

(For discussion only)

BASIN-BASED GOVERNANCE FOR INTEGRATED WATER RESOURCES MANAGEMENT: PROSPECTS AND CHALLENGES

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Introduction

“Water is life”. “No water, no future.” “Water is for all.”

These statements evoke lots of meaning and sentiments. They confirm the vital importance of water, in particular freshwater to human life. They serve as clarion call - a warning to societies lest they take the water future less seriously. The statements point to the need for collective actions from individuals and nations to avert the impending global crisis of water. Water is everybody’s business. No wonder, 2003 was declared as the International Year of Freshwater.

Many countries are already experiencing serious problems arising from water scarcity. Some 2 billion people in the world are facing water shortages. It has been noted that water is getting scarcer due to excessive unsustainable use; and that water quality is diminishing due to unsanitary human practices and poor management of household, industrial, and agricultural wastes. The impacts of human interference in the cycling of water are enormous leading to decline in both quality and quantity of freshwater supplies. It is estimated that by 2025 a number of countries will be too dry to maintain rates of current uses. About one-third of the world’s population lives in countries suffering from moderate-to-high water stress — where water consumption is more than 10 per cent of renewable freshwater resources. Some 80 countries, constituting 40 per cent of the world’s population, were suffering from serious water shortages by the mid-1990s (CSD 1997a) and it is estimated that in less than 25 years two-thirds of the world’s people will be living in water-stressed countries (CSD 1997b).

Given the ever-growing population and the increasing demand for freshwater to serve a variety of uses, the challenge that will confront nations is to maintain the balance between water demand and supply. The paramount concerns and imperatives of the 21st century are: to ensure access to quality water; and, to protect the sources of freshwater from further degradation. The latter is crucial considering that the volume of freshwater available is limited and the distribution uneven.

The total volume of water on Earth is about 1 400 million km³ of which only 2.5 per cent, or about 35 million km³, is freshwater. Most freshwater occurs in the form of permanent ice or snow, locked up in Antarctica and Greenland, or in deep groundwater aquifers. The principal sources of water for human use are lakes, rivers, soil moisture and relatively shallow groundwater basins. The usable portion of these sources is only about 200 000 km³ of water — less than 1 per cent of all freshwater and only 0.01 per cent of all water on Earth. Much of this available water is located far from human populations, further complicating issues of water use. (Figure1)

It has been recognized that the critical factor at the bottom of freshwater issues is management. The lack of proper management of and care for water as a vital resource has allowed the diminution of freshwater resources all over the world both in terms of quality and quantity. There is now a growing consensus that water crises can be directly linked to issues of governance. More explicitly it was the agreement from various conferences and forums on water that, “*The water crisis is mainly a crisis of governance*”. Consequently, resolving the issues and problems in this area must be a key priority if we are to achieve sustainable water resources. (Update 2002)

It is in the light of the foregoing arguments and observations that this paper presents options for ensuring a sustainable “water future” in Asia and Pacific Region. The ensuing discussion will focus on the need to enhance basin-based governance as a key to improved integrated water resources management by discussing the importance of river councils as governance mechanism and that of the basin plan as an instrument for harmonizing collective efforts in a river/lake context.

Asia and the Pacific Region: The Water Situation

The total run-off per year in the region is approximately 13,260 km³, a third of the global total. (ESCAP1997). In absolute terms, the annual renewable water resources are considerable in many developing countries in the region, although not all are available for exploitation. The highest absolute quantities of water resources are in People's Republic of China, Indonesia and Pakistan, more than one-half of the region's total. However, the region has the lowest per capita availability of freshwater: renewable water resources amounted to about 3 690 m³ per capita/year in mid-1999 for the 30 largest countries in the region for which records are available (UNDP, UNEP, World Bank and WRI 2000 and United Nations Population Division 2001).

Sources of Freshwater Supply

Rivers, lakes and man-made reservoirs are the main sources of surface water abstraction. The Asian and the Pacific Region has several important river systems (Figure 2) with 400 major rivers in India, 200 in Indonesia, 108 in Japan, 50 in Bangladesh and 20 in Thailand. International rivers in the region include the Mekong, and the Ganges, Brahmaputra and Meghna River systems. The region is also endowed with a substantial number of lakes; amongst the largest and most utilized are the Dongting-hu in People's Republic of China, Tonle Sap in Cambodia, Lake Toba in Indonesia, Kasumigaura and Biwa lakes in Japan, Laguna de Bay in the Philippines, Lake Songhkla in Thailand and Lake Issy Kul in Kyrgyzstan.

Certain parts of the region contain vast groundwater reservoirs that receive extensive amounts of water from the abundant rainy season recharge. Bangladesh, India, Indonesia, Nepal and Myanmar have particularly large and deep aquifers. Many countries in the region are dependent on groundwater exploitation to supplement scarce surface water resources; this dependency reaches 30 to 35 per cent of the total supply in Bangladesh, India and Pakistan (ADB 1998).

Water Scarcity and Lowered Quality: Limits to Growth

Growing population, urbanization and economic development are putting great pressure on the quantity and quality of the region's freshwater. The competition for water and the potential for conflicting demands between various sectors are increasing due to continuing economic expansion and growing population. Agriculture is the biggest consumer (86 per cent), with smaller amounts going to industry (8 per cent) and domestic use (6 per cent). (UNDP, UNEP, World Bank and WRI 2000).

Massive withdrawals from rivers, lakes and underground reservoirs have led to an imbalance between supply and demand. Sector competition and conflicts have become critical. Due to excessive abstractions, the volume of water in some rivers and lakes has depleted while water tables in underground aquifers have sunk leading to land subsidence and salt water intrusion. . Excessive demand for groundwater in coastal cities such as Bangkok, Dhaka, Jakarta, Karachi and Manila has led to saline intrusion and ground subsidence.

Some countries in the region are now experiencing and are predicted to suffer water scarcity and stress in the future. A widely accepted threshold for water adequacy is 1 600 m³ of renewable freshwater per capita per year. Countries with freshwater resources in the range of 1 000-1 600 m³ per capita per year are considered under water stress. When annual renewable water resources are less than 1 000 m³ per capita, countries are considered water scarce. When these criteria are applied to the countries of the region, it is apparent that the Republic of Korea is currently approaching water stress, Singapore is already water scarce and the Maldives has chronic water scarcity, with the figure of 114 m³ per capita per year (FAO 1999). In India, water scarcity is expected to intensify as the country's population is predicted to exceed 1.4 billion by 2025 (United Nation's medium projection). People's Republic of China, the most populous nation (1990 annual per capita water resources: 2 427 m³), will only narrowly miss the water stress benchmark in 2025, according to the United Nations' projections (Das Gupta 1996).

Unfortunately, the growing scarcity of water is accompanied by deteriorating water quality due to pollution and environmental degradation. Discharges of waste, sewage and effluents from

domestic, industrial and agricultural sources have rendered water from many rivers, lakes and some aquifers unsuitable for human consumption. Among the rivers of the region, the Yellow River (People's Republic of China), Ganges (India), Amu and Syr Darya (Central Asia) top the list of the world's most polluted rivers according to a report of the World Commission on Water (The Independent 1999).

