

10-6-2007

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Thapa, Sabita; John Soussan; Dhruba Pant; Umesh Nath Parajuli; Khem Raj Sharma; and Binod Bhatta. "Community based integrated natural resource management: Policy options and areas of intervention." (2007). https://digitalrepository.unm.edu/nsc_research/13

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Title of the Paper:

Community based integrated natural resource management: Policy options and areas of intervention

Sabita Thapa¹, John Soussan², Dhruva Pant³, Umesh Nath Parajuli⁴, Khem Raj Sharma⁵, Binod Bhatta⁶

Abstract

The paper takes in stock of research results from a project on integrated water and forest management in a micro-basin of Gandaki River System in Nepal. The paper demonstrates that while the results on the ground has been laudable, much more efforts are needed to consolidate the gains and to seize the window of opportunity provided by the strongly and rapidly evolving community-based natural resource management institutions in the country that can contribute to positive policy reform, build synergy and enhance the capacities of local institutions communities to pursue integrated resource management for unleashing the country's potentials to fulfill and exceed MDG targets and reduce poverty.

From the information obtained through participatory action research, the paper explains that while abject poverty and chronic deprivations are visible, community-resource management equation has been rather favorable. Despite the positives of community-based institutions, their strong emergence has neither resulted in consistent poverty reduction nor has created the fundamentals for the equity-based institutional development. Nepal was also under armed-conflict for more than a decade until recently which seriously undermined community based institutions' efforts on poverty reduction, economic and social progress. Furthermore, the tradition of isolated community driven initiatives or institutional arrangement continues to override the overall essence carried by integrated community-led natural resource management. This clearly demands a re-think on long-held tradition of isolated community-based management actions for natural resources such as water and forest resources. It is also a pointer to the urgency of strengthening local government institutions and local community institutions to identify, plan and implement local level management actions for reducing inter-institutional disparities for achievement of poverty reduction targets and achievement of MDG outcomes.

Introduction

Communities' livelihoods in Nepal are highly dependent on the management of their natural resources. Given the strength of local level community based organizations (CBOs), such as natural resource management institutions have been emerging as primary development institutions, communities are in a position to initiate constructive social activism and development. In the current context, forest and water management are two large sectors wherein people's initiatives have taken long strides for livelihood enhancement. Utilization of resources has not subjected resources to over-exploitation but contributed to evolution of systematic institutions that lie central to natural resources conservation and management in the country. As of present situation, it has been increasingly seen that community forest user

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groups (CFUGs) and water users associations (WUAs) have evolved into local level democratic institutions; their potential in bringing about harmonious development of both nature and people has been widely realised and accepted. WUAs have traditionally utilized and managed water resources at local level by mobilizing local and external resources, thereby they are considered as one of the important institutions concerned with management of water. Farmer Managed Irrigation System (FMIS) can be viewed as such an instance wherein local communities have proven their capacities in establishing a successful institution for collective benefits (Pradhan and Bandaragoda⁷ 1997). Many local level water management groups have been given institutional recognition by Government, but many WUAs still continue to operate in various parts of country without any such formal recognition. Both formal and informal WUAs have greatly contributed in managing water for irrigation and other purposes. Similarly, management of forests by local communities in hills of Nepal can be cited as another successful example of resource management. After the legal provision to decentralize forest management in 1980s, CFUGs have evolved as strong and formal local level institutions that account not only for the protection of forests but also for various developmental activities in villages (Soussan⁸ *et al*/1995; Soussan⁹ 1998).

While the situation on ground for developmental prospects through community based institutions look optimistic, the overall national scenario imparts a bleak picture. The Millennium Development Goal (MDG) report 2006 probes the country's development performance and stresses that conflict remains a major problem along with glaring issues of exclusion and discrimination which still exist among large sections of the country's population. The report also underscores the country's overall dramatic progress in cutting poverty from 42% in 1996 to 31% in 2004; this development, however, was not equitable and intensifying violence and political instability have taken a heavy toll on the economy and the people¹⁰. Whatsoever, it is generally agreeable that the conflict particularly has severely jeopardized livelihoods of the agriculture-based population through destruction of forests, water systems, agricultural fields and other natural resources. The political and social turmoil that accompanied the conflict short-circuited systematic processes of environmental management. As a result, institutions responsible for managing natural resources have been weakened and their activities limited. For instance, the activities of community forest user groups were severely curtailed due to, on one hand, restriction imposed on entry to forests by the government and, on the other hand, owing to security threats from the rebel groups. Moreover, the population displaced by the conflict tended to encroach on forest areas belonging to communities and the government, the act in essence undermined not only the productivity of the forests that were being regenerated but also disrupting the community social fabric that instrumented the process of regeneration efforts.

A decade long conflict situation and the current political instability after the peace accord, in overall and general, has thwarted the ability of civil societies and non-governmental

⁷ PRADHAN P and BANDARAGODA D J (1997) Legal and Institutional Environment of Water Users Associations for Sustainable Irrigation Management Research Report: Pakistan.

