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**State of Management Regimes of River Basin
Organizations in the Philippines**

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Abstract

Like most countries, the Philippines has implemented the integrated river basin management approach. The management of river basins is operationalized through the river basin organizations (RBOs). Five management regimes have been implemented, reflecting specific functions, needs and opportunities, from the widely autonomous agency to a variety of commissions, councils and committees, as well as multi-sector project management offices. The paper provided an assessment of the management regimes of various existing and abolished or inactive river basin organizations in the country. The chosen RBOs represent the five management regimes. The paper discussed the legal and institutional framework, the outcomes of the projects of the various RBOs, the best practices implemented and challenges encountered. The experiences of the various RBOs invariably confirm the benefits of water resources management founded on strong policy, regulatory and institutional frameworks, inter-sectoral coordination, inter-agency collaboration and functional public participation.

Key words: *River basin management, river basin organizations, integrated water resource management*

INTRODUCTION

River basin management has a strong tradition based on addressing environmental problems with technical solutions. More recently, the strategies have started to evolve dramatically. The primary strategy is through integrated approach to river basin management based on harmonious and environmentally sustainable way with the inclusion of the human dimensions in the planning and decision-making processes. Accounting for social demands due to demographic pressures, changes in perspectives of the economic value of water and climate change are increasingly emphasized. The importance of multi-stakeholder and public participation in water management is now also widely recognized.

Like most countries, the Philippines has also implemented the integrated river basin management approach. The National Integrated River Basin Management and Development Framework Plan was conceptualized in 2007 to provide guidance and directions for the action-oriented planning at the river basin level. The framework identifies essential aspects of sustainable basin-level development and their corresponding management regimes. One key area in the governance component of the framework includes the operationalization of river basin organizations (RBOs) with inter-agency and multi-sectoral coordinating modalities that involve stakeholders in planning, implementation and evaluation.

Five management modalities have been implemented, reflecting specific needs and opportunities, from the widely autonomous agency to a variety of commissions, councils and committees, as well as multi-sector project management offices (Tuddao, 2009).

This paper intends to provide an assessment of the management regimes of various existing and abolished or inactive river basin organizations in the country. The chosen RBOs represent the five management modalities. The paper is structured through discussions on legal and institutional framework, the outcomes of the projects of the various RBOs, the best practices implemented and challenges encountered.

Philippine Geography

The Philippines is an archipelagic country with 7,107 islands. It is endowed with substantial fresh water resources the 421 principal rivers, 18 of which are classified as major river basins, 79 natural lakes, groundwater aquifers with an aggregate area of about 50,000 square kilometers, and reservoirs that are sustainability supplied from rainfall. Its 421 principal river basins constitute 70 % of the country's terrestrial area of 300 square kilometers. Of these principal river basins, 18 are considered as major river basins with drainage area greater than 1,400 square kilometers. The river basins are one of the most important and dynamic land and water formations in the Philippines. The major river basins already comprises 36 % of the total land mass of the country (Lasco and Espaldon, 2005).

Legal and Institutional Framework of the Integrated River Basin Development and Management in the Philippines

In the Philippines, the River Basin Control Office (RBCO) is the lead government agency in managing the country's river basins. RBCO was formed under the Department of Environment and Natural Resources (DENR) in 2006 by Executive Order 510 with the mandate to rationalize various river basin projects and programs and formulate the country's Integrated River Basin Development and Management Framework Plan. In July 2009, by virtue of Executive Order No. 816 of the President of the Philippines, RBCO's mandate was expanded to cover integrated planning, management, rehabilitation and development of the country's river basins as well as coordination with the Local Government Units (LGUs) and non-government organizations (NGOs) in the development and sustainability of river basins. It also serves as the central fund administrator, authorized to recommend approvals and funding for the river basin appropriations provided under the DENR budget.

Five types of RBOs have been implemented in the country. First, is an "Authority" such as the Laguna Lake Development Authority. Another is a "Commission" such as the Pasig River Rehabilitation Commission. The third is "Council" such as the Cagayan de Oro River Basin Council and Lake Lanao Watershed Protection and Development Council. The fourth is "Project Management Office" (PMO) such

as the Bicol River Basin PMO. Last is the “Inter-agency Committee” such as the Manila Bay River Basin Coordinating Committee and the Mindanao River Basin Task Force.

