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Realities of a Watershed Management Approach in the Philippines: A Framework for Case Analysis

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Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

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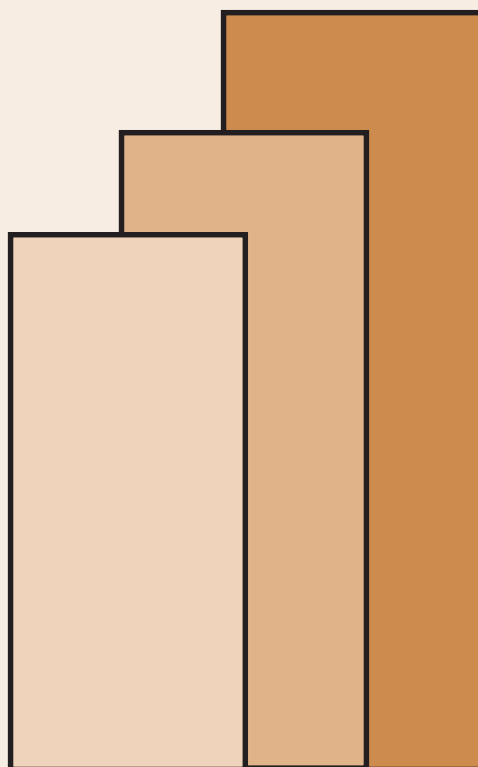
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Realities of a Watershed Management Approach in the Philippines: A Framework for Case Analysis

Abstract

The effectiveness and capacity by which society manages its watershed resources is mediated by different factors, namely: economic considerations—financial capital; technical and administrative capacity—intellectual capital; social governance capacity—social and institutional capital; and legal framework—political capital. The levels within which these factors can be analyzed include the macro-level, that is, the national level; and the micro-level that operates at watershed management unit. There are three foci of inquiry with regards to attempts to adopt a watershed-based approach to water resources management. First, there is a need to look into the conditions that affect the linkages between watershed resource management and the sustainability of governance and production systems. Second, there is a need to analyze the manner governance mechanisms can be “directed” towards improving livelihood sustainability and the maintenance of watershed resources. Finally, there is a need to assess the processes in which governance and production mechanisms are transformed as forest-based communities within watershed areas are integrated further into mainstream market and political structures. Corollary to this is an evaluation of the implications of these transformations in scale to watershed management, particularly to managing the resource using the watershed approach.

Keywords: financial capital, institutional and social capital, intellectual capital, political capital

Realities of a Watershed Management Approach In the Philippines: A Framework for Case Analysis

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The Context for the Case Studies

The fact that the annual water use accounts for only 12% of available supply, when considered in isolation, tends to suggest that the need to manage water use and conserve water resources in the region and in the Philippines, in particular, is not a pressing concern. However, the reality is that per capita water availability has been declining over the years. The data on aggregate availability are illusory in that they indicate the *average* supply per capita per year, without regard to the *distribution* of available supply. Furthermore, the Philippine freshwater ecosystem faces severe problems of pollution, and the costs of supplying potable water are rising.

Water scarcity is caused by several factors, including water availability limitations, depletion of groundwater resources, degradation of freshwater sources, and the increasing cost of new water source development. To address this problem, we have to manage both water supply and water demand, even as we have to establish supportive social, legal, and institutional support for effective water management system. This would require a holistic analysis of the water supply situations that focuses on supply and demand conditions as well as the social, legal and institutional context of the problem. This would necessarily look at the water issue in an ecosystem setting—specifically that of a watershed unit. Consequently, water is treated as an economic good, thus, allowing markets to allocate water to competing uses, while recognizing the role of the government to protect the interest of targeted social groups in society. It is in this context that social, legal, and institutional supports are needed to make watershed-based water management strategy a reality in the Philippines.

For those who are not familiar with the term, a watershed, also termed as a catchment, refers to areas that supply water by surface or subsurface flow to a given drainage system, be it a stream, river, or lake. Watershed can also be seen as a hydrologic unit that has been described and used both as a physical-biological unit and as a socioeconomic and sociopolitical unit for planning and implementing resource management activities. It is viewed both as a water supply and water distribution system, with finite resources made available to various users. Physically, a watershed is the divide between two areas drained by different river systems. Common usage over the years has resulted in “watershed” coming to mean not only the divide itself but also the natural drainage area within that boundary. “Catchments” and “basins” are the natural drainage areas within the boundary defined by the watershed divide. Watershed and catchment are essentially the same, but basin (often river basin) is most often used to describe a region drained by a larger river system, implying a very large watershed or catchment.