Organic matter has been the cause of groundwater pollution in many cases. Pollution sources include leaching from unsanitary dumping of refuse and other solid waste, and from the excessive use of fertilizers. Agricultural inputs, including fertilizers, pesticides and animal wastes, are another growing source of freshwater organic pollution in the region, particularly in People's Republic of China and the countries of South and Southeast Asia. In New Zealand, the increase in dairy farm and fertilizer use is intensifying pollution in groundwater as well as shallow lakes and streams (Smith, et al 1993). In New South Wales, it is estimated that around 90 per cent of rivers currently experience water quality problems due to excessive nutrients. Among the rivers of the region, approximately 50 per cent have exceedingly high levels of nutrients while another 25 per cent have a moderate problem where nutrient levels occasionally exceed desirable levels (ESCAP 1998). In Central Asia, nutrients from the excessive use of fertilizers, herbicides, pesticides and defoliants are leading to health hazards due to water resource contamination (Mainguet and Letolle 1998 and Kharin 1996).

The measured concentrations of heavy metals (such as arsenic, cadmium, mercury and lead) exceed basic water quality standards in many of the region's water bodies. The concentrations of DDT, PCB's, industrial solvents and other toxic chemicals, which originate primarily from mining, oil refineries, chemical works and in textile, wood pulp, and pesticide factories, are also rising. Within the region, the water bodies of the Southeast Asian sub-region are the most heavily polluted with heavy metals and toxic chemicals (ADB 1997).

With increasing deforestation and land conversion, soil erosion is exacerbating the natural process of siltation of water bodies and greater quantities of sediment are accumulating in the rivers, dams and reservoirs of the region. For example, in the Ganges, Brahmaputra and Yellow River basins, erosion is responsible for an annual yield of over 1 000 tonnes of sediment per square kilometer of land. The siltation in Pakistan's Tarbela Dam on the Indus River accumulates 200 million cubic metre of silt each year filling the reservoir at a rate of two per cent per year. In Cambodia, heavy siltation of Lake Tonle Sap, resulting from deforestation in the upper catchment, is significantly reducing the lake's depth and this has affected the yield of the lake's fisheries. According to FAO (1990), the Asian and Pacific Region have the world's greatest concentration of salt affected soils.

With limited natural drainage from the primary agricultural areas, levels of salinity in the major rivers are progressively concentrated such that the water is rendered unusable for downstream users (Seckler, et al 1999). In some coastal cities of the region, over-pumping has resulted in the movement of salty seawater inland. Known as "saline intrusion", this occurs when water levels in freshwater aquifers are lowered to a point where salt-water can invade through the water-bearing beds in the direction of the wells. For example, in Dhaka and Metro Manila seawater intrusion into aquifers presents a major problem, whilst in the major river basins and coastal plains of Viet Nam, the average salinity of groundwater is approximately 3 000-4 000 ppm, a level unsuitable for drinking (Asian Media Information and Communication Centre 1997). Saline intrusion has also occurred in Indian state of Gujarat, where irrigators have heavily over-pumped local aquifers near the coast (Postel 1996).

IWRM and Basin-Based Governance: Overcoming the Limits

Water scarcity and lowered quality are serious threats to the development of the Asia and Pacific region. Water is essential to the region's growth. Water-related problems will limit the region's options for the future.

Traditionally, governments' policies and strategies on water management have been aimed at the expansion of supply in order to meet the ever-increasing water demands of the domestic, agriculture and industrial sectors. The largely fragmented approach that has traditionally been applied has allowed conflicts and competition, and has led to the over-exploitation of scarce water

resources. The current challenge for many countries of the region is to overcome fragmented sub-sector approaches and to design and implement integrated mechanisms, particularly for the implementation of projects that transcend sub-sectors.

Integrated Water Resources Management (IWRM) is “a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.”(GWP-TEC, 2003) It is a political process and involves mediation of conflicting interests. The three (3) pillars of IWRM include the management instruments, enabling environment and institutional framework. (Figure 3)

In a capsule, analysis and understanding of IWRM begins at defining a spatial locus within which the critical components interact with and among each other. The locus of analysis and action most appropriate is the watershed, catchment or a basin area. The river/lake basin is a discrete unit of the earth’s surface. More distinctly, it is a naturally defined territorial unit of a surface drainage system and as such is a clearly identifiable ecological unit for interface management between biophysical and human systems.

The basin approach to IWRM refers to the formulation and implementation of courses of action involving natural and human resources in a basin, taking into account the social, political, economic, and institutional factors operating within a basin to achieve specific objectives. The concept of water resources management within a river basin or water catchment area, with a focus on the integration of land and water related issues, has been applied in some countries including Australia, People’s Republic of China and Japan. In India, the national water policy asserts that water resources planning be undertaken for a hydrological unit, such as drainage basin or sub-basin. In Indonesia, institutions for water resources management have been established for some river basins, although these are yet to become fully functioning. (ESCAP, 2000)

The basin approach to IWRM has the following attributes:

- (a) It treats the basin as an ecosystem, requiring systems approach and perspectives;
- (b) It considers the basin area as the primary unit for integrating social, economic, administrative, institutional and environmental concerns;
- (c) It recognizes the man-environment interactions as the major focus of analysis for planning;
- (d) It recognizes the upstream-down-stream continuum as well as other relevant off-site and on-site changes and impacts;
- (e) It considers water as the integrator and indicator of activities in the basin;
- (f) It recognizes the natural and functional linkages with national and regional development;
- (g) It requires application of specialized skills and methodologies from a multi-disciplinary team of experts; and,
- (h) It emphasizes the role of the local communities and other stakeholders in resources management.

The rationale for the basin approach to IWRM can be summarized as follows:

- (a) The basin is a functional unit established by physical relationships;
- (b) The basin approach is logical for evaluating the biophysical linkages of upland and downstream activities because within the basin, they are linked through the hydrologic cycle; (Figure 4)
- (c) The basin approach is holistic, which enables planners and managers to consider many facets of resource development;
- (d) Land-use activities and upland disturbances often result in a chain of environmental impacts that can readily be examined within the basin context;
- (e) The basin approach has a strong economic logic. Many of the externalities involved with alternative land management practices on an individual farm are internalized when the basin is managed as a unit;
- (f) The basin provides the framework for analyzing the effects of human interactions with the environment. The environmental impacts within the basin operate as a feedback loop for changes in the social system; and,

- (g) The basin approach can be integrated with or be part of programs including forestry, agriculture, soil conservation, farming systems, rural and community development, human settlements, coastal resources management, infrastructure development, urban development and biodiversity conservation among others.

The basin provides the context by which integration relevant to IWRM within the natural system and the human system is better understood. Integration within the natural system concerns for instance the integration of land and water management, surface and ground water, upstream and downstream water related issues and concerns as they relate and impact on the hydrologic cycle. Within the human system, integration relates to cross-sector interface of policies and strategies and transactions of all relevant stakeholders in the decision-making process. The integration of various sector views and interests relevant to IWRM becomes more tractable in the basin context. Figure (5)

Another view of IWRM in the basin context is to consider the interaction of resources, population, institution and technology. At the core of the interactions amongst the components is governance. Governance seen in this light is the hub that balances and harmonizes the interactions thereby ensuring that the demands of the population are being met without endangering the sustainability of the resources, because technologies, policies and organizational arrangements are applied and appropriately designed to meet the goals of IWRM. Figure (6)

Governance comprises the complex mechanisms, processes, and institutions through which citizens and groups articulate their interests, mediate their differences, and exercise their legal rights and obligations. Good governance is among other things participatory, transparent and accountable. It is also effective and equitable and it promotes the rule of law. Good governance assures that political, social and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision-making over the allocation of development resources. (UNDP, 2003)

Governance is the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and co-operative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest.