The river basin management strategies of these RBOs are embodied in the integrated water resources management (IWRM) in the Philippines. IWRM in the country is not a recent creation. The first attempts had been made 30 years ago through policies on water resources management, starting with the creation of the former National Water Resources Council (now National Water Resources Board) in 1974. The Philippines then was considered to be in the forefront by many countries at a similar stage of development, as it had an institutional structure for integrated water resources management. However, while significant headway has been made on IWRM during the past decades, reform initiatives are still needed to provide an adequate enabling environment for the effective and efficient implementation of IWRM.

Earlier efforts were made at the regional and river basin planning, for which corresponding institutions were established. Some of them have ceased operation for various reasons. The Government, through the Medium-Term Philippine Development Plan (MTPDP), has decided to pursue IWRM based on the river basin approach as the most suitable direction for water resources planning and investment. This is from a sector approach to a more focused river basin approach that is integrative and coordinative of all water-related efforts. The country’s strong commitment to the Philippine Millennium Development Goals (MDG) and the World Summit on Sustainable Development is further enforced in the goals, strategies and targets embodied in the MTPDP. Overall, the IWRM goal integrates and coordinates all water-related efforts in a more focused approach to water resources management for sustainable development of water and related land resources in order to support socio-economic growth.

EXISTING RIVER BASIN ORGANIZATIONS

The Laguna Lake Development Authority (LLDA)

The LLDA was organized by virtue of Republic Act No. 4850 of 1966 as a quasi-government agency with regulatory and proprietary functions. Through Presidential Decree 813 in 1975, and Executive Order 927 in 1983, its powers and functions were further strengthened to include environmental protection and jurisdiction over the lake basin’s surface water. In 1993, through Executive Order 149, the administrative supervision over LLDA was transferred from the Office of the President to the Department of Environment and Natural Resources (DENR).

LLDA was created to promote the sustainable development and maintain the ecological integrity of the Laguna Lake Basin, which is the largest inland body of water in the Philippines and the second-largest freshwater lake in Southeast Asia. The lake is used for fishery, navigation and transport, as a reservoir for floodwaters and a waste sink, and for power generation and irrigation. By far the most important use that the lake can potentially be put in in years to come is as a major source of fresh water for domestic and industrial use in large portions of Metro Manila and adjoining provinces.

LLDA has regulatory powers such as exclusive authority to grant permits for the use of lake waters and to grant clearance for all development activities within the region. Because of the importance of the basin as a natural resource, and aware that the rapid industrialization and urbanization in the region has put the natural environment under tremendous stress, LLDA has taken significant measures. One of these is the formulation of the Laguna de Bay master plan, which provides the vision for development of the region and presents policies as well as programmes and projects that are believed to realize the vision. Another is the declaration of a multi-use policy in so far as the dominant use of the lake is concerned. The shift in policy has had LLDA refocus its priorities from the promotion of fisheries to environmental protection, watershed management and pollution control. It also implemented a market-based instrument through the Environment User Fee System, designed to motivate industries to comply with environmental standards and stiff disincentives for non-complying industries. It also stepped-up efforts to stop the continuing degradation of the 21 river systems that drain into the Laguna Lake. Using the basin or watershed approach to resources management, the revitalized River Rehabilitation Programme encourages multi-sectoral involvement in the effort to save the rivers and ultimately the lake from further environmental degradation. This included Public-Private Partnerships (PPPs) with World Bank, Asian Development Bank, United Nations Development Programme, Department of Science and Technology, Department of Transportation and Communications, Local Government Units, Bureau of Fisheries and Aquatic

Resources, Department of Environment and Natural Resources, Department of Public Works and Highways, Department of Interior and Local Government, Department of Tourism, Department of Trade and Industry and other partners and stakeholders. To further upgrade its capability to manage the lake and its watershed in a sustainable manner, LLDA has commissioned various institutions to undertake important studies and projects.

However, LLDA continues to face major issues and challenges. These are: 1) scarcity of domestic water supply in Metro Manila and adjoining provinces, and high potential of the lake as a source of raw water; 2) environmental pollution as a result of industries optimizing the benefits derived from existing economy-based instruments for pollution control and abatement; 3) designing appropriate market-based instruments as well as environmental and natural resource accounting and pricing strategies; 4) equity and access to use of and benefits from lake water and land (lakeshore) areas, including allocation of quasi-property rights; 5) conflicting policies, plans, programmes and projects of other government agencies and the private sector; 6) setting the scenario for an effective organization and pro-active management operation; and sustaining corporate financial stability (The Laguna Lake Water and Flood Management Imperative, 2013).