There are several reasons why a watershed approach to water resources management is needed. First, land-use activities, water uses and other upland disturbances often result in a chain of environmental impacts that can readily be examined within the watershed context. Second, the watershed approach has strong economic logic. Many of the externalities involved with alternative land management practices affecting water supply and quality are internalized when the watershed is managed as a unit. Finally, the watershed provides a framework for analyzing the effects of human interactions with the environment. The environmental impacts within the watershed operate as a feed back loop for changes in the social system.

While, watershed management has long been an element of natural resources planning and management by the Department of Environment and Natural Resources in the country, this approach has been largely limited to the upper watersheds where the forests lie. Thus, the link between the upper watershed and the downstream water resources has not really been tackled in the context of a watershed unit.

The failure to implement a watershed approach in the government sector is further complicated by several problems in the water governance sector. These include the failure to implement the laws governing watershed approach, and the absence of institutional mechanisms to operationalize said approach. There is also the lack of appreciation of water as an economic good—hence, the inability to allow market-based mechanisms to function, and the lack of mechanisms that will integrate water and watershed plans and programs of various agencies.

A watershed-based water resource management framework would require four elements, namely:

- A biophysical framework given by a watershed-based water resource management strategy
- A legal-institutional framework to provide the legal basis and supporting institutions to implement the proposed water resource management strategy
- An economic framework that is led by economic efficiency consideration
- A socio-political framework defined by the need to have wide support from local communities and political/government units.

Figure 1 provides a schematic representation of these elements.

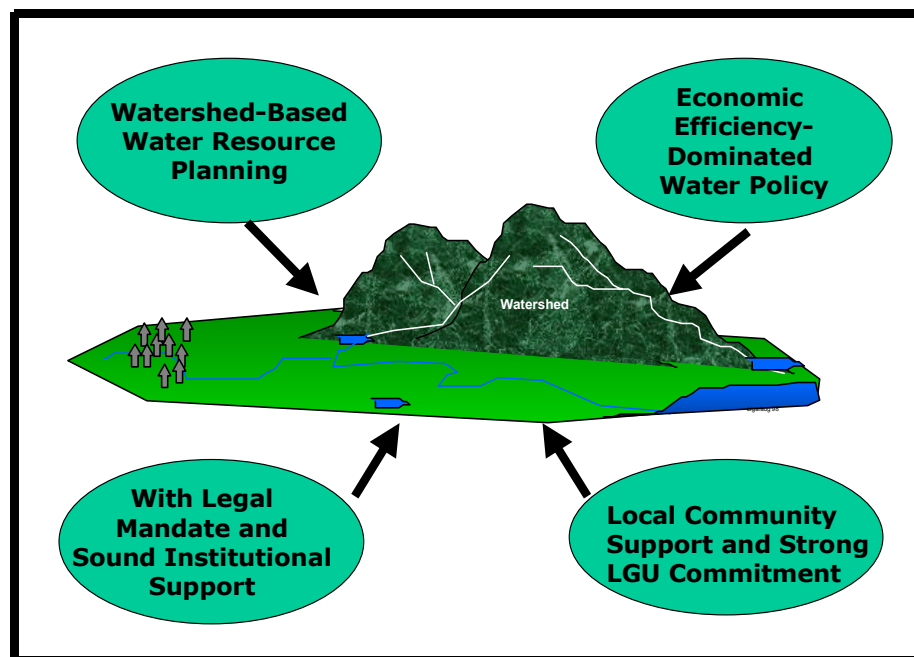


Figure 1. Water Resource Management Strategy

The main question, therefore, is under what conditions governance arrangements are capable of effectively managing watershed resources. It is in this regard that there is a need to document specific case studies on the experiences and attempts at various levels to implement a watershed-based water resources management, if only to provide empirical evidence on the opportunities and challenges that confront it.

Analytical Framework

The effectiveness and capacity by which society manages its watershed resources is mediated by different factors, namely:

- Economic considerations—financial capital
- Technical and administrative capacity—intellectual capital
- Social governance capacity—social and institutional capital
- Legal framework—political capital

The levels within which these factors can be analyzed include the macro-level, that is, the national level; and the micro-level that operates at watershed management unit.