⁸ SOUSSAN J, SHRESTHA B K and UPRETY L P (1995) The Social Dynamics of Deforestation: A case study from Nepal The Partheon Publishing Group Ltd.: London.

⁹ SOUSSAN J (1998) Community Forestry in Nepal: Comparing Policies and Practice Leeds University Working Paper: Draft.

¹⁰ HMG Nepal/National Planning Commission and United Nations Development Programme (2005) Nepal Millenium Development Goals: Progress Report 2005, Nepal.

organizations to operate effectively thus undermining the foundations on which environmental decision-making could have progressed in Nepal. Environmental policy-making which otherwise was on smooth process of formulation and progressive evolution has also got a setback. As such even though the impacts of conflict can be generalized, this paper explains that community actions, planning, organizing capacity and functionality is possible which can continue to feedback to the new and corrective environmental-policy making. This paper takes in example of results from an action research project in Begnas Basin which brought into light the strengths of local multi-sectoral planning capacity for integrated management of natural resources, such as water and forest resources.

Policy context: the evolution of water and forestry institutions

Water Resources

The waters of Nepal are regarded as the key strategic natural resource having the potential to be the catalyst for all round development and economic growth of the country. That is said true as 76% of Nepal's population depends on agriculture for its livelihood, and about 38% of Nepal's total GDP comes from agriculture (Sharma et al, 2004¹¹). Irrigation holds a high priority and the country has surplus water resources for both surface and groundwater irrigation development. Irrigation systems are divided into those known as Farmer Managed Irrigation Systems (FMIS), and those known as Agency Managed Irrigation Systems (AMIS), besides hybrids of the two. Almost 70% of irrigated area in Nepal is covered by FMIS, and 40% of the country's food production is produced out of 15,000 FMIS in hill areas and 1,700 systems in Nepal's Terai (Pradhan, 2000¹²).

Farmer Managed Irrigation Systems (FMIS)

Some of the FMIS built and managed by Nepal's farmers are amongst the oldest irrigation systems in the world, and these have been managed by several kinds of formal and informal officials and institutions over the past few centuries (Poudel, 2000¹³). State policies and practices were historically conducive to community roles in natural resource management; the 17th century edict of King Ram Shah mandated water resource conflicts to be settled at the community level itself (Pradhan, 2000). Only in the 1970s did FMIS gain recognition within the policies and plans of the state (ibid.). Nepali farmers have thus constructed irrigation systems at their own initiative, designed based on indigenous technology to suit their agro-ecological and social settings. Their strengths lie in that they are low-cost and based on local resources, while the irrigation organisation and leadership is accountable to the users; they can be seen therefore as a symbol of democratic values (ibid.). Though many FMIS out-perform AMIS, in many the headworks and distribution systems are simple and vulnerable to damage by landslides and floods, while others suffer severe institutional weaknesses and environmental problems, such that many FMIS perform far below their potential (Sharma et al, 2004).

¹¹ Sharma, KR, Molden, D, Hemchuri, H, and Upadhyaya, S (2004) "A Review of Assistance to Farmer Managed Irrigation Systems", in Irrigation Conditions, Visions and the Concept of Integrated Water Resources Management Sharma, KR (editor). DOI, Lalitpur, Nepal

¹² Pradhan, P (2000) "Farmer Managed Irrigation Systems in Nepal at the Crossroad", paper presented at 8th Biennial Conference of the International Association for the Study of Common Property. Bloomington, Indiana

¹³ Poudel, R (2000) "Struggle for Water Rights in Thulotar Kulo: A Historical Analysis" p147-168, in Water, Land and Law: Changing Rights to Land and Water in Nepal, by Pradhan, P, Benda-Beckmann, F, and Benda-Beckmann, K (editors). Freeddeal & Wageningen Agricultural University

Agency Managed Irrigation Systems (AMIS)

Planned irrigation development began in Nepal in 1952 with the establishment of the Department of Irrigation (DOI), the principal government agency involved in planning, designing, construction and management of government owned schemes (Sharma, 2004b¹⁴). By 1980 other agencies were also involved in irrigation development including Agricultural Development Bank, Nepal (ADB/N). Of the 17,66,000 hectares potentially irrigable land in the country, by 2002 government agencies and farmers had developed about 11,21,441 hectares:

Table 2: Proportion of area under irrigation according to intervention

Classification of Irrigation System	Net command area (%)
Farmer managed, but intervened by DOI irrigation system	~ 59%
FMIS (not yet intervened)	~ 27%
FMIS supported by ADB/N	~ 14%

Source: Sharma (2004b)

The performance of large and medium sized AMIS have come into sharp criticism due to their failure in achieving anticipated agricultural production and due to the failure of recovery of operation and maintenance costs required; estimations reveal that only 2% of annual O&M costs are recovered from farmers (Sharma, 2004b). The solution to these problems have been sought in the turn-over of AMIS to farmers; the shifting of management responsibility to water users and contraction of government's role was a major change brought in with the formulation of the 1992 Irrigation Policy (Sharma, 2004a).