Examples of governance at the local level include a neighborhood co-operative formed to install and maintain a standing water pipe, a town council operating a waste recycling scheme, a multi-urban body developing an integrated transport plan together with user groups, a stock exchange regulating itself with national government oversight, and a regional initiative of state agencies, industrial groups, and residents to control deforestation. At the global level, governance has been viewed primarily as intergovernmental relationships, but it must now be understood as also involving non-governmental organizations (NGOs), citizens' movements, multinational corporations, and the global capital market. Interacting with these are global mass media of dramatically enlarged influence. (The Commission..., 2003)

With respect to water, governance refers to the range of political, economic, and administrative systems that are in place to regulate the development and management of water resources, and provision of water services at different levels. Basin-based governance is simply the governance of water in a basin context. There are two key elements of basin-based governance: the organization or structure, and the basin plan.

River basin organization can take many forms depending on the size of basin, goals of management, political structure of country and existing capability. In the Southeast Asia sub-region for instance the river basin organizations come in many different models such as committees, commissions, authorities, tribunals, corporations, foundations and councils.

The proceeding discussions highlight the findings taken from a study of water governance in a basin context with focus on River Councils as governance mechanism, as well as lessons and observations arising from actual basin planning conducted in one of the Philippine lakes. The study on River Councils focused on the understanding of the level of participation of the different actors,

sectors and organizations and the manner by which efforts and resources are coordinated and harmonized through the Councils, as the governance mechanism for integrated water resource management in the Laguna de Bay region. The discussions on the experiences in the planning conducted for Naujan Lake confirm the need for holistic, trans-disciplinary, integrated and participatory approaches.

RIVER COUNCILS AS GOVERNANCE MECHANISM: A GLIMPSE AT PARTICIPATION AND COORDINATION

Background

Laguna de Bay is a freshwater lake with a surface area of 900 km². It is the largest lake in the Philippines and one of the largest on the entire Southeast Asia. The basin area is around 3,730 km² and is home to over 10 million people. The lake holds an average of 2.9 billion cubic meters of water and has an average depth of 2.5 meters. The lake's basin covers the provinces of Rizal and Laguna. The lake is rich in biological resources including fish, mollusks, and macrophytes. It serves multiple uses such as irrigation, fisheries, domestic water supply, navigation, reservoir of floodwater, power generation, recreation, and industrial cooling. The administration of the lake and its basin area is lodged with the Laguna Lake Development Authority (LLDA), a body organized by virtue of Republic Act 4850 as a quasi-governmental agency with regulatory and proprietary functions to lead, promote and accelerate the development and balanced growth of Laguna de Bay within the context of national and regional plans and policies for social and economic development. Presidential Decree 813 of 1975 and Executive Order 927 of 1983 expanded LLDA's authority to include environmental protection and jurisdiction over surface waters of the lake and to carry out the development of the basin with utmost regard for environmental management and control, preservation of the quality of human life and ecological systems, and prevention of undue ecological disturbances, deterioration, and pollution.

Population growth, urbanization, extensive agriculture and industrialization continue to exert pressure on the lake and its basin areas, resulting to increased pollution load and reduced overall lake productivity. In 1995, LLDA embarked on a program to rehabilitate and protect the 21 river systems flowing into the lake and adopted the basin or watershed approach to river rehabilitation. This led to the creation of River Rehabilitation Councils in 1997. But it was only in 1999 that a formal resolution was duly approved duly institutionalizing the river rehabilitation councils/foundations for the twenty-one river basins in the lake region. Presently, the various Councils/Foundations are on different stages of development.

Functions and Duties of the River Councils/Foundations

The River Councils/Foundations are expected to perform the following functions:

1. Vigorously pursue a comprehensive and sustained River Rehabilitation Program for the specific river basin;
2. Mobilize various sectors in the community, towns and cities within the catchment/watershed of specific river systems in order to be intimately involved in the effort to protect our rivers and lakes;
3. Undertake information, education and motivation campaigns to raise the level of environmental and health awareness of the people in the communities;
4. Regularly conduct physical survey of the river including flow measurements to assess its current condition, identify environmental problems and issues, pinpoint sources of pollution and other factors affecting its environmental quality, and, on the basis thereof, to formulate, prioritize and undertake appropriate measures to effectively address the identified problems and issues;
5. Formulate technically and environmentally-sound Watershed Management Plans and/or project proposals and submit such plans and proposals to potential funding agencies and institutions;
6. Establish and maintain close linkage with LLDA for the necessary expertise, capability and know-how to undertake periodic water quality assessment, especially of identified establishments or entities discharging wastewater directly into the rivers;

7. Act as a network of environmental stewards and report to LLDA and other duly constituted authorities all cases of violations of environmental laws, regulations and standards;
8. Raise funds for the Watershed Management Plan, River Rehabilitation Program and/or river protection, rehabilitation and/or development projects;
9. Undertake other functions and tasks in accordance with the main objectives set by the River Councils.

The study looked at the three (3) relatively more advanced/mature River Councils, namely: LIMAS MARINA River Rehabilitation and Protection Foundation, Sagip Ilog ng Bae at Calauan Foundation, and San Cristobal River Enhancement Defenders Foundation (SaCRED). The Council differs in terms of composition and number of membership and in terms of size of river basin area. LIMAS MARINA is composed mainly of members from local government units. SaCRED members are mostly from industries, while Sagip Ilog has fairly balanced multi-sector membership.

Nature and Degree of Participation

The members of the 3 Councils are considered generally active. Participation is manifested through regular attendance in meetings and active participation in deliberations, membership in technical working groups/committees, exchange of ideas and information, resource-sharing, actual involvement in project implementation, and resource generation.

Meetings are held monthly and are usually characterized by dynamic interactions and sharing of ideas. Members are actively involved in the various working committees of the Council. In particular, all the Councils are able to raise financial support for their activities through different creative means of raising funds.

The two most common and well-participated activities of the Councils are the river clean-up projects and fund generation. For instance LIMAS MARINA is credited for launching the first municipal-wide cleanup drive called "Pistang Linis Bayan" (or town cleanup festival). The same Council boasts of camaraderie and cooperation as their key accomplishment. They are also recognized as the first Council to have raised over Php 500,000 through raffles and other fund-raising schemes. That is, through the Council the partnership amongst the officials of the six municipalities was fostered.

Both Sagip Ilog and SaCRED implemented their own river clean up projects in addition to launching awareness campaigns and participation in local and international conferences.

All the Councils have undertaken their strategic planning exercises where they have affirmed their commitment to pursue their vision and missions. Projects and other activities were also identified for future implementation.

One of the indicators of strong partnership and participation is the sharing of resources and facilities in support of projects of the Councils. Office transport, equipment, spaces and supplies are volunteered to council's projects and activities.

Not only are resources shared but also information that will enhance the Council's operation as well as those relevant to the management of the lake basin area.

One indicator of good rapport among the members is their ability to check on each other and openness to each other's suggestions. One of the three Councils was able to check on the polluting activity of a member agency. Without any further discussions or formal complaints filed, the Council was able to stop the discharge of effluents into the river system through persuasion.

So far the Councils' accomplishments and activities consist of the following, which show the level of energy and commitment the members have: river and town cleanup drives; information campaign; fund-raising projects; strategic planning and visioning; formulating operations manual; development of video, leaflets and other materials; attendance to conferences, educational trips, workshops, seminars and training programs; technology dissemination; support to solid waste management; tree planting; and monitoring of polluting activities in the basin.

