts concerned with Kali Gandaki 'A' suggested a modality for sharing the 12 per cent royalties. The participants proposed eleven indicators (Table 9) and defined weightage for each district. But when the royalty was distributed, the recommended proportions were ignored, perhaps to avoid the hassles of working the percentage. Instead, the Syangja DDC collected and spent the

Indicators	Weightage	Syangja	Gulmi	Palpa	Parbat
Production house	14	14	-	-	-
Dam	13	6.5	6.5	-	-
Tunnel	12	8	4	-	-
Submerged area	11	5	4	-	2
Dry area	10	5	2.5	2.5	-
Infrastructure damaged	8	2	2	3	1
Religious, cultural and tourist area	7	1	2	2	2
Impact on existing utilisation of natural resources	6	1.33	1.33	1.34	2
River diversion	6	1.5	1.5	3	-
Displacement of local people	6	1.5	1.5	1.5	1.5
Others	7	2.5	1.5	1.5	1.5
Total	**100**	**48**	**27**	**15**	**10**

Source: ADDCN



entire amount. Palpa and Parbat did receive Rs. 2,000,000 and Rs. 2,700,000 respectively but district officials are not sure if the amount they received was from the Tinau and Modi Khola hydropower plants respectively or from Kali Gandaki 'A'. They claim that Syangja DDC received more than Rs. 1 crore from the Kali Gandaki 'A' but Syangja officials refute the claim saying that the DDC received only Rs. 1,300,000 in 2003/04.

Some tentative arrangements for sharing royalties among districts have been made. In the case of Khimti I, a sharing arrangement of 3:1 was made in favour of Dolakha but Ramechhap districts was not satisfied. In the Marsyangdi project, a 50:50 sharing arrangement made between Tanahun and Gorkha has left the DDC of Tanahu disgruntled because most of the project's facilities are built within its territory (Upadhyaya, 2003). This debate is an issue for resolution to be facilitated by ADDCN and MoLD.

S.N.	District	Percent of regional share	Percent of total	Amount (Rs)
Tarai districts				
1	Dhanusha	5.30	2.01	10,483,499
2	Mahottari	5.30	2.01	10,483,499
3	Sarlahi	5.30	2.01	10,483,499
4	Rautahat	5.70	2.17	11,274,706
5	Bara	5.30	2.01	10,483,499
6	Parsa	3.60	1.37	7,120,867
Districts with hydropower plants				
7	Ramechhap	5.30	2.01	10,483,499
8	Dolakha	6.00	2.28	11,868,112
9	Sindhupalchowk	7.20	2.74	14,241,734
10	Kavrepalanchowk	4.00	1.52	7,912,075
11	Nuwakot	5.30	2.01	10,483,499
12	Rasuwa	6.90	2.62	13,648,329
13	Makawanpur	5.50	2.09	10,879,103
The valley districts				
14	Lalitpur	3.80	1.44	7,516,471
15	Bhaktapur	3.80	1.44	7,516,471
16	Kathmandu	4.80	1.82	9,494,490
Districts without hydropower plants				
17	Dhading	6.40	2.43	12,659,319
18	Sindhuli	6.20	2.36	12,263,716
19	Chitwan	4.30	1.63	8,505,480
	Total	**100**	**38**	**197,801,863**

Source: ADDCN and DoED

Distribution of regional shares: The sharing of regional royalties among districts is another difficult issue. The provision of either LSGA or the MoF's do not suggest a method for distributing royalties among districts. Nor do they provide guidance on how the amount should be used. A letter from the Finance Ministry to the MoLD in 2004 mentioned that this amount would be "allocated and distributed among the DDCs of the region as per the decision made by joint sitting of the chairpersons or authorised individuals".

In 2003/04, representatives from the MoLD, the Association of District Development Committees of Nepal (ADDCN) and the representatives of the concerned DDCs constituted two task forces to work out a methodology for making distributions. The criteria for allocation suggested for the Central and Western development regions are shown in Tables 10 and 11 respectively. The guideline for the Central region suggests that after the royalties of each plant in the region is worked out, money be allocated to the districts according to percentages developed on the basis of their Human Development Index (HDI), presence of generating infrastructure, impacts etc. The criteria for the Western Development Region is more elaborate, as Table 11 shows.

The DoED did, in fact, disburse royalties among the districts of the two regions according to the criteria listed in tables 10 and 11. For districts in the Mid-Western and Eastern development regions, no criteria have been developed, and they can learn from the central and western region. Initially districts in those regions were allocated only 10 per cent, even though the amount was increased to 50 per cent to be equally disbursed among all districts. Thus each

HPP	Phewa	Seti	Marsyangdi	Tatopani	Modi	Kali Gandaki	Andhi Khola	Gandak	Tinau
District									
Kaski	2.32	2.32	4.95	5.65	11.14	6.32	5.26	5.56	5.26
Syangja	5.26	5.26	4.77	5.47	5.08	2.14	2.14	5.47	5.08
Tanahun	8.56	8.56	2.32	5.65	5.26	4.32	5.26	5.65	5.26
Gorkha	6.51	6.51	11.28	6.72	6.33	5.39	6.33	6.72	6.33
Lamjung	5.44	5.44	7.58	6.65	5.26	4.32	5.26	5.65	5.26
Manang	6.69	6.69	8.83	6.9	6.51	5.57	6.59	6.90	6.51
Mustang	6.87	6.87	6.38	7.08	6.69	7.75	6.69	7.08	6.69
Myagdi	6.69	6.69	6.20	3.57	6.59	7.57	6.51	6.90	6.59
Baglung	6.33	6.33	5.84	6.54	6.15	7.21	6.15	6.54	6.15
Parbat	5.26	5.26	4.77	5.47	2.14	8.14	8.02	5.47	5.08
Nawalparasi	7.58	7.58	7.09	7.79	7.40	6.46	7.4	4.46	7.40
Rupandehi	5.62	5.62	5.13	5. 38	5.44	4.50	5.44	5.83	11.32
Kapilvastu	7.58	7.58	7.09	7.79	7.4	6.46	7.40	7.79	7.40
Palpa	6.16	6.16	5.67	6.37	5.98	9.04	8.92	6.37	3.04
Arghakhanchi	6.51	6.51	6.02	6.72	6.33	5.39	6.33	6.72	6.33
Gulmi	6.51	6.51	6.02	6.72	6.33	9.39	6.33	6.72	6.33

Note: 100 per cent in the table is the 38 per cent of the royalty raised from each hydropower project. *Source: ADDCN*

district in the Central Development Region gets, on average, about Rs. 1 crore from the regional share. In addition, the seven districts with hydropower projects also receive a district share. Makawanpur, for example, gets 12 per cent of the revenue from Kulekhani I and Kulekhani II as well as 2.09 per cent (approximately 1/19 of the 38 per cent total [see Table 10]) from each project in the Central region.

The criteria laid out in Tables 10 and 11 are useful, but questions have been raised about their fairness and about regional equity. Some concerns become clear by looking at the amount allocated to the seven of the nineteen districts of the Central Region, which has eleven hydropower projects—which pay royalties to the DoED—Panauti, Trisuli, Devighat, Sun Kosi, Indrawati III, Upper Bhote Kosi, Khimti 1, Chilime, Khimti, Kulekhani 1 and Kulekhani II. The question is, whether it is fair that a district which already has a hydropower plant and gets royalties from it is be entitled to a portion of the regional share ? In the Central Region, the amounts received by Makawanpur and Nuwakot are almost three times higher than what the districts without hydropower plants get (Table 9). The districts of Bara and Dhading, for example, received 2.01 and 2.43 per cent respectively.