Table 3: Timeline of relevant policies and legislations enacted by the government

Policy / Legislation	Year	Policy / Legislation
National Code	1963	
Irrigation Policy	1992	Water Resources Act
	1993	Water Resources Regulations
Irrigation Policy, revised	1997	
Irrigation Regulations	2000	
	2002	National Water Resources Strategy
Irrigation Policy, amended	2003	
Irrigation Regulations, revised	2004	
	2005	National Water Plan

The 2003 Irrigation Policy in particular makes provisions for the empowerment of WUAs with the required legal authority for administering system operation and collection of irrigation service fees (ISF). These rates will then be raised, and a part diverted back to a DOI maintenance support fund, the remainder staying with the concerned WUA for the maintenance of their irrigation infrastructure. Also, private sector involvement is sought, and local bodies such as VDCs and DDCs involved in small and medium sized schemes. DOI has been *in the process* of transferring management of public systems over to WUAs since the late 1980s; since then, as can be seen in Table 3, a number of policy reforms have been passed all emphasising the organised participation of user farmers in all stages of irrigation development and management. The 1997 Irrigation Policy states that government managed projects of up to 500 Ha in the hills would be turned over to WUAs, and that the WUA, not the government, would in

¹⁴ Sharma, KR (2004b) "Modalities of Irrigation Development and Technology: Results from Agency and Farmer Managed Systems", in Irrigation Conditions, Visions and the Concept of Integrated Water Resources Management Sharma, KR (editor). DOI, Lalitpur, Nepal

such schemes collect ISF from the farmers to pay for O&M; 2003 Irrigation Policy states that for jointly managed large irrigation schemes (i.e. over 500 Ha), depending on the farmers' demands and WUA capability system's management could be handed over to them (Sharma, 2004c¹⁵).

Following enactment of various Acts and Regulations that further accounted to strengthen community based water resource management and planning, the government came up with Water Resources Strategy (WRS) 2002 and more recent National Water Plan (NWP) 2005 with the concept of Integrated Water Resources Management (IWRM) at basin level. The WRS and NWP emphasize that water can be better managed at small basins with the existing institutions including local communities and other stakeholders along with the government agencies. However, one important task for IWRM is to maintain the balance between central planning (coordination and integration) and local participation (decentralization and popular participation) while ensuring economic efficiency, equity and environmental sustainability. To bring such a balance, the NWP has proposed River Basin Councils and River Basin Offices to play an important role of a link between the central water planning institution (the Water and Energy Commission (WEC) and the local bodies (DDCs and VDCs) within their boundaries set by the Local Self Governance Act (LSGA).

Forest Resources

In early 90's, the recognition to the needs of people's participation in forest management created the environment for community based forest management that includes Community Forestry Program. Community forests are defined as forests entrusted to user groups for management and sustained utilization. With the resumption of democracy in 1990, the forestry sector underwent reviews to build on successes. Learning and innovations of Department of Forest, Ministry of Forests and Soil Conservation and donors contributed into the formulation of the new policy. With the enactment of the "Forest Act 1993" national forests were allocated under different management authorities such as government managed forests, community managed community forest, leasehold group managed leasehold forest, religious forest and protected forest. The Act gave management rights to the people, particularly in the hills, where National Forests were handed over to communities. The Act also provided a legal basis for the implementation of Community Forestry Program, simplified the handover process and recognized community groups as a self-governed, autonomous institution to manage and use forests according to operational plan.

Several rules and regulations were developed in parallel with the process, leading to the Forest Rules, 1995 and Forest Act 1998 (First Amendment). However, since the enactment of Local Self-Governance Act (LSGA), 1998, there have been counter claims over forest resource management authority by VDCs and DDCs. Further to the policy making, the revised Forestry Sector Policy (2000) in long run seeks to meet the basic forest product needs on sustainable basis, to contribute in agriculture production, to protect land degradation, to conserve ecosystems and genetic resource and to contribute in growth of local and national economies. In the present scenario, livelihoods of local population and poverty alleviation strategies are linked with CF with the ambition that it will improve livelihoods of the local communities'. The changes in forestry sector and its impact on people's livelihood are discussed and debated in the sector as modern forest management policy and practices.

¹⁵ Sharma, KR (2004c) "An Overview of Irrigation Management Transfer", in Irrigation Conditions, Visions and the Concept of Integrated Water Resources Management Sharma, KR (editor). DOI, Lalitpur, Nepal