The study by Lasco and Espaldon in 2005 also identified a number of challenges. First, multiple resource-users nature of the basin has resulted to various types of social conflicts: intra-sectoral, and multi-sectoral. Within the fishery sector, fishermen and fishpen operators conflicts at one time in the history of the lake had turned violent. The government through the LLDA with the assistance of the military had to mediate to settle the conflict. Between the fishery and agricultural sectors was the conflict over the use of irrigation water and open fishing and aquaculture. Fishery sector argued that the control of saline water inflows through the Pasig River, its only outlet to Manila Bay, is detrimental to fishery productivity. The saline water causes the flocculation to occur and results to greater transparency of the lake water, a condition that is conducive to fish growth. Multi-sectoral conflicts are conflicts occurring between fishery, agriculture, human settlements, and cities and towns due to various development projects like flood control, road dikes, water supply, among others.

An array of institutional and policy responses were designed to address various types of conflicts. A landmark response was the creation of the ZOMAP which became the guidelines for the use of the lake surface water. It designated areas for fishpens, fish cages, open fishing, fish sanctuary, and navigational lanes. This prevented the further deterioration of the peace and order problem in the lake basin. The ZOMAP emanated from the LLDA, the main agency tasked to manage the lake basin. Another equally significant stride in the effort to control lake pollution was the involvement of local communities in the control and prevention of pollution of the 22 river systems. The efforts started in 1997 when environmental armies were organized to assist in the clean up of the lake. This was the precursor for the formation of multi-sectoral river rehabilitation councils, which now have taken an identity of its own. They now operate as independent entity from LLDA or from local government.

THE ILOILO-BATIANO RIVER DEVELOPMENT COUNCIL

Created by the Iloilo City Government in 2003, the Council provides the venue for participatory discussion and a framework for an integrated approach to sustainable river management. The Vision is “A vibrant river that displays the aesthetic harmony of nature and built heritage reflective of the people’s culture and environment to reveal a true urban treasure; provides socio-economic opportunities to enrich society’s well-being and quality of life; and creates a dynamic and cohesive resource structure that integrates environmental protection, tourism and sustainable management practices.” Members of the council involve 13 national agencies, of which six are NGO’s, two are business groups, three universities, two from civil society, local media and two LGUs as the two rivers traverse along two LGUs, namely, the City of Iloilo and the Municipality of Oton, with a total combined length of approximately 27 kilometers.

The major agenda of the Council revolve around water quality management, livelihood and economic development, silt management, land use management, socio-cultural development, biodiversity management and fishery management of the Iloilo and Batiano Rivers. Historically, both rivers played a very important part in the socio-economic development not just of the two LGUs, but also to the rest of the region.

Thus far, the Council has been successful in several aspects. It proved that a local government can effectively lead and champion the complex process of coordination and collaboration. It engendered a participatory and inclusive approach to growth and development through livelihood and housing for relocated informal settlers. It strengthened PPPs in accessing human and financial resources such as the volunteer-based participation in inter-agency projects. It propelled growth of investments and added greater value to the economy. It also integrated comprehensive approach of managing a water body through emboldened political will and greater stakeholder's participation. Lastly, it implemented policies supported by scientific studies on river resources.

Despite the initiatives, perennial flooding in the communities beside the rivers remains as a major challenge. Iloilo River Development Council had to intensify its effort towards the following priorities: the removal of derelicts, sunken ships, illegal structures, and fish pens; relocation of informal settlers; improvement of water quality through strict implementation of discharge permits and the anti-littering ordinance, clean-up drives, and the realization of a city-wide septage management program and wide information dissemination and education campaign with the end view of making Iloilo River the centre of Urban Biodiversity Program of the city (USAID, 2013).

Abolished and Inactive River Basin Organizations

The Agno River Basin Development Commission

The Agno River Basin Development Commission (ARBDC) was created by virtue of Executive Order 442 of 1997 and amended by Executive Order 140 of 1999. While Executive Order 442 was issued in 1997, the Commission became operational only in October 1998 following the appointment of a full-time Executive Director. Activities came in full swing in January 1999 with the organization of the Commission Secretariat.