Macro-Level

The following variables are important at the macro-level:

- For assessing financial capital:
 - Number of watersheds being managed/under the administration of DENR
 - Number of water regions being managed by NWRB
 - Number of watersheds under the control of other agencies like NIA, NAPOCOR, SCU, etc.
 - Budget allocated by these agencies for watershed management over the last 10 years
 - Types of watershed management initiatives carried out by these agencies over the last 10 years
 - Extent to which water management is part of watershed management—and in what way
 - Budget requirements for comprehensive watershed management implementation in various watersheds—based on DENR experiences
- For assessing intellectual capital:
 - Extent to which watershed management is taught in forestry curriculum and course content—over the last 20 years
 - Timing and extent to which academic institutions teach watershed management, and the nature and content of these watershed management courses
 - Presence of a watershed unit within DENR, NWRB/other agencies, and what its capacity in terms of manpower and operational budget
- For assessing social and institutional capital
 - Presence and number of watershed coalitions that exist in the country and where/for which areas these are formed.
 - The nature of the activities that are carried out by these watershed coalitions from the time of inception.
- For assessing political capital
 - Existence of laws, executive orders, supportive of watershed management or watershed based-water resource management, and the manner by which water management is recognized by law in watershed management
 - The extent by which laws and regulations in watershed management specifically calls for integrating water system management

Micro-level of Analysis: The Watershed Unit

At the watershed unit level, the following variables would help explain the context within which the watershed-based water resources management approach operate, as well as indicate the opportunities and challenges.

- For assessing financial capital
 - Existence of a comprehensive watershed management plan and how much budget this requires.
 - If no such plan exists—the cost to implement one in this particular watershed.
 - Analysis of the plan to assess if water management is built into it.
 - Agencies involved in watershed and water management
 - Types of watershed management initiatives carried out by these agencies over the last 10 years
 - Budget allocated for watershed management by various agencies over the last 10 years
 - Number of LGUs covered by the watershed and budget allocated by these various LGUs on watershed management efforts over the last years.
 - Revenue generating potential of the watershed
 - General list of resources/natural wealth within the watershed (inventory of natural resources will be most useful). These can also be based on how people are using the resources (based on existing secondary sources or key informants survey)
 - Revenue generated from the area from resource use—natural/water, others
 - List of resource user-groups in the watershed
 - Data on extent of economic dependency on the watershed/water resources—users and number of users per user group
- For assessing intellectual capital
 - Number of people involved in watershed management per agency/entity and proportion of time involved.
 - Technical and administrative background of these people. For foresters—get school where they obtained degree and year.
 - Training on watershed management received by these people
- For assessing institutional and social capital
 - Presence and nature of the governing structure for the watershed at different/all levels
 - Extent by which sharing of power and responsibilities prevail among the various entities involved in watershed management (TORs)

- Extent to which agencies are involved in watershed and water management
 - Manner by which the activities of these agencies are integrated, and reasons if integrations does not occur
 - Nature of coordination among these various entities—separately watershed, water, or both (meetings, joint activities, IECs, COs, etc)
 - Frequency by which the activities take place within a year.
 - Extent by which the community participates in watershed management--- how many POS are involved, how many members per POs are actually in watershed management, nature of activities carried out by these POs, involved in watershed.
 - Frequency per year by which these activities are undertaken
- For assessing political capital
 - Existing local laws, executive orders, resolutions supportive of watershed management or watershed based-water resource management
 - The extent by which water management is recognized by these local laws in watershed management
 - National law supporting the creation of the watershed as a formally constituted management unit (as protected area, or as critical watershed)
 - Existence of informal management rules over watershed/water resources (IP's) in the area and the nature of the relationship of these to government policies (supportive or in conflict)
 - If conflict exists, the history of conflict, the strategies for conflict management strategies, and the effects of these conflicts on watershed/water resource management.

Focus of Inquiry

There are three foci of inquiry with regards to attempts to adopt a watershed-based approach to water resources management. First, there is a need to look into the conditions that affect the linkages between watershed resource management and the sustainability of governance and production systems. Second, there is a need to analyze the manner governance mechanisms can be “directed” towards improving livelihood sustainability and the maintenance of watershed resources. Finally, there is a need to assess the processes in which governance and production mechanisms are transformed as forest-based communities within watershed areas are integrated further into mainstream market and political structures. Corollary to this is an evaluation of the implications of these transformations in scale to watershed management, particularly to managing the resource using the watershed approach.