Begnas Basin and Natural Resource Management Institutions

Begnas Basin is a micro-basin of the Seti River, one of the major tributaries of Gandaki River System. The basin is located along the Pokhara- Kathmandu Highway, about 14km east of the Pokhara Town. The basin has an area of about 3406 ha, of which 1838.5 ha is mountainous upper watershed and the remaining 1567.5 ha forms the downstream valley floor. The upstream of Begnas Lake, referred to as upper watershed hereafter, is mountainous landscape with average hill slope of about 15.4 % (i.e., 15.4 meters rise in every 100 meters). The upper watershed slopes from north to south, with its altitude varying between 1450 and 680 meters within a horizontal distance of about 5 Km. The downstream of Begnas Lake, referred to as valley floor hereafter, is virtually a wide flatland. Topographically, it resembles the characteristics of Nepal's southern plains, the *Terai*. The area also has a few small hillocks covered by forests. Begnas Lake lies at the interface of the Upper Watershed and the Valley Floor of the Begnas Basin. The Lake is one of the natural lakes of the Pokhara Valley. Originally, the lake covered an area of 266 ha. In 1988, the reservoir area of the lake was increased to 300 ha by constructing a 540 m long and 6.9 m high earth fill dam. The Begnas Basin is undergoing rapid land use changes enforced by new market pressures in the region. The construction of irrigation systems, urbanization, and delineation of community forest area has also brought change in land use pattern in the basin.

Within the Basin, it is primarily the upper watershed which has considerable forest cover of about 28.5% of total land area, while the valley floor has marginal forest cover of about 7% only and is dominated by cultivated land. Given the land-use characteristics, it is the upper watershed communities who are more dependent on the forest for various products such as firewood, fodder, timber, leaf-litter, leaves, fruits, etc. The valley floor people are only partially dependent as these areas have greater access to alternative energy such as cooking gas, kerosene, etc, and also private land to grow various products. In both areas, although few households take their livestock for grazing inside the forest, the majority of households stall-feed their animals. Due to heavy pressure on forests from the extraction of various products, the forests in the past were badly degraded. In the subsequent years, however, community forestry program contributed tremendously in regenerating and re-stocking the forests in the watershed. Under the program several CFUGs, which are formal institutions stipulated by the Forest Act of 1993, now manage forest areas in the watershed.

The main sources of water for human activities in the Begnas Basin are rainfall, natural gullies or rivers, springs, and the Begnas Lake. Rainfall is important for crop cultivation. As the rainfall amount does not meet the water demands of the local community in time and space, water from other sources (natural gullies or springs or the lake) are diverted either through open canal or by close conduit for meeting various water needs of the local community. Regarding the water use aspects, the main usages of water in the Begnas basin are domestic consumptions, irrigation, fisheries, and recreations (boating and tourism). There are both formal and informal organizations among water users groups in Begnas Basin, which include irrigation users groups, boaters' association, fishers' group, mothers' groups and youth clubs. The upper watershed has a total of 15 Farmer Managed Irrigation System (FMIS) and in the valley floor area has the Begnas Irrigation System (BIS) Water Users' Association (WUA).

The Process of Common platform for integrated natural resource management

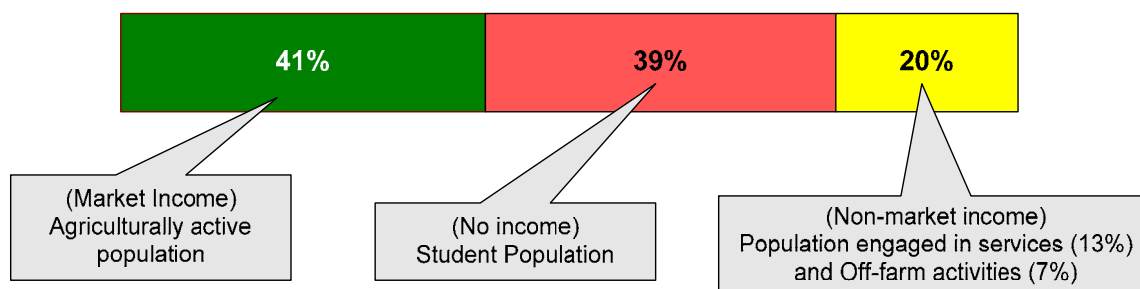
According to a definition of the INRM Task Force of the Consultative Group of International Agricultural Research (CGIAR), INRM is “an approach that integrates research on different types of natural resources, into stakeholder-driven processes of adaptive management and innovation, to improve livelihoods, agro-ecosystem resilience, agricultural productivity and environmental services, at community, eco-regional and global scales of intervention and impact” (Task Force on INRM, 2001¹⁶). Based on the INRM principles, the participatory action research in Begnas Basin involved a series of steps for a common platform creation for the integrated management of natural resources. Four steps that formed the process include:

A) Resource and livelihoods assessment

The communities in Begnas Basin, both at the upper watershed and valley floor, are highly dependent on forest and water resources and are concerned to conserve, utilize and manage them for collective benefits. The research reveals that forest and water resources have significant livelihood impacts at household level, especially for the poor. The increased availability of irrigation water has helped in agricultural production and productivity, cropping intensity, and increased employment opportunities to poor households. Likewise, households have benefited through increased availability of fodder, litter and timber and poorer households participation in the forest management is also increasing. CFUGs are involved in community development through the use of their funds contributing to employment generation and community cohesion through investment in drinking water, irrigation, temples and other activities benefiting poor households.