The Agno River Basin covers 68 municipalities and 5 cities in the provinces of Benguet, Pangasinan and Tarlac. It is the fifth largest river basin in the Philippines with a catchment area of 8,013.41 square kilometers. It has a total length of 270 kilometers with an estimated annual run off of 8,044 million cubic meters and a level area of 2,646 square kilometers.

The Agno River Basin Development Commission is mandated to oversee and coordinate all development along the Agno River Basin and to ensure a holistic approach to water resources planning and management of the river basin. Its functions are to: develop a comprehensive master Plan for the river basin; coordinate the integration of the master plan into local and regional plans and investment programmes; implementation of development programmes and projects with overall impact on the basin; initiate, receive and recommend project proposals for the development of the basin; formulate, review and propose improvements on existing policies governing the development of the basin; commission, coordinate, monitor all planning studies and research and other development undertakings on the basin; coordinate soil erosion prevention, river siltation mitigation, flood control and other projects among the relevant government agencies; and establish a functional basin-wide information and database system including computer-generated planning tools such as the geographic information system (GIS).

In 2003, the Agno River Basin Development Commission reported some of the initiatives implemented, lessons learned and the challenges encountered. The report emphasized the importance of inter-agency and grassroot participation in the planning and implementation process, capacity building at all levels of decision-making, coordination mechanism to carry out an effective integrated river basin management and the need to mobilize all potential financial sources from the local, national and foreign sources, both public and private investments to finance river basin development.

Though the Commission has stopped functioning, it has earned some merits during its operation. It laid the groundwork for institutional cooperation and coordination in river basin planning and management. Through the master planning process, the ARBDC was able to establish a broad-based participatory institutional decision-making process to effect a multi-stakeholder coordination. This was achieved through the organization of inter-agency and inter-LGU committees and technical working groups (TWG) consisting of representatives from major stakeholder groups within the basin and

eventually re-structured into cluster technical working groups. These inter-agency committees and TWGs continue to be the forum of stakeholder coordination and cooperation. The Master Plan and the planning process itself marked the commencement of advocacy activities geared towards the institutionalization of a river basin management framework into the plans, programs and decision-making processes among national line agencies, local government units and private groups with significant stakes in the development of the river basin. The initiatives of the Commission contributed to the national strategy of adopting the river basin as an integrated unit for government action towards ensuring the sustainability of natural resources. The Philippine Medium-term Development Plan asserts a strategy on water resource development and management that uses the river basin as a spatial unit of government policy interventions. The preparation of the Agno River Basin master Plan supported and contributed to this strategy and set the standard by which future river basin planning activities and processes in the Philippines were prepared and implemented.

Nonetheless, the Commission was plagued by several challenges many of which concern institutional, political and financial in nature. Institutional challenges included policies and decision-making processes on watershed protection with the end in-view of increasing motivations and capacities among all stakeholders in watershed areas to sustain long-term productivities and regenerative capacities of watershed resources. Deficiencies in grassroot managerial capabilities to meet the demand for water and other natural resources and knowledge on proper maintenance and operation of said resources were not addressed. Water and other resource use regulation, monitoring and evaluation were not enforced. There was absence of updated and reliable information and data on water and other natural resources to aid decision-making processes, reflective of ground-realities and responsive to real issues. Stakeholder participation was also minimal, in particular representation from indigenous people, particularly those belonging to indigenous cultural communities with claims to ancestral domains in the river basin.

In terms of political challenges, one of the major concerns was decision-making process dominated by parochial interests, resulting to weak collaboration and cooperation. Another is gaining political legitimacy as an institution. The ARBDC was constantly confronted with the question of its relevance as a resource management structure, particularly among law-makers. This puts into light the lack of appreciation as to the benefits of setting in place institutional structures for river basin management.

Financing the initiatives was also a major problem. The sources of funds for the implementation of the Agno River Basin Master Plan come from the national and local government units. Given the budgetary constraints being felt at all levels of the bureaucracy, alternative fund sources were not explored. A potential source that was overlooked is from the private sector. The ARBDC failed to expand its advocacy to gain the support of the private sector and build an attractive environment for their involvement in natural resource management.