These may seem very modest activities and accomplishments but what matters most is the interest and the quality of partnership established between and among individuals and organizations in the Council. Considering that the Councils are relatively young, such accomplishments are signs of greater things to come in the life of the Councils. The issue now becomes sustaining the enthusiasm and the energies of the Councils.

Leadership, commonality of goals, mechanism/structure and authority are some of the key elements of coordinative capacity. There exist a high sense of commonality of and commitment to the objectives that are the keys to meaningful and effective coordination. All members can articulate the objectives clearly and enthusiastically.

The Council President is recognized as the formal leader of the Councils. However, this leadership is shared with the respective chairpersons of the various working committees of the Council. In general all the Presidents of the 3 Councils exhibit peculiar styles of leadership due to their personalities and work experience. It has to be noted that two of the Council Presidents are women and both display excellent ability to persuade and influence their members. As heads of departments in their respective organizations they have the managerial expertise and maturity to lead. The other Council's President is a local government official who is very capable and respected among his peers. Managerial ability, personality and respectability are the attributes that make leadership work in the Councils, not to forget of course the gender factor.

There are three tiers of coordination in the Council. These are: the Board of Trustees, which takes care of the policy-making functions and has a maximum of 15 members; the Executive Committee, headed by the President and takes care of operational concerns; and, the Operational Committees which assist the President in planning and implementing projects and activities. These levels of coordination enable greater participation and involvement among members and facilitate the smooth functioning of the Council.

Authority is shared and not something that arises from formal or legal basis but more out of mutuality and professional respect. Since Councils are by their nature voluntary, authority is manifested more in terms of influence and persuasion rather than by sanctions or dictates. This is so far, one of the strong attributes of the Council arrangements. Of course, this is only possible when people prove themselves trustworthy, when there is openness and transparency and when people who lead have the moral authority to do so.

Hurdles and Challenges

The Councils recognize that the road ahead may not be that level and smooth. There are hurdles to overcome and challenges to meet. Indifference of local government officials and the residents is one of the most difficult tests. For one, concern for the environment is not the top priority in most local governments, and two, politicians are more concerned about their personal careers. There are environmental initiatives that may not be favorable to the interests of some politicians.

Resources to support the Councils' projects and activities are limited. There is a need to explore more creative ways of raising money. While the Councils have undertaken fund-raising activities the generated funds may not be sufficient to sustain the planned projects.

Technical capability of the Councils to plan, manage and monitor watershed development and protection programs and projects is severely wanting. The support of LLDA may not be adequate at this point since the organization itself needs to beef up its technical expertise for basin management. Due to the inter-disciplinary nature of watershed management, technical expertise will have to be sourced from different organizations and institutions.

Conflicting schedules and demands of their own professional engagements is another limitation by Council members. Managing time and prioritization become a practical difficulty for members. There is apprehension that volunteerism may soon wane and fade among members. The challenge becomes one of sustaining the interests and enthusiasm of the members.

Prospects and Hopes

Amidst actual and perceived difficulties the Councils are nonetheless committed to pursue their goals and programs. They see that the support and encouragement given to them by LLDA is one reason they can go on. There are also resources and services that are being made available to them by other individuals, organizations and especially academic institutions.

The Councils recognize the existence and willingness of other national, regional and international organizations with which they can establish linkages. The globalization of environmental concerns and most especially the campaign for water security is a strong support for Council. They are aware that technologies, information and expertise are available. How to connect and tap these sources is something they are currently exploring.

Slowly but surely, the Councils' efforts at raising environmental awareness of communities and political leaders are gaining grounds. The support of students is growing through their involvement in the Council. One Council has student representative in the Executive Committee. Some schools around the lake are now having student organizations involved in environmental projects. The number of enlightened and progressive citizens and local leaders is also growing.

So far, the Councils as local governance mechanisms are able to complement the efforts and resources of the Authority; promote the healthy partnerships among sectors and community members; generate resources and expertise; and, are able to bring the concern for the conservation of lake and its basin closest to the community.

Given these seemingly outstanding attributes and accomplishments of the Councils as governance mechanisms, there still remain areas for further improvement. These include the need to develop the technical capability for basin-wide planning and monitoring; generating stable financial base; and, ensuring greater political commitments from local government units.

THE BASIN PLAN: BLUE PRINT OF INTERACTIONS AND OPTIONS

Another element of basin-based governance is the basin plan. In particular, the planning process enhances the appreciation of multiple-stakeholders and compels their participation not only in the planning process but more so in the implementation of the plan. The plan serves as the roadmap that enables stakeholders to commit time and resources to achieve the plan objectives. In this manner, conflicts and issues are understood in better light and their impacts minimized. Priorities are established and strategies properly harmonized; organizational relationships modified and adjusted.

The following is a presentation of the planning process conducted for one of the lakes in the Philippines, considered to be the fifth largest lake in the Philippines –the Naujan Lake in Mindoro Island. The elements of the Plan are also presented to show the comprehensiveness of the component programs.

Background

Naujan Lake's basin area includes four (4) municipal government units. Declared as a national park in 1957, the lake has largely retained its natural beauty and natural resources, but in the last few years has been experiencing the impact of man's regressive activities in its environment. Specific examples are declining fish catch, uncontrolled illegal fishing even with in the designated fish sanctuary, destructive agricultural practices and highly polluting practices, and uncontrolled expansion of human settlements, among others.

For these reasons, Naujan Lake has been classified as a protected area under the National Integrated Protected Areas System (NIPAS) Act of 1992. Under NIPAS, protected areas are defined identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation. The NIPAS Act provides the legal framework for the effective and efficient management of all protected areas in the Philippines. The NIPAS framework aims to

accomplish this through the formulation of site-specific protected area Management Plans, which serves as the basic long-term framework in the management of each park or protected area, and thus guide park decision makers and managers in preparing, implementing and monitoring the annual operational plans for managing the protected areas.

The following are the intrinsic and emergent issues addressed by the NLNP Management Plan.

A. CONSERVATION AND BIODIVERSITY CONCERNS

Naujan Lake National Park has been designated as an *Anatidae Site Network* in May 1999. Anatidae (ducks, geese, and swans) is a group of water birds ecologically dependent on wetlands for at least some part of their annual life cycle. Law enforcement with regard to poaching and hunting needs improvement. Other issues include over-fishing using illegal fishing gear, fishing in the restricted fish sanctuary, destruction of forest resources and protected animal species (e.g., *Crocodylus mindorensis*), land degradation due to destructive farming practices and conversions, and conflicting demands for surface and underground water resources.

B. HABITAT REHABILITATION NEEDS

There are three habitats that are under constant threat of destruction, namely; unregulated conversion of marshland and swamps into agriculture and human settlements, forest denudation due to slash-and-burn agriculture, and, over-exploitation and siltation of the Butas River which is the only outlet of the Lake leading to the sea.

C. MANAGEMENT CONSTRAINTS

PAMB members should be imbued with adequate technical and administrative capabilities, towards addressing emergent issues within the park. There is also a need to update and/or establish appropriate guidelines to enable the NLNP PAMB to effectively manage and govern the park. The tenure of PAMB members should be rationalized to consider the elective tenure of local government officials.

Upgrading the skills and resources of the CENRO and the Office of the Protected Area Superintendent (PASu) are critical towards effective and efficient enforcement of rules and regulations within the park.

The need for empowering local communities cannot be overemphasized, and the potential alternative and/or supplemental livelihood options needs to be done.