From the analysis of livelihood activities in Begnas Basin, done on the basis of broadly defined household incomes, it was found that cash and subsistence and non-market incomes form an essential component of livelihoods. Cash incomes for wealthier households, dominantly large land owners, come from the local sale of surplus agricultural products and livestock products. For small landholders or poor farmers, cash incomes come by working as wage labourers on neighboring farms, through contract farming or share-cropping and off-farm seasonal labour works. For poor farmers, off-farm activities are also alternative means of livelihoods and play as a major coping strategy during crises.

Figure 1: Population engaged in various activities in Begnas Basin

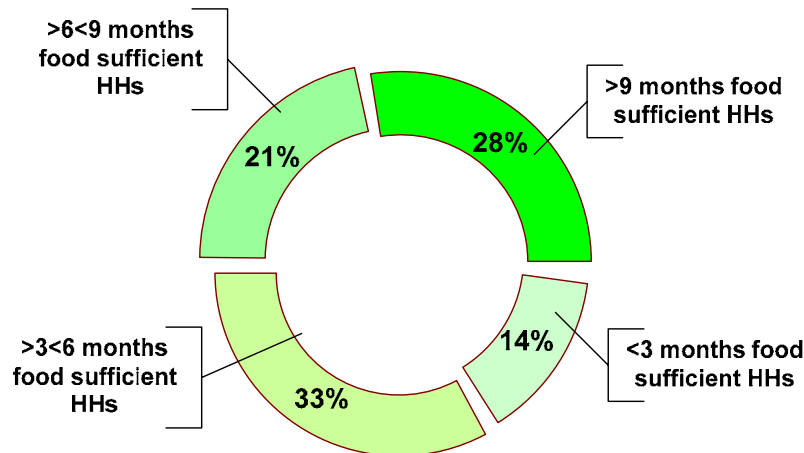


Source: Project research data (2007)

¹⁶ Task Force on INRM, 2001. Integrated Management for Sustainable Agriculture, Forestry and Fisheries: A brief report on the INRM workshop held at CIAT, Cali, Colombia, 28-31 August.

Looked at from food security perspective, more than one-quarter (28%) of the households have food sufficiency for more than 9 months, of which about half of them have year round food sufficiency. To the contrast, less than one-quarter (14%) of the households have food sufficiency of less than 3 months. These households are mostly poor households and either rent nearby farmlands of richer households or work as farm labourers to earn their living.

Figure 2: Food sufficiency level in the Begnas Basin



Source: Project research data (2007)

The differences in contributions to community activities between the forest and water users group can be explained through variation in the type of resource they are managing. The Forest resource generated locally is utilized for the common benefit as decided by the users groups. The benefit from irrigation, however, goes directly to the individuals and sharing of that benefit for common benefit largely depends on the individual decisions. The benefit sharing is more equitable among the forest users compared to the water users as benefit is tied to the contribution made by the member in the former whereas the benefit is tied to the ownership of land and contribution for management is not given importance in the later. With respect to the participation in the management and decision making also, it is more egalitarian among the forest users compared to irrigation users. A large gap, however still exists in the success of these institutions in terms of gender equality.

Both the institutions have emerged as strong local level institutions; however, they lack co-ordinated effort for the management of natural resources, as they are sector focused. There exists both intra and inter institutional conflict. Many of conflicts over resource utilization and management noted during the study had arisen from administrative boundary issues. Natural resources within a watershed that fall into more than one political administrative unit (VDC or DDC) often create conflicts between and among the communities. The conflict should be looked from the perspective that each of the users got its own needs, development priorities and is influenced by interest groups and local politics. The involvement of local elected institutions in this respect could help in preventing and resolving conflicts. The users of these two institutions could learn from the experiences of each other and some of the experiences could be shared among them. More particularly, the irrigation users could benefit more from the experience of forest users in the area of protection of users' rights, resource mobilization and benefit sharing. Likewise, the forest users could benefit from the long experience of irrigation users in resource management with external intervention beside experiences in interaction with outside agencies.

Table 1: Users' Opinions on benefits from integration/linkage between FUG & WUA

S.N.	Benefits of Integration/linkage between FUGs & WUAs	Emphasis level
1.	Cooperation between FUG & WUA will increase	◆◆◆◆
2.	Will raise awareness of users of both institutions	◆◆
3.	Will help in conflict resolution	◆◆◆◆◆
4.	New resources can be mobilized for mutual benefit	◆◆◆
5.	Working relation with line agencies and Government departments will improve	◆◆
6.	Opportunity to learn from each other's experience	◆◆◆◆

Source: Pant *et al* (2003¹⁷)

The assessment of the resource and institutions indicate that there are opportunities for the integration of the activities. One of the primary areas that could integrate functioning of institutions for better natural resource management was suggested to form a common platform wherein various institutions could come together for collective planning and decision-making about the resource management in the basin.