Bicol River Basin Development Project Management Office

The Bicol River Basin Project Management Office (BRBPMO) was created through the issuance of Presidential Executive Order Number 359 on September 2004. It was designed to be operational for six years to complete mandated tasks. The Office was tasked to “Coordinate, initiate and carry out formulation, implementation and monitoring of water and watershed policies, studies, management actions and investment in the river basin consistent with the ecological principle of using the river basin as a unit of management.” BRBPMO was also earmarked to rehabilitate fledgling or non-working irrigation systems and other water infrastructures in the river basin. In addition, it was mandated to pilot a comprehensive program on natural resources management and institutionalize integrated river basin and watershed management approach with the goal of improved quality of life for the river basin communities.

There are two major components. First is the Bicol River Basin Management Component. It aimed to attain institutional strengthening; watershed development and management to be led by the Department of Environment and Natural Resources and co-implemented by the LGUs within the Bicol River Basin; irrigation management to be implemented by the National Irrigation Administration; and flood mitigation to be implemented by the Department of Public Works and Highways.

The second is the Water Resources Management Component. It aimed to coordinate and where necessary initiate and carry out formulation, implementation and monitoring of water and watershed policies; study management actions and investment in the river basin consistent with the ecological principle of using the river basin as a unit of management; institutionalize stakeholder participation and devolution of action at the lowest possible level; develop and update the Bicol River Basin and Watershed Strategies Framework; organize the implementing structures, establish implementation policies, delegate authorities and responsibilities and call on other government agencies, financial institutions and donors, as needed to undertake basin wide programs and projects subject to applicable policies and establish and maintain structural consultation process at the appropriate executive levels with provincial, city and municipal LGUs, and representatives from people's organizations (irrigators, upland farmers, fisherfolk, water users associations, indigenous peoples' groups) and the private sector and civil society organizations based in the Bicol Region (academe, media, NGOs).

Administratively, it was also tasked to develop a portfolio of LGU project in the river basin; implement appraisal and feasibility studies of individual projects; assist LGUs in the packaging and documentation of their projects for submission to financing institutions; facilitate the coordination and implementation of activities between the different agencies involved in management and development of the Bicol River Basin; coordinate and plan with the relevant line agencies and LGUs to ensure proper operation and maintenance of the hydraulic infrastructures in the Bicol River Basin, including during periods of natural disaster, water scarcity and flood conditions; collect and manage data and information pertaining to water and land use in the Bicol River Basin; and administer finance and procurement.

A study conducted by Illo in 2013 provided some lessons on the BRBDP experience. These lessons include the acknowledgement that the sub-regional, inter-local program is part of bigger regional or provincial development program, and that participation of beneficiaries and local governments and their leaders is important for sustainability of program initiatives and for the operation and maintenance of constructed facilities. Coordination and harmonization with other programs in the region was weak. As a planning exercise, the BRBDP required close coordination with the regional office of the National Economic and Development Authority (NEDA) and the Regional Development Council, which is a more permanent mechanism than ad hoc inter-agency or inter-local government bodies created for the program. The importance of well-designed and transparent projects is lesson that must be emphasized. It implied technical projects have to be well-designed and processes of bidding, procurement, and inspection of completed works transparent to ensure that public funds and loans are well spent. Poor engineering design had reportedly plagued some projects, which required continuous rehabilitation work. In the land consolidation and irrigation project, an electric pump was installed within the irrigation system area, neglecting to consider the cost of electric power that has been consistently much higher than in Metro Manila. The cooperative ran huge electric bills, and decided to return the pumps to the NIA and buy its own crude-oil-powered pumps. While much cheaper to operate, farmers served by the pump system were nonetheless paying more than double the fees paid by farmers whose lands were irrigated by the communal gravity irrigation system. Unless contracting and procurement processes are transparent, these failed projects suggest not only technical ineptitude, but also corruption and rent-seeking by politicians and their cronies.

Capacity to manage inter-local efforts was problematic. Development of governance and management capacities requires deliberate strategies to facilitate the learning process of technical working groups, project or management offices or centers, and participating local governments. Of these, the management offices or centers would need technical project management (including management of project finances), while the technical working groups would require coordination and planning skills. In the case of the BRBDP, with its complex management and coordination structures, the capacity development map is more complicated (Koppel and Others 1985). Integrated development programs like the BRBDP will need to build capacities among participating agencies and local governments, underscoring the complementary and transfer of experiences and lessons among various stakeholders.