We interviewed representatives of seven DDCs of the Central Region: Mahottari, Rautahat, Parsa, Dolakha, Lalitpur, Kathmandu and Sindhuli by telephone.[36] Except Parsa, all those which do not have hydropower plants did receive their shares of the 38 per cent. However, the amount they received was less than that they are entitled to. Mahottari is entitled to about Rs. 100 lakhs but received only about Rs 58 lakhs; Sindhuli received only Rs. 55 lakhs of the Rs. 120 lakhs it should have received; and Lalitpur received about Rs 42 lakhs of Rs. 75 lakhs (Table 10). These districts received their share for the first time in 2004/05. The DDCs we interviewed, that do have hydropower plants and that received district royalties too, could not identify the projects they received royalty from. They did not know if the amount they received was their district share or their regional share.

Returning back to the question of fairness one should ask, whether Kathmandu, which has many other sources of revenue, should be entitled to a portion of the regional share? One view is that the current practice of distributing the regional share equally among all districts is, in fact, not equitable. This view argues that Kathmandu, Bhaktapur and Lalitpur should not receive hydropower royalties because it is inappropriate to allocate royalties from Nuwakot (a less developed one) to the district of Kathmandu (more developed). If Kathmandu does get a percentage from the region some stakeholders argue that it should, in turn, share the royalties it generates with poorer districts of the region. From the perspective of social justice and equity, this is a pertinent issue. A fair and just arrangement for distributing the regional share needs to be sought and the decision must be based on mutual dialogue and negotiation.

The process of disbursing royalties is a recent and evolving one. ADDCN believes that simply getting resources to the districts is a welcome beginning and that the details of utilisation will gradually evolve. Most stakeholders concur with this view; they believe that the current 38-12 per cent rule should be continued for some time. They also suggest that the mechanism for channelling resources must be transparent and based on criteria agreed upon by all. Reaching a consensus on those criteria and ensuring transparency are central to the minimization of disputes and the productive investment of the allocated amounts. As an interim arrangement districts that do not receive district

hydropower royalties could, for example, be provided equalising grant. Some disagree. Others even question the provision of 38 per cent royalties to the region as a recent story in the *Kantipur* daily titled *Bidyut Royalty Durupayog* (Electricity Royalty Misuse) shows. On 12 December the daily reported quoting an official of the MoWR, who remained anonymous, as saying that allocation of 38 per cent royalty to the development region is "institutional corruption, Nepali people living in non-project areas also pay for the loan taken in constructing hydropower projects".[37]

Utilisation of Royalties

Where and how the amount allocated should be used are crucial questions. This question is particularly important while allocating share within a district. The LSGA specifies that royalties should not be used to meet administrative expenses or for any purpose other than development. The Act does not specify acceptable usages though such clarification would be useful. Former Finance Minister Prakash Chandra Lohani suggested that "the royalty amount was conceived to support rural electrification and not other development needs."[38] Sindhupalchowk DDC's policy is to allocate 10 per cent of its royalties to the affected VDCs and the remainder to education, poverty reduction and health to meet locally identified needs. The use of royalties needs to focus on supporting adversely affected persons and marginalised people, setting priorities, piloting activities, building transparency and accountability, and resolving disputes. Each aim is discussed in further detail in the following sections.

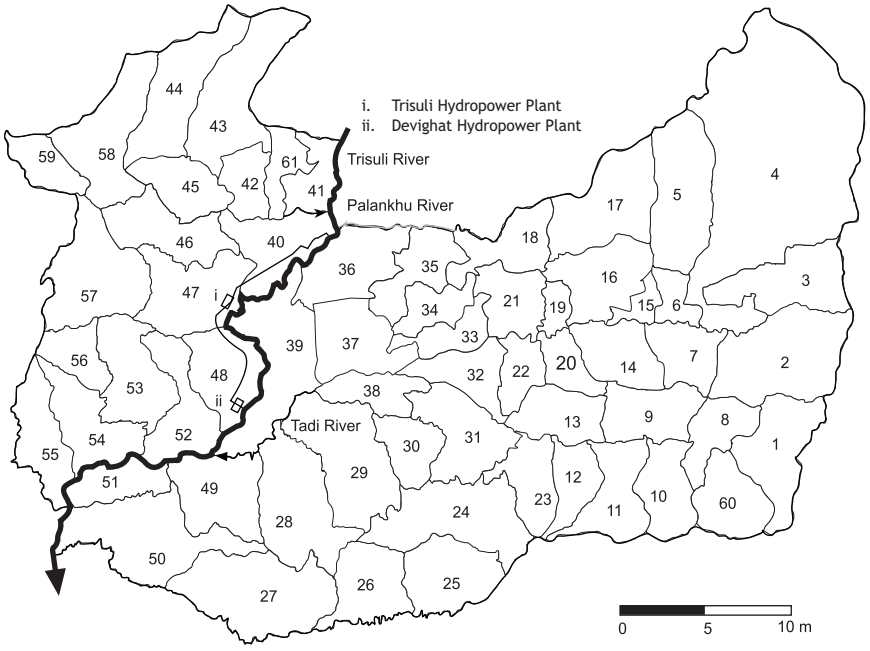
Supporting adversely affected people: Hydropower projects have adverse social and environmental impacts. People displaced involuntarily can lose their sources of livelihood and communities can suffer from the increased pressure on the natural resources base during and after construction of a plant. The diversion of a river can lead to the dewatering in the river as its stretches downstream of a dam/weir/barrage and inundates the upstream areas. Dry rivers can harm communities, which depend on their flows for their livelihoods. Local fish stocks can be reduced and biodiversity lost. In many cases, those who lose their livelihoods are not provided with alternatives. While thinking about providing support for building the livelihoods of the affected, the distinctions made earlier among the people at large, local-level beneficiaries and affected people are useful. In addition, social tools such as well-being ranking, preference-ranking matrix, transect studies, Venn diagrams and planning and problem-solving methods can identify who is actually affected.

A distinction must be made between compensation and benefit sharing: compensation is providing a one-time support to those who lose assets and properties, while benefits are long-term and continuous. Some argue that after being compensated, there is no justification for the affected people to receive benefits, which should go to those excluded and living farther away. Cash compensation particularly to those in the lower economic rung is, however not always beneficial. The assumption that cash benefits as an end is a major risk as the outcome of sudden and large amount of cash compensated to some affected families shows. In Kulekhani, Chatara headworks and Kali Gandaki 'A' project, families receiving cash compensation had a sense of becoming rich, ended up spending the money in a few months and became worse-off than before as both the asset and amount received as compensation were gone.[39] In the Middle Marsyangdi project compensation was offered in kind and the situation is some what better than Kali Gandaki 'A' though the issue of benefit sharing is being legally contested. Along with local group, WAFED has filed a case at the Supreme Court demanding distribution of benefits from Kali Gandaki 'A' hydropower project to the affected people.