B) Stakeholders and network analysis

Discussion with key persons and community institution representatives, brainstorming among the external facilitator groups including the government officials was another important step in the identification of locally-relevant stakeholder groups for the integrated natural resource management. A step forward in the process, in heterogeneous communities in the Begnas Basin where there is differentiation in livelihood assets, wealth, resource dependence and power, it was important that all different stakeholders are represented and participate from the beginning. Stakeholder analysis, combined with the situational analysis and livelihoods assessment, was more like a scoping phase that helped to build rapport with community institutions in the Basin and make them aware of the process for integrated natural resource management even at an early stage.

¹⁷ Dhruba Pant, Sabita Thapa, Ashok Singh, Madhusudan Bhattarai, David Molden (2003). Integrated Management of Water, Forest and Land Resources in Nepal: Opportunities and Challenges for Improved Livelihood. IWMI Comprehensive Assessment Report.

Figure 3: Identification of various stakeholders groups in Begnas Basin

<p>NGOs and Users Groups Local NGO (LN) Society for Rural Urban Partnership (Sorup) Forest User Groups (FUG) Water User Associations (WUA) Watershed Committees (WC) Boaters' Associations (BA) Fisher's Associations (FA) Mothers' Groups (MG) YC (Youth Clubs) NGOs, INGOs (World Vision, LI-BIRD, IDE, SIMI) Cooperatives Schools Drinking Water User Groups Farmers Groups (Vegetables, Livestock) Dairy Associations Begnas Irrigation Users' Association Unregistered Advocacy Groups Micro Finance Institutions</p>	<p>LGs (Local Governments) Municipality Office VDC (Village Development Committee) DDC (District Development Committee)</p>
<p>GOs WECS, MoWR, MoFSC, MoAC, DoI (Department of Irrigation) DIO (District Irrigation Office) DFO (District Forest Office) DSCO (District Soil Conservation Office) Fisheries Centre RDol (Regional Directorate of Irrigation) RDoF (Regional Directorate of Forest) Meteorological Station Lumle Agriculture Centre (LAC) NARC (National Agricultural Research Council)</p>	<p>Federations/Media/Research Institutions/Private Sectors/Project Implementors NFIWUAN (Centre and District) Federation of Community Forest User Groups in Nepal (FECOFUN) (Centre and District) HIMAWANTI Nepal Forest User Groups (NEFUG) MuAN Media FM, National Radio, local and National Newspapers, Television NEFEJ, NNSD, Martin Chautari</p> <p>Pokhara University Tribhuvan University and Colleges</p> <p>Private Sectors (Hotels, Vehicle Associations) Kaski Chamber of Commerce</p> <p>INGOs (e.g. International Water Management Institute)</p> <p>Li-Bird: Local Initiative for Biodiversity Research and Development IDE: International Development Enterprise SIMI: Small Holders Irrigation Market Initiative WECS: Water and Energy Commission Secretariat MoWR: Ministry of Water Resources MoFSc: Ministry of Forest and Soil Conservation MoAC: Ministry of Agriculture and Cooperatives NEFEJ: National Federation of Environmental Journalists NNSD: National Network for Sustainable Development</p>

Source: Project research data (2007)

C) Consensus building among community-based NRM institutions and relevant stakeholder groups

Throughout the various analyses going on, different reactions were elicited from local communities, government bodies and relevant local users groups. Although many stakeholders could not capture the concept of integrated natural resources management or the need of the same, people did come in together to develop a common understanding of their problems and potential solutions. While discussion participants identified the constraints they experienced particularly those related to livelihood and natural resources, and share their views on how to overcome these, especially through better resource management, the researchers teamed up with local community institutions to reflect on the results of action research. The research results, those consisting of resource and livelihoods assessments, were shared with local stakeholder groups through conduction of workshops at site, district and national levels. These participatory workshops with separate stakeholder groups and combined plenary sessions actually formed the heart of the process and resulted in substantive consensus building and understanding among stakeholder groups for the initiation of platform creation. This was one important phase in a larger process of integrated natural resource management at the Basin level.

D) Participatory Action Planning

Following the negotiation and consensus building process, the representatives of various community institutions including CFUGs and WUAs met over an interactive discussion forum to discuss the way forward. This interaction was attended by a wide variety of stakeholder groups

such as district government agencies, local councils, local project implementers, civil society groups and community level institutions. The discussion focused around developing collective action for integrated natural resource management at the local level. The interaction program was structured to orient the participants about results of research that was taken about a year in advance, and then the floor was opened up for discussion among institutional representatives. The whole discussion was facilitated with the help of a local resource person from a local NGO called 'SORUP'. The discussion process ensured that all stakeholder groups were involved and their voices heard. It was just a beginning of the process for INRM at local level– a beginning whereby NRM community institutions gathered to understand each other's problems and aspirations, to find common interests, and to identify win-win solutions for the institutions they were affiliated to. A great enthusiasm was clearly visible among the institutional representatives to form a common platform wherein they could share problems, discuss solutions and negotiate on inter-institutional conflicts. As an outcome of the discussion, the communities selected an ad hoc committee consisting of 13 members that would devise the action plan for Begnas Basin management and get themselves a recognition through registration process and basing themselves on the written constitution of their own. From the perspective of an external facilitator, the whole process of community's initiative for the creation of a common platform appears to be a good starting point for community-led resource management interventions and for developing local institutions for integrated natural resource management.