D. LOCAL INTERESTS, RIGHTS, AND CONCERNS

The fish sanctuary, which occupies the northern half of the Naujan Lake, covers the municipality of Naujan and portions of Pola and Victoria. To fish legally, fishers from these municipalities (in particular those from Naujan) have to go to the southern end, thereby incurring high operational costs (e.g., boat depreciation, additional expenses for boat fuel and oil, and longer labor hours). The present location of the sanctuary is therefore seen as inequitable. The basis for such delineation has also not been adequately explained to local communities.

The major services provided by Naujan Lake include fisheries, irrigation, transportation, and domestic uses, among others. Proposed development projects should carefully consider the equitable allocation and sustainable use of water from the lake.

Land tenure and security is a highly contentious issue within NLNP at present. There is a need to identify valid claims among various stakeholders of the park, and for DENR to institute and apply the tenure instrument that will address the needs of tenured migrants within the park.

Lack of supplemental/alternative livelihood and continued dependence of small fishers and lakeside communities on fishing as primary source food and income, intensify pressures on NLNP fishery and lake resources.

The complexity of resource use conflicts brought about by the different socio-cultural, economic, and political backgrounds and affiliations of stakeholders,

Recognition and protection of the rights of Mangyans (local indigenous communities) and other tribal peoples in the area must be recognized and protected

E. CHANGES REQUIRED IN THE LEGAL STATUS

Most small farmers and fishers in NLNP have been occupying their residential and/or agricultural land without any formal claims. There is a need to thoroughly investigate reported fake land titles within the NLNP, as this undermines the integrity of the park and intensifies tenure conflicts in the area.

THE NLNP MANAGEMENT PLANNING PROCESS

The development of the NLNP Protected Area Management Plan (PAMP) involved a systematic process that was closely coordinated with and involved the two institutions that have direct authority over the area – the Department of Environment and Natural Resources (DENR) Regional Office IV, and the NLNP PAMB. The process framework followed for management planning is shown in Figure (7).

This framework resulted from critical discussions and interactions between the same members of the Technical Team who produced the comprehensive profile of NLNP, utilizing the considerable information acquired through months-long data gathering activities and extended field visits in 1997. Data and information generated by ocular inspection and observation visits, formal household surveys, sessions with key informants in the community, and laboratory and technical analyses, served as the focal and starting point of subsequent management planning for the lake and its basin area.

A team of technical experts representing various disciplines such as watershed and land use planning, aquatic biology, hydrology, policy and institutions, socio-cultural, economics, and wildlife, provided the technical knowledge and expertise to integrate various sustainable systems and methodologies to the stakeholders' concerns in protected area planning and management.

Several validation and consultation workshops were conducted to solicit the stakeholders' ideas, perceptions, and views on the provisions of the NLNP Management Plan. Members of the PAMB, representatives from PAWB, DENR, non-government organizations (NGOs), local government units (LGUs), and other stakeholders participated in these workshops and consultation meetings. (See Annex A).

B. MANAGEMENT VISION

The PAMB and other stakeholders envision the NLNP to be:

“A peaceful, attractive, and rich lake environment where the communities are experiencing sustained and developed quality of life.”

The management vision sets the direction for the sustainable management of the park, incorporating the twin goals of protecting and preserving the natural resources of the park while continuing to harness its potentials for the socio-economic development of local communities.

C. NLNP MANAGEMENT OBJECTIVES

Consistent with the above vision, the general objective of the Management Plan is:

To create a rich and ecologically sound lake- environment where communities have discipline, stable livelihoods, and moving in unity towards the protection and preservation of the lake and its natural resources for the future generations.

Specifically the plan aims to:

1. To establish an active, functional alliance of different sectors from the municipalities of Naujan, Victoria, Socorro, and Pola
2. To promote proactive participation in NLNP community development activities;
3. To conduct extensive reforestation and care of forest and vegetation around the lake;
4. To strictly and truthfully enforce laws; and,
5. To introduce sustainable farming/fishing systems within NLNP.

KEY MANAGEMENT ISSUES AND CONCERNS

The identified issues, concerns, and interests among stakeholders require the development of a plan that harmonizes both biodiversity and habitat conservation concerns and the socioeconomic development goals of the Naujan Lake National Park (NLNP) communities. The plan has to consider all the intrinsic and emergent biophysical, socio-economic, cultural and policy issues, concerns, and community values, attitudes, and interests, which to a large extent will determine the practicability and sustainability of the identified management strategies.

SITE MANAGEMENT STRATEGY

A. COMMUNITY-BASED RESOURCE MANAGEMENT (CBRM) AS AN INTEGRATIVE MANAGEMENT APPROACH

The Management Plan will be implemented through the community-based resource management (CBRM) approach, defined as a “process by which people themselves are provided with the opportunity and/or responsibility to manage their own resources, define their needs, goals and aspirations, and make decisions affecting their well-being” (Fellizar, 1993).

The CBRM approach will also ensure that all the concerns of the park’s stakeholders will be raised, discussed, integrated and addressed in the park’s planning, implementation, monitoring, and evaluation processes. Drijver and Sajise (1993) noted the five principles of CBRM, as follows:

- **Process approach**, wherein ideas and activities are developed step-by-step;
- **Participation** whereby local people have a substantial say or negotiating power in all phases of environmental action;
- **Conservation and sustainable use**, including the identification of site-specific conservation priorities and limits of exploitation;

- **Linkages** between local and policy/national levels; and
- **Incentive packages** at the local and national levels for greater and more sustainable impact.

B. STRATEGIC PROGRAMS

The identified management approach requires the further identification of mechanisms or programs by which the vision, management objectives, and approach, will be carried out. These programs rationalize and launch the implementation of various strategies and activities under the plan. The programs are sorted into two general categories:

- **Functional Programs**, which will include technical programs to carry out various conservation, protection, resource management, and socioeconomic enhancement activities; and,
- **Logistical Programs**, which will comprise administrative support and capability building activities for NLNP stakeholders.

B.1 FUNCTIONAL PROGRAMS

The following is the brief description of various functional and logistical programs in the Plan.

B.1.1 BIOTA AND ECOSYSTEMS MANAGEMENT PROGRAM (BEMP)

The primary goal of the Biota and Ecosystems Management Program is to protect, conserve, and/or rehabilitate the ecosystems and their natural ecological functions, the natural resources, and the flora and fauna within NLNP. Its strategies, objectives, and activities are thus geared towards biodiversity conservation and the preservation of existing ecosystems within the park.

B.1.2 LAND AND WATER USE MANAGEMENT PROGRAM (LWUMP)

The goal of this program is to rationalize and sustain land and water uses within the park and adjacent watershed. Under this program, appropriate zoning as well as other management strategies will be implemented to ensure the mitigation of negative impacts that may result from development activities that will be introduced within the NLNP and its watershed.

B.1.3 PROTECTION AND LAW ENFORCEMENT PROGRAM (PLEP)

This program aims to ensure compliance of stakeholders with all laws, rules, and regulations governing the national park, through effective community-based law enforcement. The importance of this program cannot be overemphasized, as all the planned strategies, projects, and activities will not be successful without effective law enforcement.

B.1.4 STAKEHOLDERS/COMMUNITY AWARENESS PROGRAM (SCAP)

Stakeholders/Community Awareness Program aims to educate the NLNP stakeholders on sustainable protected area management, encourage social responsibility, and guarantee the social acceptability of various NLNP programs. This program will also look into increasing social participation in the planning, implementation, and monitoring of NLNP activities, as well as in the formulation of guidelines for NLNP.