Livelihoods of the marginalised: Royalties can be utilised to build the livelihoods of the marginalised and the poor of a region, district or VDC and to help them escape the cycle of poverty. While finance is an important input, it is in itself insufficient because social and political factors also determine how cash becomes productive capital. At the same time, different groups deal with poverty differently. Laws, customs and practices determine whether or not the poor benefit from improved access to the basic services provided by a development intervention. The extent of these benefits depends on the access of the beneficiaries to information and knowledge. Not all beneficiaries are aware of the alternative courses of action or the nature of decision-making or that such options are available to them. While access to information is crucial, it is important that information be transformed into usable forms of knowledge. Breaking the social, political and systemic links that perpetuate poverty requires applying approaches to development that address patterns of social exclusion and that a range of choices to suit the diverse groups within a community be provided. Many empirical evidences show that rise in living standard is not a function of money *per se*, but of institutional capacity to properly target resource for building livelihoods.

Setting priorities for investment: Difficulty arises while developing criteria for sharing royalties among the VDCs within a district. Some VDCs border the river on which a plant is built while others are located away from it (Figure 8). The question is which VDCs should get how much of the royalties ? The policy of Sindhupalchowk District is to allocate 10 per cent of what it receives to the VDCs where the hydropower systems are built and to spend the rest on education, poverty reduction and health. The Ramechhap DDC has decided to allocate 25 per cent of the royalties of a project to the VDCs affected by the development of that project. As a general principle, utilisation should be defined on the basis of the needs of the area.

1. Talakhu
2. Beteni
3. Gaunkharka
4. Rautbesi
5. Shikharbesi
6. Samundratar
7. Balkumari
8. Likhu
9. Mahakali
10. Sikre
11. Samundradevi
12. Sunkhani
13. Bhadratar
14. Thaprek
15. Sundaradevi
16. Ralukadevi
17. Urleni
18. Lachyang
19. Kharanitar
20. Kabilas
21. Narjamandap
22. Panchakanya
23. Thanaoati
24. Kakani
25. O kharpauwa
26. Chauthe
27. Kumari
28. Belkot
29. Mananpur
30. Chaterali
31. Thansing
32. Chaughada
33. Ganeshthan
34. Narjamandap
35. Bageshwari
36. Gerkhu
37. Khanigaun
38. Suryamati
39. Bidur Municipality
40. Tupche
41. Manakamana
42. Kaule
43. Bhalche
44. Salme
45. Bungtang
46. Beurali
47. Kalyanpur
48. Charghare
49. Jiling
50. Duipipal
51. Ratmate
52. Khadka Bhanjyang
53. Gorsyang
54. Budhasing
55. Taruka
56. Dangsing
57. Samari
58. Kimtang
59. Barsunchet
60. Chihap
61. Phikhuri



The rivers in the map are only indicative, They are meant to show the context within the district.

Different countries have different criteria for assigning benefits. Columbia, for instance, shares 50 per cent of its hydropower royalties with watershed agencies, which in turn use the funds to protect the environment in the watershed upstream of the dam and in areas affected by the project. Of the remaining 50 per cent, half is given to the municipalities in the watershed upstream of the dam and half is given to those bordering the reservoir. Brazil, in contrast, shares 45 per cent with affected states, 45 per cent with affected municipalities, 8 per cent with the Federal Electricity Regulatory Agency and 2 per cent with the Ministry of Science and Technology.[40]

Instead of applying a single formula for utilisation, districts must adopt an approach, which is sensitive to the social, cultural, economic and environmental realities of the project region. The decision to use royalties is a political one and should be based on criteria such as HDI values within a region and even within a district. Affected areas could, for example, be categorised on the basis of a project's impact, the allocations made and guidelines could be developed to that end. The participants of the recent workshop suggested that the royalties could be allocated as shown in Table 11.[41]

The utilisation of royalties must be based on priorities established using participatory and consultative processes which involve affected people as well as other stakeholders. Such a process can ensure that utilisation is demand-driven. Once needs have been prioritised, investment can be allocated accordingly. Priorities must be re-evaluated every two to five years because they change with time. Royalties could be allocated in the following areas:

- Rural electrification and electricity based small enterprises
- Development of micro hydropower plants
- Improving rural access using trail bridges and short haul ropeways
- Income generating, livelihood promotion and health improvement programmes
- Promotion of technical education
- Conservation of water sources and lakes, and
- Upland watershed conservation and environmental protection

Location	Per cent
Areas around hydropower system	30
Upstream and downstream areas	20
Other areas	50

Source: RDMCC and SAGUN (2005)

Pilot activities: Maintaining the condition of environmental resources generally helps build resilience at the local level. Watershed management in the hills and other rural regions, for example, extends soil moisture and water availability into the dry season. Makawanpur DDC, in cooperation with Winrock International, is, for example, pursuing a concept of utilising the benefits from hydropower with upland communities with the objective of enhancing conservation measures that can have a

significant impact on the performance of the project by enhancing environmental services (Upadhyaya, 2005b). Pilot activities are needed in order to glean information about the best practices related to productive investment of hydropower royalties. Given the short history of this policy measure, it is not easy to derive general principles for investing hydropower royalties. This insight can come from case studies of selected DDCs.

We need better understanding of the effectiveness of pilot implementation strategies that are both sensitive and responsive to the needs of the potential beneficiaries. In addition, pilot activities need to improve the access to specific resources, such as education, credit, communication, transport, and insurance. Technologies enable individuals, households and communities to adapt and develop resilient livelihoods. How decisions regarding implementation are made and how these decisions influence both the chosen activities and their effectiveness must be explored. Such strategies vary depending on the nature of vulnerability, the condition of natural resources (such as the availability of water, the condition of forests and access to them and the presence or absence of transport, communication and other infrastructure.) Differential pattern of vulnerability associated with gender, social exclusion and poverty also determine the access to benefits from royalties or other services.

Subsidiarity and Guidelines

Like all legislative measures, the LSGA aims to further the principle of 'subsidiarity' by making and administrating decisions as close to the people as possible. Its aim is to foster bottom-up governance and thereby achieve equity and justice as well as for the upliftment of the vulnerable, the backward communities, women and children. Passing legislation and providing financial resources, though necessary, are insufficient conditions for guaranteeing democratic local governance that fulfils such stated objective. Achieving them requires mechanisms for making and enforcing rules and applying sanctions. The impacts of legislation and policies can be positive when local political institutions limit the control over decision-making exercised by local elites and use their newly acquired resources to create an economic surplus to improve subsistence-level livelihoods. The diffusion of education and skills is an essential condition if process of change is to be positive.

Hydropower royalties provide a steady stream of income to DDCs for them to meet some the objectives as set by the LSGA. The outcome of investment of this income must reach the local-level beneficiaries and affected persons themselves so that they can build livelihoods and create a surplus. How these objectives can be achieved is an important question. The answer is not simple because, as is the case with the distribution of property, it is impossible to devise a perfect formula for the distribution of income or to decide on a mechanism for once and for all. In fact, it is impossible to come up with a single formula for allocating income from royalties applicable to all districts.

Because each district is unique, allocation needs to keep the social, cultural, economic, political, and environmental specifics of the area in mind. Constraints on allocation are further exacerbated by the absence of elected local VDC and DCC representatives. In absence of elected representatives the decisions on allocation are made by appointed members who are not accountable to their constituency. But even with elected local functionaries, misuse of resources at the local level is common.