Just like any RBO, financing for sustainability is recurring problem. The BRBDP was a product of a top-down approach that marked many centralized or national development efforts in the Philippines. The BRBDP programmatic focus has been determined with limited input from local leaders, although it is true that the provincial governors of the affected provinces sat in the Bicol River Basin Coordinating Council, and the municipal mayors in the project sites were members of Area Development Teams that purportedly

identify projects that are needed in their area and oversee implementations of projects. The issue of ownership—whose program is it—is important for post-program sustainability, but it can undermine efforts to address immediate implementation issues.

Presidential Task Force on Mindanao River Basin Rehabilitation and Development

The Presidential Task Force on Mindanao River Basin Rehabilitation and Development is a form of RBO classified as “Inter-agency Committee”. There were three Executive Orders that led to the Creation of the Presidential Task Force on Mindanao River Basin Rehabilitation and Development. These are the EO No. 743 Creating a Task Force on Cotabato Flood Control (July 24, 2008); EO No. 753 Creating a Presidential Task Force for the Mindanao River Basin Rehabilitation (September 29, 2008); and EO No. 753-A Amending EO No. 753, series of 2008, which created the Presidential Task Force on Mindanao River Basin Rehabilitation and Development (January 5, 2009). On February 15, 2010, the President signed Executive Order No. 753-B amending EO No. 753-A and extending the term of the Task Force until December 31, 2012.

The appointed Chairman is Cotabato Archbishop Orlando B. Quevedo, OMI, DD with the Co-Chairman ARMM Governor, the Chairman of RDCC-ARMM, three Vice- Chairmen, Undersecretaries of DPWH and DENR and Chairman of RDCC XII, members composed of five Provincial Governors, Mayors, and Regional Directors/Heads of Government Line Agencies within the Mindanao River Basin.

It was mandated to: coordinate the formulation and implementation of the Mindanao River Basin (MRB) Relief, Rehabilitation and Long-Term Development Plan; integrate flood control efforts in the areas of ARMM and Region XII that were flooded by Typhoons Frank and Cosme; ensure that public funds for the rehabilitation and development of the Mindanao River Basin (MRB) shall be spent judiciously and effectively through efficient prioritization of programs and consistent monitoring of projects; serve as clearing house for all proposals related to the development of the Mindanao River Basin (MRB); upon consultation and evaluation, approve appropriate requests in connection with the Mindanao River Basin (MRB) development; notify the DBM of its approval as basis for the release of funds for the Mindanao River Basin development ; and submit quarterly reports to the Presidential Management Staff on the work being done by the Task Force for the Mindanao River Basin Rehabilitation and Development, and to the DBM on funds allocated indicating the amount released, obligated, and disbursed for projects and the accomplishments for the expended appropriations.

As part of the efforts to streamline government spending and generate cost savings, President Aquino made the directive in Executive Order (EO) No. 50, signed on July 28, 2011, which transfers the duties and functions of the task force to the Mindanao Development Authority (MinDA), River Basin Control Office (RBCO) of the Department of Environment and Natural Resources (DENR), and the National Disaster Risk Reduction Management Council-Office of Civil Defense (NDRRMC-OCD). The President found the functions of PTFMRBRD to be redundant with those of other existing national government agencies.

Under EO 50, MinDA was directed to create and implement a master plan for the management and development of the Mindanao river basin (MRB); negotiate and receive grants and donation of funds for the rehabilitation of areas affected by disaster; spearhead and coordinate all actions to rehabilitate and develop the MRB affected areas; and conduct resource mobilization activities. The RBCO, on the other hand, was tasked to help develop the MRB master plan by providing technical assistance aimed at making the program self-sustaining and with multi-sectoral involvement. The EO also directed the NDRRMC-OCD to identify and package relief rehabilitation and long-term interventions for the MRB affected areas and ensure that the master plan is consistent with the National Disaster Risk Reduction and Management Plan and Framework.

Issues and Concerns in the Various River Basin Organizations

The issues and concerns encountered by the river basin organizations reviewed in this paper can be summarized into three pervading themes. These are the enabling environment, institutions and management.

Enabling Environments

Some water resources policies, regulations and management within the river basin and between municipalities need to be harmonized. Example can be found between the fishery and agricultural sectors conflict over the use of irrigation water and open fishing and aquaculture in the LLDA area.

Economic incentives for river basin management and protection are important. There is a rarity of practice applying economic incentives to encourage protection and efficient water resource use. One notable example is implementation of the LLDA of the Environment User Fee System, which is a market-based instrument designed to motivate industries to comply with environmental standards through stiff disincentives for non-complying industries and incentives for complying industries.