B.1.5 SOCIOECONOMIC WELFARE PROGRAM (SWP)

The objective of this program is to increase livelihood options among NLNP stakeholders, towards reducing their direct and/or dependence on the park and its natural endowments. This program will directly address the issues of poverty, population increase, lack of skills, inadequate livelihood and/or employment opportunities, community partnerships and cooperation, value formation and/or re-orientation, and enhancing community development initiatives. .

B.1.6 LAND TENURE PROGRAM (LTP)

The Land Tenure Program aims to recognize and provide secure tenure arrangements for legitimate NLNP occupants and tenured migrants. The land tenure program will only be successful with the proper identification of legitimate occupants within NLNP. The problem of fake land titles and new occupants must therefore be adequately addressed and resolved before the implementation of the land tenure program.

B.1.7 REGIONAL AND NATIONAL INTEGRATION PROGRAM (RNIP)

The goal of this program is to create vertical and horizontal linkages and integration of NLNP programs and activities. As a center of biodiversity, it is important that the NLNP programs and activities be continuously shared with and enhanced by the lessons from other similar protected areas in the country.

B.1.8 ECOTOURISM AND VISITOR MANAGEMENT PROGRAM (EVMP)

The natural features of NLNP had already attracted foreign and local tourists to the area. The promotion of community-based ecotourism, where local communities serve as local guides and/or service providers, can also contribute substantially to local community education and directly increase income of local communities.

B.1.9 DATABASE MANAGEMENT PROGRAM (DMP)

This program aims to develop and maintain a database on the natural and socioeconomic environments of NLNP. Such an information base will contribute to more regular and scientific assessment of the NLNP environment, and will therefore contribute to informed decision-making not only for the PAMB but for other LGUs and relevant agencies as well.

B.1.10 POLICY AND INSTITUTIONAL DEVELOPMENT PROGRAM (PIDP)

The policy and institutional development program aims to continuously enhance policies, organizational structures, and institutional arrangements and mechanisms towards the effective implementation and sustainable management of NLNP programs. Starting with the PAMB, and the LGUs, this program will endeavor to strengthen local institutional capabilities to effectively manage NLNP. This will involve the creation of a suitable planning and policy environment.

B.2 LOGISTICAL PROGRAMS

B.2.1 ADMINISTRATIVE, MONITORING, AND EVALUATION PROGRAM (AMEP)

This program will provide the administrative mechanisms for implementing the provisions of the Management Plan towards the identified vision and objectives. The monitoring and evaluation component would provide information to assess the level of accomplishment of planned activities, and facilitate strategic adjustments to programs to conform to local needs and/or situations.

B.2.2 FISCAL MANAGEMENT PROGRAM (FMP)

This program will generate funds from private and public sectors to finance various NLNP programs. The effective execution of this program will have strong implications in guaranteeing the success of planned activities, as well as in introducing and/or implementing new ones.

LESSONS LEARNED AND IMPLICATIONS/IMPACTS ON IWRM

River Councils as Governance Mechanism

Basin-based local governance mechanisms in whatever form are potent tools for effective IWRM practice. It must be central to IWRM. Local organizations and communities if properly motivated and empowered can make permanent and lasting difference in improving water resource management. Efforts must be directed at enhancing volunteerism and coordination capacity at the community/basin levels.

Councils can serve as a self-policing mechanism among members. Internal checks and balances are best done within a spirit of mutual respect and confidence. Councils too can become effective means for resolving conflicts among and between members.

Resources for technical and organizational capability building for local councils/organizations must be made accessible. For instance, Councils lack the technical expertise for basin-wide planning, as well as for monitoring activities that are detrimental to the quality of water and its sources.

The healthy partnership between the legally mandated organization such as LLDA and the River Council is an important factor to consider in IWRM. This largely depends on the level of trust and rapport established between them. Leadership ability and attributes of both the Councils and the agency make a whole lot of difference.

The issue of gender is one of great value to IWRM. At least in the three (3) River Councils, the active role of women, the youth, and other sectors of society is evident. In particular, the ability of women to lead the Councils is noteworthy.

Intra-governmental and inter-governmental issues and problems can be handled at the Council level. The Councils serve as a venue for identifying and mitigating these problems. A lot however, depends on the openness and trust among members. Somehow, as long as the issues and problems are surfaced, at least they can be threshed-out objectively, if eliminated. In this way, concerned parties are able to recognize relevant issues that may ultimately lead to corresponding adjustments and/or resolutions.

Councils can generate resources, financial and otherwise in support of their activities. Such resources supplement the already limited resources of government and other concerned agencies. This redounds to more programs without depending on the other agencies for support.

River Councils however, can be constrained by the lack of support from local governmental decision-makers. It can also be hindered by the changing personalities as representatives of local governments by virtue of election or non-re-election. Recommendations from the Councils may not be looked upon favorably by local law makers and therefore may not be considered for approval as local ordinances. River Councils may have to learn the art of advocacy for their findings and recommendation to be adopted by local governments. Even if there are local government representatives in the Councils, there is no guarantee that proposals can be adopted and approved.

Basin Planning

Mobilizing stake-holder's interests in the planning process and ensuring their commitment to sustain their active participation is the first and most crucial step in plan formulation. Making sure that every sector is represented and that they are heard are basic elements of successful planning.

A team of facilitators and scientists who are willing to transcend their disciplinary biases is needed to handle the process. Scientifically generated information can ensure holistic and integrative planning. Leadership in the team is also crucial.

Planning is an iterative process and is a means of enhancing awareness of all actors to issues in the basin area as well the interactions of these issues.

Crafting a common vision as the building block for the plan takes time and creativity as various actors have their own priorities and biases. This vision reflects the desires, preferences and commitment of the participants in the planning process.

The plan initiates organizational and institutional re-arrangements and necessarily involves overcoming conflicting values, preferences and priorities. Re-engineering organizational relations is one value of a basin plan.

Scientific knowledge is indispensable input to any planning process in the basin context. Absence of information is a constraint that must be overcome by involving members of educational and scientific institutions. Knowledge regarding the various "loops" or interfaces/interactions must be generated. This knowledge sets refer to the upland-lowland continuum, land and water interface, policy and institutional mixes, intra- and inter-organizational relations, water supply and demand management, private-public partnerships, community-governmental relations, and local-national-global interfaces. A responsive basin plan clarifies and meets the strategic requirements for these myriad of complex and diverse interactions.

Formulating a plan is one thing and implementing it is another. Acceptance and authorization by legally mandated authorities and institutions are needed. It is therefore important that these personalities are involved in the initial stages of the planning process.

PRACTICAL RECOMMENDATIONS TO IMPROVE IWRM KNOWLEDGE AND APPLICATION: TOWARDS A SUSTAINABLE WATER FUTURE IN THE REGION

Basically, the presentation highlighted one of the key elements for effective IWRM, - the basin-based water governance. River Councils as governance mechanisms for IWRM have vast and yet untapped potentials for achieving the sustainability goal of IWRM.

Each basin represents unique features and therefore, must be managed differently. Formulation of a holistic and comprehensive basin-wide plan as the basis and spirit for collective governance is imperative. It is essential that this basin-wide plan be evolved with as broad participation as possible from all stakeholders. Drawing in the various actors in the planning process would be both educational and challenging. If and when the various participants commit themselves to the plan, there is great possibility that they too can align their organizational and individual priorities. A sound and science-based basin plan is a very potent tool for clarifying roles and expectations from stakeholders, thereby making governance more effective and responsive.