A couple of questions emerge from the above discussion. The first is how a DDC should operationalise a mechanism for meeting the objectives of subsidiarity as well as social upliftment which are embodied in the LSGA by utilising its share of the royalties from hydropower ? Should proposals come from the bottom or be suggested by the central government ? According to the LSGA, "HMG can monitor and give necessary direction to local bodies to see if they are functioning under the law and have given necessary priority to equity consideration in uplifting the backward communities, women and children and ecological justice." This formulation assigns HMG the role of overseer though many local level stakeholders argue that the right to make decisions about the utilisation of royalties should rest entirely with local bodies. The latter perspective seems to have certain validity, but specific guidelines and central monitoring are instruments of checks and balances to maintain fiscal discipline and keep investment productive.

Guidelines for using royalties would help DDCs make informed decisions on matters within the purview of the LSGA and would provide an encompassing framework for introducing systemic accountability. A guideline does exist in the case of the use of royalties from tourism: a portion is used to promote related activities: For example, 10 per cent goes to trekking routes. Guidelines for hydropower could be similar. In a workshop organised by the RDMCC and SAGUN participants have proposed that 25 per cent of royalties be allocated to support programmes approved by the affected VDCs and that 75 per cent allocated for priorities set by the DDC. The ADDCN has suggested that 40-50 per cent of royalties be spent on conservation and the development of hydropower in the affected VDCs, and that the remaining money be spent on meeting the specific needs of the district.

Providing support to local groups to develop a distribution system for rural electrification is a productive investment since the COEDIBYL allows a organised groups to buy electricity in bulk from the grid and to retail it among its members.[42] The communitisation of electricity distribution through the COEDIBYL could be a vehicle to achieve a win-win outcome for both the NEA and the community, by, for example, diversifying the end uses of electricity. Nepal's installed capacity reached 613.577 MW in 2005, but the system is unbalanced in that energy is unused at certain times of the day and seasons of the year. Introducing electricity-based local transport systems such as electric buses, electric tempos, inter-city trolley/tram transport and short-haul rural ropeways

can improve load factors while at the same time replace imported fuels.[43] Local industry is another important user of electricity but the industrial sector is bedevilled by problems rooted in the country's social and political conditions.

The ADDCN aims to prepare a model guideline after local elections have been held, and when elected officials are in a position to make decisions. In 2004, facilitated by the MoLD, two forums were organised: one in Kathmandu representing the Central Development Region and the other in Pokhara representing the Western Development Region. During the forum, a decision was made to formulate a guideline, but the task forces are no longer operational. The guideline needs to be a document negotiated by the VDCs, ADDCN and central level departments, affected persons and other stakeholders. The guideline mentioned above can be a basis for developing similar documents.

Management and Capacity Building

Members of local bodies like DDCs and VDCs need to develop the skills needed to successfully manage and invest the financial resources. A number of factors, such as the capacity of DDCs, the existing support environment, and legislation are crucial when selecting the most effective management arrangement. Management tasks can be classified as social, technical, environmental or financial management and include planning, organisation, decision-making, coordination, control and monitoring. To be able to target productive investments requires that management arrangements be clear, that management bodies function well and that community hold the management body accountable for its actions. Capacity building needs continuous support.

Information and Empowerment

Awareness building and access to information must improve. Although people have concerns about how district royalties are utilised, they cannot voice them because there is no forum at which to do so. Many local functionaries are not even aware that LSGA entitles districts to receive royalties. In a situational analysis of the VDCs of Dolakha and Ramechhap districts, SAGUN programme discovered that except for few influential persons, local residents are unaware that hydropower DDCs are entitled to hydropower royalties.[44] Information is a critical element as it helps mediate disputes by creating a balance of power among different social interests. Sharing of information and access to it should become a central feature of the governance and management of hydropower royalties. To that end local level stakeholders including affected people must be supported to get organised and empowered to access information.

How can access to information and awareness about royalties and their utililisation be improved ? One method is to organise public hearings. But, as everyone cannot participate they have in-built limitations. Another strategy is to help local groups get access to and publish information in monthly bulletins, wall papers, local level hoarding boards, made available to local stakeholders and affected people. Such bulletins would include information on plans and programmes, DDC or central-level decisions, proposed projects, and the nature of financing (whether the project is built by a national entrepreneur, foreign direct investment, bilateral aid or a loan.) Social auditors and active civic society movements can play a crucial role in providing the alternative view points in this contested terrain. Local FM stations are another useful means for disseminating information.

Transparency and Accountability

Discussing the notion of water governance, Moench, Dixit *et al.* (2003) have suggested that the existence of processes and frameworks that enable solutions to be identified and implemented as specific constraints arise and contexts change is important. Such concepts need to be embedded in the fundamental principles of human organisation and the question of the balance of power (between executive, judicial and legislative functions at the national level and between 'local' and 'global' interests). Mechanisms that ensure that both the elected and appointed local authorities are responsible and accountable are keys to the appropriate exercise of power and authority. This balance underscores the need to recognise the structure of rights, the concepts of ownership and responsibility. Accountability relates to the mechanisms though which countervailing power is exercised by actors who hold decentralised power.[45] Shrestha (2003) argues that transparency paves the way for local level accountability and good governance by using sanctions and non-partisan management.

Historically development in Nepal, particularly those implemented from the capital, has been technologically and environmentally insensitive to the concerns, needs and capacity of local people. Even projects implemented by DDC have tended to emulate the central project and are not sensitive to the concerns of local people compared to those implemented by VDCs and municipal authorities. Many development projects, intended to help the poor, have, in fact, become a victim of middlemen and contractors as funds are siphoned off by local forms of rent-seeking and corruption (Dahal *et al.,* 2002).[46] Some local stakeholders have suggested that because a DDC is a political body it does not represent the interests of all factions within a district, and that resources have been misused in maintaining political fiefdom.

Any funds allocated to a DDC, including hydropower royalties become its internal resources and all decisions about how to spend those resources rest with that DDC. At present, DDCs are not required to make clear how it spends its money, though the LSGA does state that "the grant amount provided by HMG shall not be expended in administrative functions in excess of percentage prescribed." Transparency is essential if stakeholders are to be able to keep tabs on income and expenditure patterns. Only with such details can stakeholders or agencies monitor

if given expenditures were in fact necessary, if some other pressing need should have been met, or if investment brought any particular expected changes. Elected or appointed officials must be able to demonstrate that they have used the power and authority granted to them properly. By including the provision that income and expenses are to be audited by the Auditor General, the LSGA enshrines one element of systemic checks and balances.