Discussions

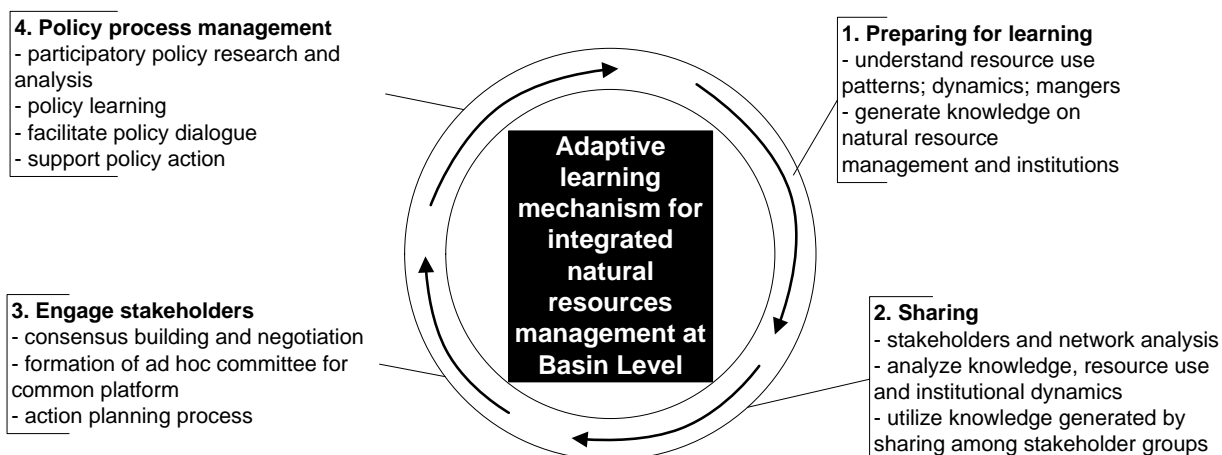
Integrated natural resource management is all about the process of the adaptive learning mechanism:

Since the inception of the concept of INRM, a vigorous brainstorming has gone into shaping the implementation procedures on the ground. In many parts of the world, mechanisms have been developed to implement INRM at basin level and they do differ according to the implementation situation. However, what has remained common in all those modalities is the implementation that is mostly governed by the local level institutions and the supportive policies that facilitate functioning of the CBOs. In Nepal's context, the modalities of INRM implementation could be simpler due to institutional structures and policies that are in place. There might only be slight reforms needed in the existing policies to address the functioning capacity of institutions during conflict and high poverty situation. The example put forth by the action research in Begnas Basin suggests that institutional organizing capacity even during the severity of conflict is considerably high, which can be taken as the evidence of the extent to which community based organizations have grown in Nepal. This can also be taken as entry point for the implementation of INRM at basin level. Besides, the creation of platform and local level institutions' self-accelerating capacity is notable here, which was in fact the only gearing element towards the implementation of the concept of integrated natural resource management in Begnas Basin.

Throughout the period of this participatory action research on INRM implementation in Begnas Basin, various adaptations were made. For example, the process of creating knowledge and understanding local resource management took a little longer than anticipated. This was factored, on one hand, by the heightened conflict situation in the country due to which research staff's mobility was curtailed and on the other hand, by the much wider consultative process at local level to make the concept generally understood by the stakeholders. The time-lag created was compensated when communities took ownership of the process and actually community institutions themselves became the vehicles for taking the INRM concept forward among local

level stakeholders. This made the process faster and also was a convenient mode for the research team to act as intimidator to initiate policy dialogue between the local and central level decision-makers.

Figure 4: Process for adaptive learning mechanism for INRM at basin level



External environment affects INRM:

Management of natural resources is often impacted heavily by the external factors such as political, environmental, social, technological and economic. These external factors are important to consider as the cumulative impact of these seem to have led to changes in livelihood options and INRM strategies in Begnas basin.

Impact of armed conflict: Begnas basin has been impacted by the decade-long armed conflict. Although communities say that they did not perceive any such immediate impacts of armed conflict in their villages, they do see it as one of the cause of increased out-migration of youth. The migration of youths, particularly the productive age group, has led to labour shortage. Many resident people suggest that it is due to shortage of labour force in their villages that livestock keeping and farming practices are showing decreasing trend over the past few years. Many poor households depend on the money sent by their migrant member so much so that for many households rather than agriculture being their primary livelihood activity, international and domestic remittance is.