This implies the following:

1. Promote local organizations and /or Councils as integrated water resources manager. They have vast potentials at the same time they have vested interest in ensuring availability of cheap, safe and quality water.
2. Promote basin-approach to IWRM and provide assistance to Councils in formulating a sound and science-based comprehensive basin plans.
3. Provide education/training/capability building opportunities for local councils to enhance their technical and organizational capabilities. A challenge to educational institution is to formulate/evolve a curriculum that would make possible trans-disciplinary sharing of knowledge and expertise. Basin-based governance in particular basin planning and management requires a distinct set of perspective, attitude, knowledge and skills from practitioners. Disciplinary borders must be overcome to avoid a rigid disciplinary orientation leading to fragmented efforts.

4. Establish a learning resource center for river basin management in the region to support local councils, communities, scientists and policy makers in enhancing their capabilities. This learning resource center can be a venue for training, information exchange, and technology demonstration among others. Consortium of education and training institutions must be established.
5. IWRM requires financial and technological support or assistance to local communities and councils. Establishing support systems to provide for such needs is critical.
6. IWRM issues and concerns are greatly appreciated and better managed at the local levels with corresponding supportive policy framework at the national and global levels. This is to emphasize that while water security is a global issue, its management remains local and so is its governance. National and global policies must recognize the peculiarities of each basin and therefore must reflect and accommodate these unique attributes and not the other way around. Bottom-up policy formulation must be adopted. This is worth a try.
7. Understanding/clarifying the inter-face between levels of governance for water is an urgent concern. Which one takes precedence? This is one question to settle.
8. Document "best practice" in IWRM in the region for proper dissemination to relevant parties and organizations. There is no substitute for experience.
9. Political will and commitment from local and national leadership are critical elements for basin-based governance. Basin-based governance critically needs leaders who can mobilize, harmonize and sustain efforts towards sustainable integrated water resources management.

CONCLUDING REMARKS

The concern for sustainable quality water is woven in the fabric of everyday life in any community. Local actions need to be promoted and enhanced. Local or more appropriately, **basin-based governance** as it involves the participation of different stakeholders in the management of water as a precious resource must be strengthened and supported. This is because IWRM is best done at the basin level within which there exist stakeholders who are willing to collaborate, actively participate and take responsibility for the sustainability of water for varied uses, as called for based on a sound, comprehensive and integrative **plan** that is scientifically and collectively formulated. A new paradigm in water education is critically needed.

Indeed, basin-based governance builds a sense of ownership and accountability for the resource among the stakeholders that form the building block for sustainable IWRM. It is believed that solving the crisis of governance at the basin level is one step to solving the global water crisis.

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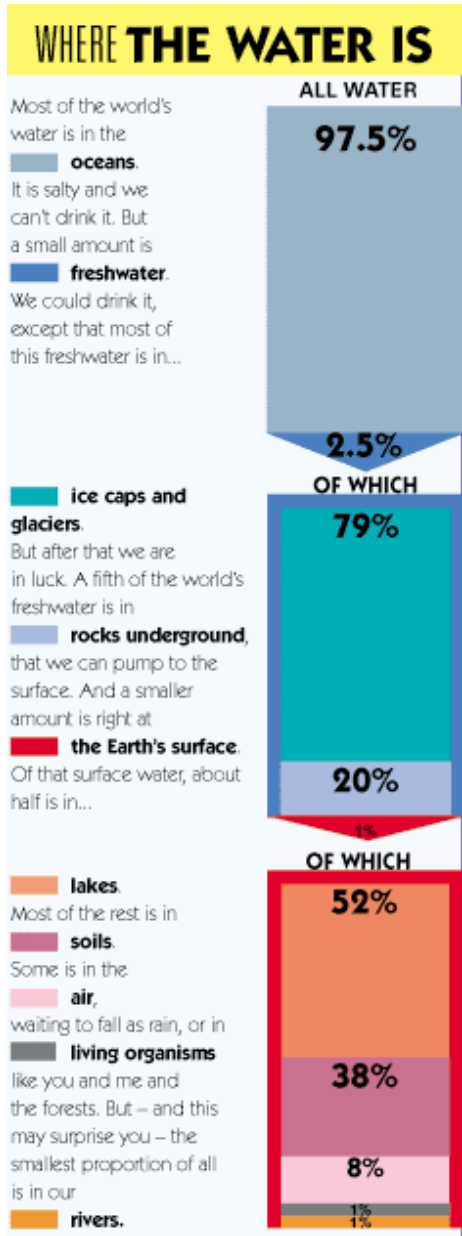
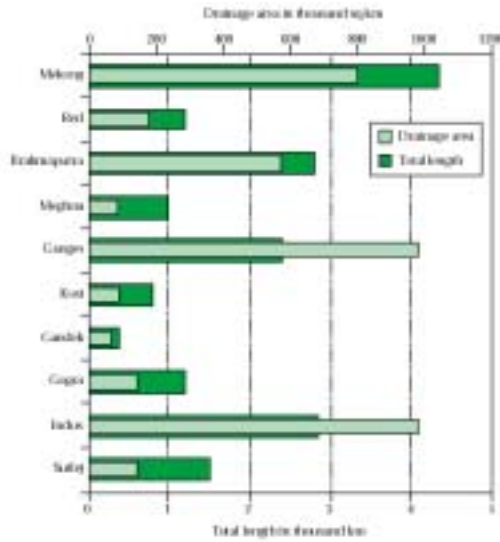


Figure 1 - Global Freshwater



Source: United Nations 1995

Figure 2 - River Systems in Asia and the Pacific Region

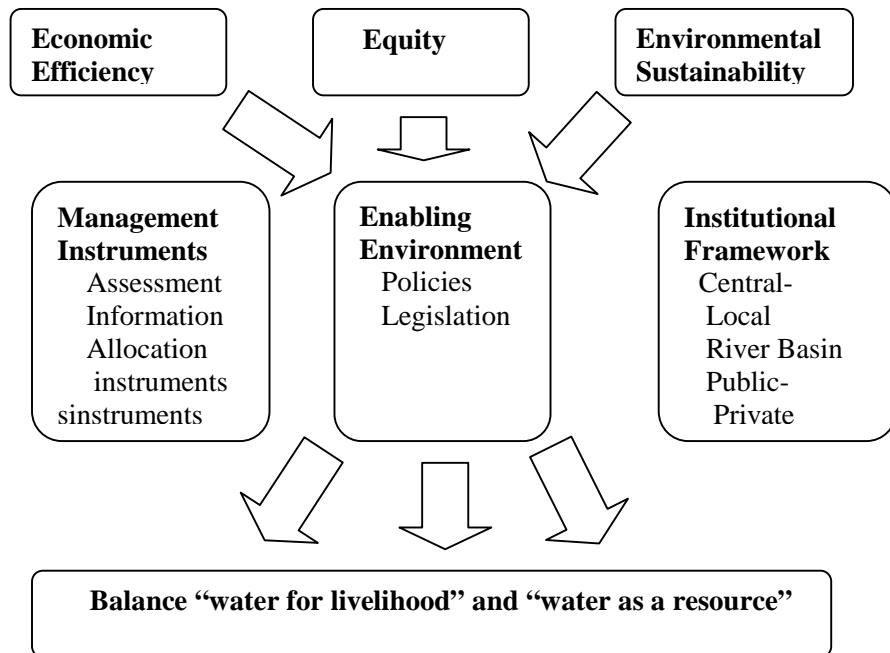


Figure 3 - The Three Pillars of IWRM (GWP-TEC, 2003)