The LSGA's provisions for the nature of spending are, however, ambiguous, contain room for interpretation and for making poor decisions. Besides, there is currently no way of knowing if the amount is in fact used for development purposes or in unproductive administrative purpose. The availability of financial resources does create incentives for making unproductive expenses in construction and vehicles, for example. The daily *Kantipur* quoting an official of the MoWR reported that "royalty amount is being spent on administrative and non-development activities due to lack of policy on use of the royalty". The official was quoted as saying that "Development region has been defined as directly affected areas, though they have no right to receive royalty which is a tax paid for using expensive electricity". The report quoted official of MoLD who agreed that a request had been received from the DDC of Nuwakot to buy vehicle but was not granted. The officials said that "the MoLD is studying the scope of utilisalisation and appropriate decision will be taken in a few days."[47]

Devolution of authority must be matched by transparency and accountability. Referring to the experience of decentralisation in Nepal, Dahal *et al.* (2002) suggest that the following five mechanisms can make local bodies transparent and accountable necessary to prevent misappropriation of resources. First, any activity undertaken by authorities, institutions or local legislative bodies such as councils and committees should be justified, and extensive public debates should be conducted and decisions made. Second, planning and projects should be as participatory as possible and popular control over what the local bodies do or leave undone should be increased. Third, budget and financial matters including account committee reports should be published and disseminated to the public through media. Fourth, community organisations, NGOs and local groups should be involved in service planning and service delivery. Finally, the creative participation of the opposition, the media and civil society institutions in political communication, civic education and development processes should be facilitated.

The above attributes are not abstract notions. Many development programmes in Nepal have developed operational tools to ensure transparency and accountability. One example is the Rural Community Infrastructure Works Programme (RCIW).[48] The set of tools and tacit developed by RCIW include the following: Public Information Campaign, Vulnerability Analysis and Mapping, Identification and selection of activities, implementation documents, Sign and rate boards, defining mode of payments and public and institutional audits. Employing a transparent mechanism for governing the use and allocation of resources, including royalties from hydropower, is essential. Transparency minimises suspicions which can arise if the members of a community do not know what is decided, why certain decisions are taken or how certain decisions about finances are reached. Institutional safeguards will be necessary to ensure that resources transferred from the centre are used productively and effectively.

Dispute Resolution

Disputes are one manifestation of the stress which exists in any society where injustice prevails and where the weak and the marginalised suffer. Disputes reveal differences in the aspirations, hopes, and expectations of two or more people, groups or communities. They highlight the existing power balance and the authority to exercise power, both of which can undermine social relationships in times of stress. In most disputes, there is a feeling that one group has been deprived of its rights, dominated by others, lost properties or failed to have its needs met. Disputes over the utilisation of natural resources and sharing of the benefits from their development emerge when parties with different needs, perceptions and goals clash. The provision of hydropower royalties can lead to disputes resulting from a lack of information or from misinformation. All of the above can lead to 'conflicts of interest,' when tangible outcomes which could be obtained through resource-sharing are threatened because of the existence of different views on how much royalty should be obtained, who should use it and how decisions about such uses should be made.

Sharing royalties among districts and within a given district is one arena of potential dispute. The formation of task forces in the Central and Western development regions to prepare criteria (Table 9 and 10) for distributing regional shares aimed to minimize disputes through negotiated settlement. The RDMCC deals with disputes related to royalty sharing. Its chairperson is the Secretary of the MoLD, its Member-Secretary is the Under-Secretary of the MoLD, and representatives of the Ministry of Finance (MoF), Financial Comptroller General Office (FCGO), Ministry of Culture, Tourism and Civil Aviation(MoCTCA), Nepal Tourism Board, Department of Mines (DoM), Ministry of Forest and Soil Conservation (MoFSC), ADDCN, DoED, Local Bodies Fiscal Commission (LBFC) secretariat, and MoLD are the members. As conceptualized by the LSGA which gives authority to VDCs to solve local disputes a similar mechanism for resolving dispute must be introduced at the local level. Potential differences over the sharing of royalties can be addressed amicably through maintaining open communication and dialogue at the local level. The tools developed, for example, by RCIW listed above are useful. Eventually an independent dispute settlement mechanism needs to be established at the central level.

Regional Disparity

Figure 3 shows how unbalanced Nepal's current approach to hydropower development is. The Central and Western Development regions benefit dis-proportionally while the Eastern and Mid-Western regions are just beginning to

develop hydropower plants and, by implication, obtaining royalties. The Far Western Region does not have a single hydropower plant with more than 1000 kW capacity which supplies power to the national grid. Consequently, the region and the districts here receive no royalties from hydropower. The state of unbalance forces the question, how fast a hydropower base could be developed in these regions. The challenge is two-fold: enabling the districts of the Eastern and Far western region to build a hydropower base and expand electrification, while at the same time taking advantage of the expanding internal electricity market in order to sell power and earn an income from royalties.

Because capital, expertise and technology are needed to develop hydropower, projects favour areas close to roads, existing transmission lines and urban centres. The latter two conditions, in particular, determine where a private entrepreneur, for example, might invest in a hydropower plant. Thus, areas with good infrastructural facilities get new investments. Then, when royalties are distributed, they benefit still more. Districts without services are, in contrast repeatedly neglected. Though the regional share of royalties does address this gap somewhat, expanding the hydropower base in poverty-stricken and conflict-hit parts of the country must be pursued with innovative approaches and vigour.[49]

Macro (national) vs. Micro (local) Issues

The principle of benefit sharing needs to balance the micro (local) and the macro (national) interests. When the country takes a loan from a multi-lateral bank or an IPP is paid according to the PPA, the nation and people have to pay for it. If rivers are considered national property as the WRA stipulates then people have the right to benefit from a project using that property. This logic, in turn, implies that districts without a hydropower plant have a right to certain benefits, too perhaps in the form of equalising grant from the government. Operationalising a balance is a challenge and must be based on negotiations and consultation. Should grants to districts that receive royalties be withdrawn ? There is no straightforward answer to this question, but its resolution is critical because the nation bears the burden of making payments for investments in hydropower projects. Some stakeholders argue that hydropower royalty should not be seen as block grant because without the notion of benefits from a hydropower project, sense of local ownership is not generated. The key is to balance micro and macro level benefits and opportunities which is difficult to accomplish, by the simplistic manner of resource distribution alone. The challenge lies in overcoming interpersonal and interregional disparity by ensuring that benefits reach people with lowest HDIs.

The Issue of Trans-boundary Projects

Nepal and India cooperated in three projects that generated electricity. The three projects are the Kosi, the Gandak and the Tanakpur. According to clause 4 (ii) of the amended agreement on Kosi, "HMG shall be entitled to obtain for use in Nepal any portion up to 50 per cent of the total hydro-electric power generated by any Powerhouse situated within 10-mile radius from the barrage site and constructed by or on behalf of the Union." HMG was to communicate to India any increase or decrease in the required power supply exceeding 6,800 kW at least three months in advance, India was to construct necessary transmission line or lines to such points as the Nepal-Indian border as shall be mutually agreed upon and the tariff rates for electricity was to be fixed by mutual agreement.

Nepal pays Rs. 4.00/kWh for electricity supply received. This particular rate is a subject of discussion on meetings on power exchange between Nepal and India, when Indian delegation presses to make the tariff at "par" with the rate of Rs. 5.60 at 33 kV level.[50] Nepal gets about 1,100 MWh energy from two feeders in east Nepal at 132 kV (Kataiya) and 33 kV (Rajbiraj) for seven months beginning November.[51] The issue of royalty needs to be reconciled while the power received from India as part of the Kosi agreement needs to be accounted-for and clarified in Nepal's annual electricity budgeting.[52]

In the case of the Gandak project, the powerhouse with a 15 MW capacity was constructed in the Western Main Canal in Nepali territory. Clause 8 (v) of the agreement on Gandak River mentioned that "The ownership and management of the powerhouse shall be transferred to HMG on one year's notice in writing given by them to the Government of India after the full load of 10,000 kW at 60% load factor has been developed in Nepal from this powerhouse." After the completion of the Hetauda-Bharatpur-Gandak 132 kV transmission line in 1981, Nepal's load factor exceeded the stipulated figure and the powerhouse was handed over. The electricity produced by the powerhouse is already included in the annual electricity accounting of NEA. Nawalparasi District receives 12 per cent royalty from this project.

