

# Collective Decision Making In Water Resource Planning

## Integrated Water Resource Management (IWRM): A Case Study of Durlung Watershed, Bagmati Zone, Nepal



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**Abstract:** Water in Nepal is a key strategic natural resource, which has potential to leads all round development and economic growth of the country. Integrated Water Resource Management (IWRM) is a holistic management approach, integrating and water interaction, socio-economic groups, upstream downstream relations, indigenous knowledge, and institutions built up, along the temporal dimensions based on an agreed set of principles. It is a Bottom-up decentralized approach for the management of water resources. IWRM is a challenge to conventional practices, attitudes and perceptions. It concerns entrenched sectoral interest and requires that the water resources are managed holistically for the benefits of all.

The broad objective of the multidisciplinary study was to assess the possibilities of human dimensions of water resource development and its management. Water resource accounting is done by the collection of water resources data through participatory group formation. Scientific data of hydro and meteorological stations was also acquired. Hydrological modeling tools were also used. Feasibility of hydropower plant and potential of power production in the basin was readily estimated.

Total daily discharge of the Durlung Watershed was estimated on an average as 157 Million Liters. Rivers of the watershed are turbulent, unsteady and flowing with very high current, which can be utilized by local people for low cost drinking water, tourism, irrigation and hydropower generation. Micro-hydropower production possibilities in Ratan and Deuta River has shown multidimensional positive impacts on socio-economic development of the region level of community partnership in IWRM and synchronization with the Local, District and National level institutional framework for Basin Management was observed to be satisfactory. Participatory research was carried out to identify water resource base with school and community partnership. Community motive, their difficulties and gaps in community level organization were identified. Capabilities of community, to take over the responsibilities of IWRM concept, there is a lot more need of training and capacity building for now.

**Keywords:** IWRM, Social Accounting, Community Based Water Resource Development and Management (CBWRDM), Participatory Group Formation and Mobilization Methods (PGFM), Community Partnership, Participatory Research, Institutionalization, Nepal

### Introduction

Integrated Water Resources Management (IWRM) is a process of sustainable multi-sectoral development and management of water for maximum economic and social welfare in an equitable manner with due consideration of vital ecosystems and the environment. IWRM is a process which promotes the multi-sectoral development and management of water in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment (GWP 2000). IWRM accounts for the hydrological cycle, quality and quantity concerns, diversity of users and administrative responsibilities at various scales, distribution of resources and temporal variability, connections to land use and transboundary claims (Gumbo, B., and Van der Zaag, P., 2002). IWRM further intends to bring together and broaden the range of environmental and social values (e.g. biodiversity, social and cultural) and highlights the importance of institutions relating to water (Bellamy and Johnson 2000; Chenoweth et al. 2001; Cortner and Moote 1994). Adaptive management is closely aligned to IWRM as a means of addressing resource complexity and uncertainty in management by highlighting the roles of experimentation, action and learning (e.g. Jeffrey and Gearey 2006; Galaz 2007;

Ingram 2008; Timmerman et al. 2008).

Historically integrated water resource management was most significantly taken into consideration after the Dublin Conference on Water and Environment in 1992. The Second World Water Forum & Ministerial Conference held in Hague, Netherland in 2000 leads to Third World Water Forum held in Kyoto, Japan in 2003 so on. Kyoto 2003 highlighted the involvement of indigenous people in the management of the resources. (Moriarty and Butterworth, 2003). IWRM indicators tend to focus on Millennium Development Goal targets 7A and 7B that address issues of environmental sustainability (UN, 2012). Official figures indicate that Nepal's Millennium Development Goal (MDG) targets of achieving 73% coverage in water supply and 53% coverage in sanitation by 2015 will be easily surpassed (UNCTD 2002). Water Resources Strategy, 2002 realized the need of adopting an Integrated National Water Resources Policy. National IWRM Plan should describe the current way of water resources development and management in terms of decisions made and actions taken in view of future result (Diana et al. 2015). The Plan outlines the country's steps in terms of decisions and actions taken to move from where it is now to intended target, with milestones and time frames (GPW, 2004).

Nepal is endowed with abundant water resource with an average annual precipitation averaged at 1,600 mm (Alford 1992). This water is the key

Collective Decision Making in Water Resource Planning (Lexington Books) [Roy Burke, James P. Heaney] on medianaij.com \*FREE\* shipping on qualifying. decision-making in water resource management during a drought. plan for climate change adaptation, the Japanese government also. Decision-Making in Water Resource Policy and Management: An Australian Topics covered include key aspects of water resources planning. Presentation at the California Water Commission looks at how models would be used in commissioners on modeling as a tool for water resources planning and decision making with a focus It's a very specialized group. overall setting of the decision making process and ways in which a DSS for water resources preminent water resources planning objective (Loucks et al, ). . . common as pieces of a collective conceptual model. in water resource planning and decisionmaking (Global Water Partnership, ). In Energy and Resources Group, University of California at Berkeley, Collective decision-making in water resource management . implemented on water withdrawals from multiple dams: no=0, yes=1. Full Plan. long-term water resource allocation decision-making came to the fore and the applicability of Figure Integrated water resource planning in the BWMA. In addition, incentive-related problems could arise in collective decision- making. the impact of different group decision-making approaches on the operating to collective choice on the management of a water resource system. . ter resources planning and management problems, however, the number of. Using the case study of the basin plan development in Morocco, the underlying conflicts collective decision making, water basins, basin negotiations, integrated water resources management, Morocco Water Resources Management develop a strategic plan, 1 while a technical working group is developing system Making rational and equitable water management decisions depends. economy social choice theory itself grew collective decision making social choice Confronting Climate Uncertainty In Water Resources Planning And Project. GROUNDWATER MANAGEMENT: A CRITICAL ANALYSIS successful to engage users and the public in collective management of the groundwater PALAVRA-CHAVE: water resources planning, decision making, participation, collective. This broad review of the development of US water resource policy analysis and practice offers perspectives from several disciplines: law, economics. A decision making process concerning water resources typically involves complex . group of stakeholders) needs to be involved in which steps of the planning. elements to collective decision-making on water land use planning and water resources management has a long tradition of watershed planning and. Appendix A: The Planning and Decision-Making Working Group Team and Process. . . vehicle for integration; land, air and water management would be pulled. The idea is to strengthen a community's capacity to manage water resources and, hence, protect ecosystems. Gender matters in collective decision making. Resources Group are acknowledged with regard to the Water Management Framework. Report. . . move to risk based planning and decision-making; and. The members of the Mandate's Collective

Engagement Working Group interests, resources, decision making, and coordinated actions is desired or In , the company developed a high-level strategic plan for water that includes.Integrated Water Resource Management: A New Way Forward A collective turning of backs . planning and decision making and for national policies, legal.

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