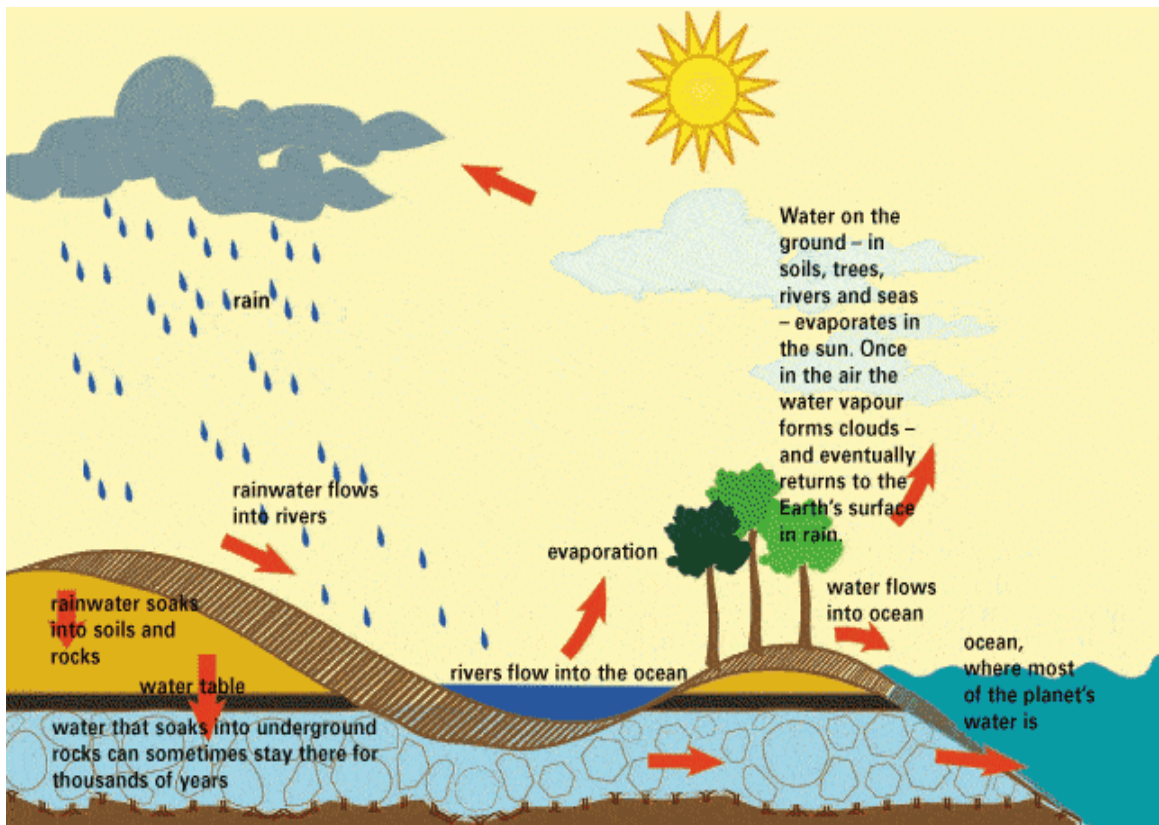


Figure 4 - THE HYDROLOGIC CYCLE

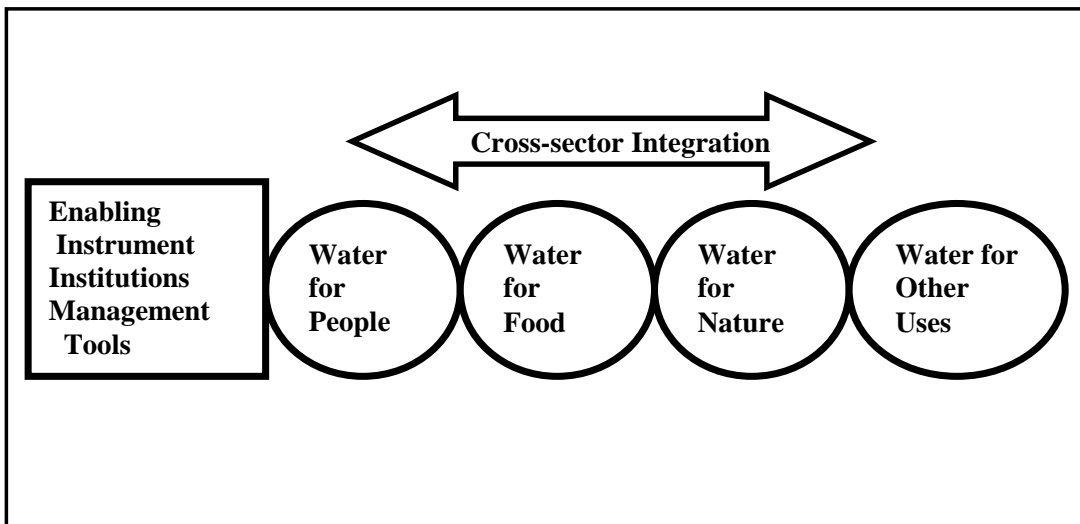


Figure 5 - IWRM and its relation to sub-sectors



Figure 6 - Governance in IWRM (Fellizar, Jr., 2003)

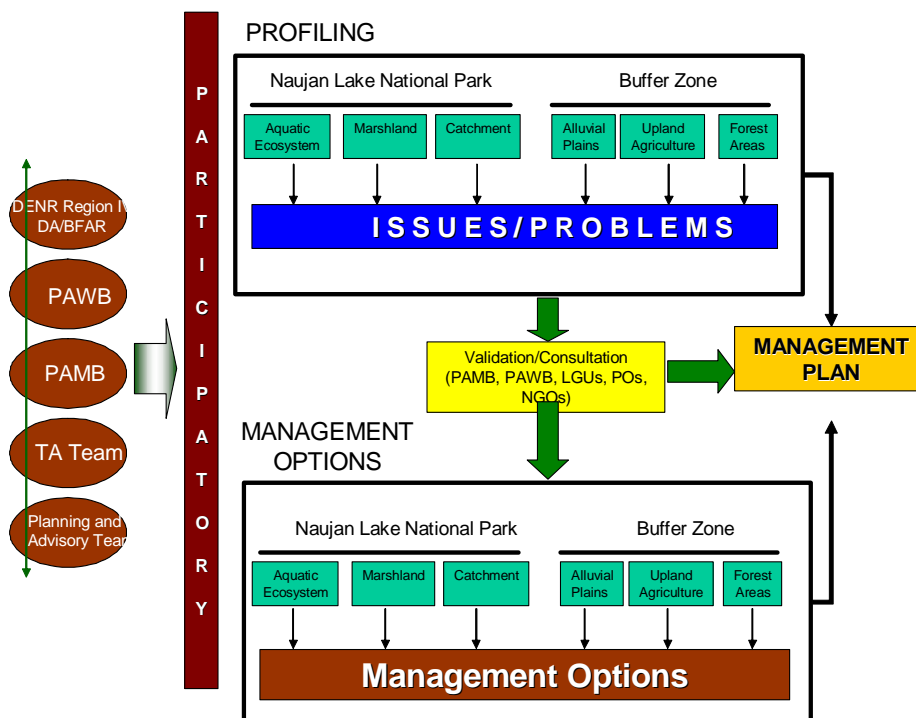


Figure 7 – The planning process