The Tanakpur project developed by India is a unique case. A section of the Tanakpur barrage's eastern afflux bund is located in Nepal and its reservoir inundates some Nepali territory at Kanchanpur District. This reservoir is used to generate electricity, of which Nepal gets 70 million units free as per the Mahakali Treaty of 1996. HMG sells this electricity at power exchange rate to NEA and many argue that Kanchanpur District should receive a share of the royalties. Others suggest that the plant built by India cannot, under the provisions of LSGA generate royalties to a Nepali district. ADDCN has challenged this contention in the Supreme Court. Those in favour of Kanchanpur receiving royalty ask, if royalties from hydropower plant built by the Americans (Bhote Kosi) or the Norwegians (Khimti) can be shared with districts why cannot royalties from the free electricity that Nepal gets from Tanakpur shared ? Till the sub-judice case is resolved, Kanchanpur DDC could be provided with a block grant by HMG from its other sources.

SHARED LEARNING AND RECOMMENDATIONS

Shared learning is a process based on an approach allowing for reflexive understanding from the positions and perspectives of others. It is distinguished from the rigid

certitude of mono-disciplinary perspectives, especially of those single mission outfits advocating top-down, primarily structural solutions to the problems of resource use, benefit sharing and management. The shared learning approach aims to introduce interdisciplinary perspectives into understanding vulnerability and to assess the hardship that people face. The sharing of benefits occurs in the social and environmental contexts in which people live with many kinds of constraints. Shared learning can tease out some of these concerns at the local level; mesh them with development interventions and the local people's choice of relevant options to improve their livelihoods.

The bureaucracy (ministries, departments, and district- and village-level local governments), the market (private power producers, equipment manufacturers, technology promoters, banks, financing institutions and sellers), and social auditors (CBOs, NGOs, INGOs, users federations, affected families, activists, media persons and researchers) each have their own role to play. Policy learning is one outcome of public contestation among these three active social groups. Each plays a role in formulating policy, but each also has a blind spot, which it does not acknowledge unless challenged by the other two. Benefit sharing is a long-term, iterative and incremental process which requires shared learning dialogue. Platforms for constructive engagement such as the current exercise must be present. For fostering shared learning dialogue each social grouping needs to engage with each other at different levels and scales in order to provide a refractive lens on issues that are missed by focusing only on a single way of doing business.[53] Each group responds to different policy measures in its own way. As a way forward we make the following suggestions:

Ministry of Local Development MoLD:

i. Facilitate the process of formulating guidelines for the utilisation of royalties from hydropower so that local bodies are clear about the areas for investment. Since the royalties are already being disbursed, a draft guideline should be immediately brought out. The process must involve representatives from the DDC, project-affected communities, association of VDCs and municipalities, the ADDCN, the MoLD, the MoWR, local NGOs/Community Based Organisations (CBOs), development professionals and experts. The National Association of Community Electricity Users Nepal (NACEUN), WAFED, the National Federation of Irrigation Water Users Nepal (NIFUWAN), Federation of Water Supply and Sanitation Nepal (FEDWASUN) and the Federation of Community Forest Nepal (FECOFUN) should be also brought in as stakeholders. The guideline should propose a framework to ensure that allocation is fair and that investment is prudent, productive and effective.

ii. Facilitate the formation of a district-based stakeholder group which can take the process of dialogue on benefit sharing forward.

iii. Develop a mechanism for monitoring in consultation with all those concerned in decision-making processes. The outcomes of monitoring should be used to make utilisation more effective and to prevent disputes.

iv. Continue the stakeholder dialogue process for the sharing of benefits wherever a hydropower project involves more than one district.

v. Formulate a programme for the capacity building of local bodies. Support the development of ability to organise, plan and manage finances.

vi. Ascertain if a certain portion of royalties should go to needy districts without hydropower projects by providing them with block grants. Such a provision should hold true of other sectors which generate royalties, like tourism and forestry, too.

vii. Facilitate networking of DDCs at the regional level to utilise hydropower and to develop appropriate method to distribute the royalty within the region.

viii. Help undertake an assessment of spending practices of resource generally and of royalties particularly of the local bodies to gain insight on investment trends. Such an analysis will inform the policy regime and create societal incentives to make productive use of the resource by the local bodies as embodied the LSGA.

Local Governments

ix. Prioritise local needs on the basis of local realities. It is necessary to document the processes.

x. Accord special attention to the needs of affected and marginalised communities.

xi. Maintain transparency of income and expenditure on a regular basis by publishing figures in newspapers and/or sharing them in stakeholder and other forums. DDCs must keep track of their annual incomes and expenditures. It is important to maintain records of information including the royalties obtained each year from each project, the shares allocated to each district according to agreed upon criteria, the amounts received by the DoED from the NEA and from IPPs, the dates of receipt of royalties, the amounts received by each district and the annual amount still to be paid to them, and the gap between the amount received by the DoED and that disbursed to the districts. The mechanisms cited above contain elements, which can make local bodies both transparent and accountable.

xii. Facilitate the formation of community groups, encourage and empower them to get involved in the distribution of electricity. This approach will have the twin advantages of making investment productive and expanding rural electrification. The COEDIBYL is one institutional vehicle for meeting this objective.

xiii. Begin a process to prepare guidelines for allocating resources to VDCs and local levels in a manner that is fair and seen fair. This cannot be achieved in a day; the preparation must be a continuous process and come about through negotiation.

xiv. Help establish research and development funds to support constructive dialogue at the district and local levels.

Association of District Development Committee, Nepal

xv. Maintain a database which includes information collected from DDCs, the Auditor General's report, the NEA, the DoED, the MoLD, and the WECS.

xvi. Act as a networking and coordinating body regarding benefit sharing among different stakeholders, e.g. DDCs, affected people, VDCs, concerned ministries, Local Development Officers (LDO), I/NGOs and professional groups.

Ministry of Water Resources and Department of Electricity Development

xv. Make a robust arrangement to disburse royalties to DDCs and make the details public. To that end DoED must publish an annual report similar to NEA's Annual Report, in English and in Nepali. The details should include a breakdown of project-wise income from royalties, the date of collection, the share that each district is to receive as its district and regional shares, the amount received by the districts, the date of disbursement, the remaining amount to be paid to the districts and the reasons for any gaps.

Civic Movements, Social Auditors, Federations and Users Groups

One lesson, which has been derived from the experience of sharing benefits, is the recognition of a rights-based approach. This recognition shifts the focus to issues of protection, community mobilisation and establishing partnership from the traditional project-centric approach. In a rights-based approach, key objectives include not only providing material assistance but also helping affected people access services and entitlements. Advocating the rights of affected families and marginalised groups to benefits is one issue of advocacy in which active civic movements, social auditors, user-based federations and user groups must be engaged. The focus must be on helping local beneficiaries organise and empowering them with information rather than promoting proxy representation.