Community mobilization: Mobilization of communities within villages of Begnas Basin has been one strong component. But, conflicts arising due to absence of fair benefit sharing mechanism from natural resource management seem to be increasing and have created social divide in many cases. For example, in downstream villages, immediately after the construction of Begnas dam and additional irrigation canals led to conflicts between head and tail-end users. The tail-end users that received adequate irrigation water from the source, *Khudi Khola*, now believe that water diversion due to creation of additional irrigation canals in the headwaters has caused less water flow in their irrigation canals. Similarly, in the upstream villages, the conflict over irrigation water from, *Dudh khola*, has created a social divide between two adjacent communities.

Infrastructure development: The construction of Begnas seems to have had both positive and negative impact in the area. While downstream communities benefited from better

availability of irrigation water, some upstream communities lost their low-lying (downstream) fertile lands which has rendered them vulnerable to food security. Similarly, other various developmental infrastructures such as road and communication media including telephone and mobile services are being increasingly in access of communities living in Begnas Basin. Despite the positive signals given by infrastructure development in the basin, the caution should be there that unchecked infrastructure growth can become one major factor in bringing about livelihoods diversification and challenges to Begnas Basin integrity in near future.

INRM process can facilitate the attainment of broader poverty reduction goals:

The discussion on this point is based more on theoretical premises but, it takes in the knowledge of the process that created a common platform for INRM in Begnas Basin. INRM process can be a good link between PRSP (3-year Interim Plan in Nepal's Context) and MDG. One major discrepancy that has been seen in the linkage between the two is that PRSPs have short to medium term targets, whereas the MDGs have long-term time frame for target attainment. Therefore, while PRSP talks about broad based economic growth with activities that promote labour-intensive employment such as access by the poor to land, credit, infrastructure, and technology; MDG talks about comprehensive sectoral interventions with provisioning of goods, services and the necessary infrastructures. In this context INRM possibly can bring a synergic strategy that can accelerate economic growth as targeted by PRSP through sustainable mechanism such as localized community based strategies as envisioned by MDGs. Therefore, INRM can potentially to contribute to both PRSP and MDGs in the following ways:

- by mobilizing the community based institutions to generate the incomes through synergic efforts from wide range of resources that can enable governments and communities to provide infrastructure and social services to a broad spectrum of the population;
- by increasing the demand for labour, goods and services which increases employment and provides incomes at local level so that problems of out-migration and technology transfer to new generations are reduced.

The other aspects that INRM can contribute to poverty reduction could be through integrated natural resource management to increase food production level thereby reducing the proportion of people who suffer from hunger. MDG Outcome 1B aims to halve, between 1990 and 2015 the proportion of people who suffer from hunger. Nepal's prospect of attaining this outcome is severely hampered by various factors, especially the armed conflict. In the last few decades Nepal has become a net food importing country from a position of net exporting country. The current food production barely keeps pace with annual population growth and nearly half of the districts are currently net food deficit areas. These districts hence face stress migration causing many other negative social consequences. Remoteness and lack of transportation means also exacerbates the food deficit syndrome in many remote mountain and hill districts. This scenario does not give enough reasons to be optimistic about the future. However, the impacts can be reduced if the policies are geared towards agricultural and livelihoods diversification modalities. In Nepal's remote hills and mountainous topography, these diversifications mean natural resource management at micro and macro watershed levels. It will also mean the opportunities provided by community based institutions that are so well developed and mobilized in these areas. This action research has given one strong evidence that implementation of INRM by engaging community institutions is possible at watershed/basin level. And, this is a pointer that INRM can significantly contribute to the goal of attaining food security in many of Nepal's impoverished areas.

Policy Implications

The results of participatory action research in Begnas Basin have potential in engaging stakeholder groups in policy dialogues for implementation of INRM at basin level. The discussion undertaken in the previous sections are a clear pointer towards the following policy implications:

1. Many CBOs relevant to the natural resources management are well institutionalised in Nepal's watershed. For the implementation of INRM, community based institutions can be mobilized. Looking at the degree of autonomy and maturity that these CBOs function, the entry points could be natural resource management sectors such as Community Forest User Groups (CFUGs) and Water User Associations (WUAs). At any time during the INRM process, the strength of local multi-sectoral planning capacity cannot be not be bypassed or undermined.
2. The rapidity with which a common platform for INRM was created at Begnas Basin suggests that a simplistic but consultative process can generate interest and capacity for INRM initiatives at local level. Such a process can also ensure that there is minimal impact from the external environment, especially the decelerating forces such as civil strife. However, the result of the process is not sufficient to predict the sustainability of the platforms. Much more efforts, consultations, resource requirement and continuous management of policy dialogues would be the prerequisite for a complete cycle of the INRM process.
3. As regards to the arenas for further policy reform, it has to be considered that only multi-dimensional approach to poverty reduction would add value to the intervention options that are available at watershed/basin level. Multi-dimensional interventions like of INRM are more likely to focus on wider issues of social exclusion, for instance, thus resulting in a better understanding of the causes of poverty and therefore of possible solutions. In country like Nepal where social, economic, cultural, political and ecological causes of poverty are inextricably inter-linked, INRM implementation at basin level could help to make interventions that can deliver more equitable developmental results by addressing an articulated definition of poverty and not just the economic poverty.