Cross-sectoral and upstream-downstream dialogues are needed. Sound monitoring systems, communications strategies, formal communication and stakeholder engagement mechanisms facilitate improved information-sharing to support action. This is especially needed when administrative and social-cultural boundaries generally overlap within the river basin. All the river basins in this study involve boundaries of administrative units and socio-cultural groups, often they become the source of major challenges for the RBOs.

Financing organisations and investment are extremely important. This is a common issue in most river basin organizations, in particular dependence on external funding instead of promoting self-sufficiency in its operations. Inadequate leadership to drive implementation and allocate resources can mean that other stakeholders do not adopt the necessary changes.

Institutions

Fragmentation of responsibilities and duplication of functions over river basins are common to all types of RBOs in this paper. In, the Philippines, water governance generally suffers from a high level of fragmentation and lack a coherent unifying framework for planning and implementation. At present, there are over 30 government agencies dealing with river basin management. This has resulted to overlap of work and conflicts among agencies that result in fractional water management plan that does not adequately meet the requirements for sustainability. These institutional issues have also left the water sector in most river basins vulnerable to duplicity and patronage.

There must unified understanding on the roles and responsibilities of basin and other water sector organisations at different levels in the government, non-government and private sectors. The specific roles and functions of these agencies need to be reviewed alongside those of the DENR. The need to have an interagency council or authority is increasingly being felt by these agencies. Corresponding directives should also be given to the various agencies concerned so that they can align their programs with the watershed planning activities. Though this, effective coordination mechanisms might be achieved.

Institutional mandates should be clear to all stakeholders. Key institutions should also have the power and capacity to give effect to the strategic actions of the plan. LLDA in itself is an authority. Meanwhile, ARBDC relies mainly on the commitment and participation of all related agencies. Under these circumstances, the ARBDC leadership is under the undersecretary of the Presidential Office who initiates the program of strategic planning and management for the river basin.

A lack of stakeholder support for the plan and its objectives and actions can be a major barrier. This is best addressed by an appropriately constructed stakeholder engagement process linked to the development of the plan. This includes engaging those stakeholders who are likely to remain unsupportive of the plan because of the potential implications for them.

Structures for Management

The management of any RBO is dependent on several structures. One of this is information structure to assess water resources, its availability and demand. Understanding the relative economic value of water in different sectors can yield important information to contribute to basin planning and management. The success of the Iloilo River Development Council can be attributed to this. The

decision-making process must also be scientific based. This is particularly needed in attaining sound monitoring systems, communications strategies, and stakeholder engagement mechanisms to facilitate improved information-sharing to support action.

Second structure is for accountability and transparency. The importance of well-designed and transparent projects especially in the processes of bidding, procurement, and inspection of completed works to ensure that public funds and loans are well spent, as in the case of the BRBDP.

A third structure relate to resolving conflicts in allocation of water. This can be done by establishing clear property rights for all sectors. Property rights problem extend to the tenurial arrangements on land within the different river basins. Customary ownership rights over ancestral lands are recognized in the Constitution and Indigenous Peoples' Rights Act. In addition, the Supreme Court, the highest civil court, has ruled ancestral lands are deemed private lands based on customary or native title. Despite various land reforms, the majority of rural people remain landless, and there is a swelling urban population living in informal settlements. Rural migration and population growth have led to the rise of these informal settlements on public lands and idle private lands in urban and peri-urban areas in all the river basins. However, informal settlers are protected under the Urban Development and Housing Act from summary evictions and demolitions (Philippine Urban Forum, 2008).

Lastly, a structure is also needed to develop organisational capacity. Partly, the problems in managing the RBOs in the country stem from the inability of the lead agencies to manage the large area of water resources of the country due to inadequate manpower and technical skills.

CONCLUSION

It is characteristic for a river basin to be undertaken in context of IWRM as river basin form the natural unit to manage water resources. Significant efforts in the Philippines at regional and basin planning paved the way for the establishment of the different modalities of RBOs. Some ceased their operation, others were abolished. The need for a comprehensive river basin management program is more critical than ever. As such, the river basin management approach must be revolutionized to strengthen the existing river basin organizations.

The valuable experiences of the various RBOs, invariably confirm the benefits of water resources management founded on strong policy, regulatory and institutional frameworks, inter-sectoral coordination, inter-agency collaboration and functional public participation.

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