Civil society institutions should work with the MoLD and MoWR to elaborate the institutional mechanism for royalty sharing so that they are more targeted on the poor of the VDCs and districts, including more productive investments. This approach would require a review of existing procedures. One tentative innovation could be pooling of the royalty money under a separate "fund" in the district to be made accessible to the neediest in the affected villages and to the local organisations with proven track of playing catalytic role in building capacity of the beneficiaries.

BUILDING ON THE PARADIGM SHIFT AS A WAY FORWARD

Knowledge, institutions and resources are the major weapons against poverty, for building livelihoods and minimising disputes. Nepal faces challenges on all the three fronts and needs appropriate solutions to the related problems. The above discussions on allocation of royalties from hydropower projects show that some solutions have been identified, but that they have not yet reached those who need it the most. The provision for sharing 50 per cent of hydropower royalties (12 per cent to the district with hydropower plant and 38 per cent to the districts of the region where the hydropower plant is situated) can institutionalise a mechanism for sharing the benefits generated by hydropower projects to help achieve economic, social and political development.

Though conceived to encourage electrification, the resources made available to DDCs offers scope to promote local-level growth and equity by investing in human capital, agriculture, infrastructures, institutional strengthening and local capacity building (Upadhyaya, 2005a). But prudent fiscal discipline is required, without which royalties, as a result of phenomena like Dutch Disease effects, may lead to a decline in long-term growth and be counter-productive.[54] A competent local government, a competitive market and presence of critical civic movements and social auditors that engage constructively are essential to make the investment productive while achieving the objectives stated above.[55]

Royalties could be invested to build livelihoods of the affected people, but currently not used to do so. Mechanism that channels royalty benefits to VDCs and adversely affected people will be needed. Achieving this will require doing some homework on developing criteria and guidelines to ensure that those actually affected are identified by facilitating communications and decision-making as a negotiated outcome. The approach is, process-based, iterative, contested and would be messy. Participatory and interactive institutional processes need to be developed, particularly by the implementing agencies to lower such responses.[56]

The shift discussed above shows that Nepal's hydropower development terrain is in a fluid state. It shows creative and evolving contestation as well as tendencies of reverting to the impasse ridden path of the past. The seven elements of the paradigm shift are positive outcomes but the beginning of load shedding reflects severe systemic learning disability to build on the positive outcomes.

Yet, there is scope for institutionalising the processes that bring local stakeholders, including those likely to be affected by development of a project for equitable sharing of benefits. Many challenges remain on this count, but through dialogue the mechanisms to negotiate interests can be identified. Consequently, local and national interests can be reconciled to move towards a path for achieving long-term water and energy security. Such a process is useful in teasing out the elements essential to building good dams in the country.

Notes

1 See Gleick (2004).

2 For a discussion about the role of trans-national alliance on controversial water projects, see Khagaram (2004).

3 RDMCC and SAGUN (2005).

4 Bikas Pandey, a Nepali energy expert, in an interview with the weekly *Nepali Times* in 2004 had suggested that Nepal is undergoing a paradigm shift in hydropower development.

5 Hydropower Policy (2001) HMG/N.

6 Kumar Pandey (1998) highlighted the threat of exodus of convertible currency. In the case of the Bhote Kosi hydropower project the debate is on the company installing larger capacity machines than licensed. In the Weekly *Nepali Times*, Navin Singh Khadga reported "the power plant was supposed to have a capacity of 36 MW, but ended up generating 52 MW by the time it was built." See Khadga N.S. (2003) *The Price we pay for Power*, 25th April to May 1 *Nepali Time*s. One of the reasons for this oversight was inability by the DoED to fulfil its inspection role, though DoED engineers had been taken to the Chinese factory for inspection of machines. The absence of a well mandated regulatory body was another limitation. The Electricity Tariff Fixation Committee (ETAFIC) has no mandate to oversee Power Purchase Arrangement (PPAs).

7 The decision was taken on 28 June 1998.

8 In April 2005, the MoWR organised a consultative meeting with the objectives of discussing the draft of a new electricity bill that proposes to further unbundled Nepal's power system. *The Himalaya Time* reported on 19th December that Nepal's cabinet in principle approved the draft. The proposed draft contains 'Killer assumption' about institutional restructuring of the NEA, mixes domestic and external power systems and is silent on the Nepal's constitutional provision that necessitates the country's parliament to ratify a treaty on resources sharing.

9 Accordingly the organisational structure of DCs was restructured to include the creation of Distribution Centre Monitoring and Community Rural Electrification Department (NEA, 2002/03).

10 Pandey R. C. (2006) *Samudayik Bidhyutikaran ra Bitaran Pranali Sanchalan Sambandhi Bibhagiya Pratibedan,* NEA, Community Rural Electrification Department.

11 For details see Dixit *et al.* (2004).

12 Gyawali (2001) also provides analyses of the dynamics of such a shift.

13 *Ibid* Upadhyaya (2005).

14 Landon (1928).

15 *Ibid.*

16 Dams and reservoirs were built to encourage settlements in the deserts of Western United States (Worster, 1985). The approach later became known as the Western US model.

17 US President Truman's speech on 20 January, 1949 mentioned four points that would guide American policies towards developing countries: the first related to the interest of the US; the second to the functioning of liberal market economies; the third to resistance against communism and the fourth to the use of modern scientific and technical knowledge to increase production and thus to ensure peace and prosperity in developing countries. See Escobar (1995) for a discussion.

18 Two examples are the West Seti and the Pancheswar projects. Both are in contention for almost ten years but face major technical and political hurdles.

19 The reality of involuntary displacement had remained largely ignored. A study completed in 2000 by organisations of Nepal, India and Bangladesh involved in track II initiatives includes a section on involuntary displacement of people by large-scale water storage projects proposed in Nepal. See Adhikary *et al.* (2000).

20 Indian government has tended to deny assessment of downstream benefits of storage projects in Nepal and to stick to cost plus position for pricing of electricity. For discussions, see Dixit and Gyawali (1997).

21 The percentage was worked out by Leela Bhattarai in the case of Chilime Hydropower Project.

22 See Pradhan (2003).

23 See *Gorkhapatra*, 3 March 1997.

24 Kafle (1987).

25 Skerry *et al.* (1991).

26 Mohan Man Sainju, former Chairman, Institute for Integrated Development Studies-IIDS, personnel communication, cited in Upadhyaya (2003).

27 For an elaborate account of the patron-client dynamics in the case of Kali Gandaki 'A' hydropower project see Rai (2005)

28 *Ibid* Dixit *et al.* (2004).

29 In addition to this fund, VDC can raise taxes, service charges, fees, income by selling, loans and five lack rupees from the centre. The taxes are house tax, land revenue or land tax, natural resources utilisation tax, *haat* (temporary weekly bazaar) market shop tax, vehicle tax, etc. Likewise, service charges on sanitation, drainage and sewerage, etc are other sources. The fees are licensing fee, recommendation fee, etc. Other incomes can come from selling assets of VDC, forest products, soil of barren land, etc. There are similar provisions for a municipality. Besides the passing down of fund to VDC/municipality from DDC, there are other give and take relations between the two e.g. VDC/ municipality has to pay 25 per cent of the house tax, land revenue or land tax it collects to DDC. Likewise, the DDC has to pay 35-50 per cent of tax on items like wool, turpentine, herbs, etc. to the VDC and municipality. These entities are under the directives of the National Planning Commission (NPC) and HMG's Ministry of Local Development (MLD). The DDC receives annual resources from HMG, while VDC/municipality receives that from the DDC.

30 *Ibid* Upadhyaya (2003).

31 In case of a major reservoir, people living in large area will be affected and the classification needs to be used with qualifiers.

32 The Project Completion Report of Kulekhani I Hydropower Project prepared by the World Bank in 1985 said the government levied royalty of 7.5 paisa per kWh sold "amounted to about 25% of operating expense and was equivalent to about 30% of the average revenue/kWh. The surcharge was to be eliminated in 1976 but continued till 1980." The report went on to suggest that delayed elimination of surcharge, reduction in electricity sales and higher fuel costs caused by the general delay in commissioning hydropower project, which resulted in greater utilisation of thermal plants, consumption of fuel, prevented NEC from achieving the financial targets. See World Bank (1985) unpublished Office Memorandum from Assistant Director (ASPDR) to Director (OED). This assessment was one of the factors that set the stage for bundling of Nepal's power system by constituting the NEA in 1985. Almost twenty years later in 2005, HMG is going through the reverse process of unbundling the NEA.

33 *Ibid* Upadhyaya (2003).

34 One complaint from DDCs including MoLD and MoWR is that NEA does not pay royalty on time. As a result, royalty payment is delayed which results in late payments to DDC. This affects DDC programmes. Few years ago NEA did lag behind in making the payment, but as of 2062 BS (2005) it has cleared all its dues. On its part NEA has assured that there will not be delay since the government has agreed to charge royalty only on the sold electricity, and not on the unsold. For example, NEA receives no tariff for street lights, and it is not clear who would make the payments.

35 See, Finance Ministry's letter to the Ministry of Local Development dated (BS) 2060/10/6 regarding revenue allocation to be obtained by His Majesty's Government from electricity production.

36 We also contacted the functionaries of Syangja, Parbat, Palpa ad Gulmi.

37 See Bikas Thapa (2005) *Kantipur* December 12, 2005.

38 Personal communication with former Finance Minister Dr. Prakash Chandra Lohani.

39 For a discussion on the experience of how a young Tamang man displaced by Kulekhani reservoir lost his entire compensation amount in gambling, see Pokharel (1988). The lesson from headworks in Chatara is found in Dixit (1994). Sapkota (2000) discusses the lessons of compensation in Kali Gandaki 'A' hydropower project, where according to Rai (2005) cash compensation resulted in a higher level of individuality and breakdown of large extended family to nuclear ones. Upadhyaya and Sharma (2004) discusses about the Middle Marsyangdi Project. For a recent review of literature on involuntary displacement related to water projects in Nepal see Bishangkhe (2004) and Dixit *et al.* (2005).

40 The examples from Brazil and Columbia are based on Upadhyaya (2003).

41 Dahal *et al.* (2003).

42 According to NEA's former managing director Dr. Janak Lal Karmacharya, "If it was to electrify rural areas, NEA would have to invest 100 per cent. Under COEDIBYL, HMG is to provide NEA 80 per cent and the community invests the remaining 20 per cent. This concept is gaining popularity in Pakistan and Sri Lanka as a bottom up process. This approach can pave the way for a faster rural electrification by balancing demand with supply as investment can be optimised."

43 The benefit of hydro energy over diesel is clearly demonstrated in case of Bhattedanda ropeway. The monthly expense to operate the ropeway came down to Rs 7,000.00 with electricity from the grid. Prior to that imported diesel worth Rs 31,000.00 per month was required to run the generator that operated the ropeway.

44 Also see Bhandari *et al.* (2004).

45 For discussions see Agarwal and Ribot (2000).

46 For a detailed treatment of corruption in Nepal see Gyawali (2004).

47 *Ibid* Thapa Bikas.

48 Rural Community Infrastructure works programme (RCIW), 2002: *Transparency and Accountability Strategy, Ensuring that resources and opportunities reach the targeted groups*. RCIW strategy series MLD, WFP and GTZ.

49 One innovative way to begin electrification of Far West Region would be to develop the proposed Chameliya Hydropower Project in the Chameliya River in Darchula District in stages. The project proposed with 30 MW installed capacity is designed to evacuate 184.21 GWh electricity to INPS at Atariya via a 127 km long 132 kV transmission line. Instead, the Chameliya Project should be developed in six stages each with 5 MW capacity and the generated electricity used to electrify districts of the Far West Region. As demand increases new unit should be added. This project should be developed by using Nepali finance and expertise like the Chilime Hydropower Project. Similar concept needs to be used in the Eastern Development Region where Arun III Hydropower Project should be developed to promote electrification of the districts.

50 Shanta B. Pun provided these details.

51 The details are provided by Mr Sher Singh Bhat, chief Load Dispatch Center (LDC) of NEA.

52 LDC expressed lack of awareness about the status of power production at Kataiya powerhouse including supply of electricity to Nepal from the plant.

53 This concept of shared learning as an outcome of creative engagement among the solidarities of hierarchic bureaucracy, innovative market and active civic movements is based on Cultural Theory. For discussions on Cultural Theory see (Douglas, 1999). For application of the theory to analysis of Nepal's hydropower development see Gyawali (2006).

54 Dutch Disease is the negative impact on the economy due to single stream income from one sector such as hydropower royalty. For a discussion on the effects of Dutch Disease see Stiglitz (2004), Gyawali (2001), Dhungel (1998) and Thapa (1997).

55 See Verweij and Gyawali (2005).

56 *Ibid* Rai (2005).

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IUCN-The World Conservation Union officially launched the Nepal Country Office on 23 February 1995 with the Ministry of Finance, His Majesty's Government as the government partner. IUCN Nepal has been developing partnerships with various government line agencies as well as non-governmental organizations to carry forward its activities to conserve Nepal's natural resources and ecological processes.

NEPAL WATER CONSERVATION FOUNDATION

Nepal Water Conservation Foundation (NWCF) is a non-governmental, non-profit and non-political organization that conducts inter-disciplinary research on inter-related issues that affect the use and management of water and energy. NWCF aims to promote the sustainable development, management and conservation of natural resources through generating and disseminating scientific knowledge to be used in informed decision making. It promulgates research findings through education and advocacy. Its specific focus is on capacity building, both of the upcoming generation as well as of disadvantaged groups, so that resources can be used without compromising the rights of either the future generation or non-human life. By building the capability of younger generations of professionals to analyse issues related to sustainable development, NWCF maintains a pool of inter-disciplinary analytical expertise. NWCF publishes the inter-disciplinary journal *Water Nepal*.

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For the past forty years, the German government has developed a strong collaboration with the Kingdom of Nepal. During this period, the bilateral technical cooperation implemented by the GTZ has covered a broad range of sectors. In constant dialogue with our Nepalese partners and the German Federal Ministry for Economic Cooperation and Development (BMZ), the program is continuously adjusted according to the changing environment.

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