Strategy for Integrated Water Resources Management

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Contents

Introduction	1
Water Resources in Latin America and the Caribbean	3
Goals, Objectives and Characteristics of the Strategy6	
Goals Objectives and Characteristics	
Guiding Principles of the Strategy	8
Promote Comprehensive Subregional and/or National Water Resources Policies and Strategies Emphasize Institutional Innovation and Capacity Building Application of the Strategy: Attention to Both Short- and Long-Term Efforts for Bank Action Incentives for Involvement and Coordination Coordination and Cooperation with International Organizations	
Strategic Instruments for Integrated Water Resources Management	15
Cost Recovery, Capacity Building and Stakeholder Participation Decentralization Private Sector Participation and the Role of the Public Sector Tradable Water Rights River Basin Organizations Transboundary River Basins Application to Given Situations	
Operational Guidelines	21
Project Preparation Bank Financing Implementation of the Strategy Action Plan Summary	
References	25

Annexes

Annex I	Paradigm Shift Toward Integrated Water Resources Management	29
Annex II	Declarations Reflecting the International Consensus	30
Annex III	Different Forms of Private Sector Participation	31
Annex IV	Simplified Overview of the Strategy	32
Annex V	Initial Action Plan for Implementation of the IWRM Strategy	35

Abbreviations

ASCE	American Society of Civil Engineers
CELAA	Spanish acronym for Center of Water and Environmental Economics and Law (Argentina)
CESA	Spanish acronym for Ecuadoran Center for Agricultural Services
CESI	Committee for Environmental and Social Impact (IDB)
CRRH	Spanish acronym for Regional Water Resources Committee (Central America)
ECLAC	Economic Commission for Latin America and the Caribbean (UN)
EDI	Economic Development Institute (World Bank)
ENV	Environment Division (SDS/IDB)
EVO	Evaluation Office (IDB)
FAO	Food and Agriculture Organization (UN)
GWP	Global Water Partnership
IDB	Inter-American Development Bank
IDB-8	Eight general increase in the resources of the IDB
IFPRI	International Food Policy Research Institute
IHE	International Institute for Infrastructure, Hydraulic and Environmental Engineering (Delft, The
D. (A	Netherlands)
IMA NG TU	Spanish acronym for Water and Environmental Management Institute (Peru)
INCYTH	Spanish acronym for National Institute for water Science and Technology (now changed to National
	Institute for water and the Environment, Argentina)
IWRA	International Water Resources Association
	Integrated water resources management
	Inter-American water Resources Network
LAC	Latin America and the Caribbean
MINAE	Spanish acronym for Ministry of Environment and Energy (Costa Rica)
NAFIA	North American Free Trade Agreement
NGO	Organization of American States
ONU	Spanish coronym for United Nations Organization
	Spanish actonyin for United Nations Organization Den American Institute of Geography and History
	Spanish coronym for Lotin American Derliament
DIGMA	Spanish actonym for Solvederen Bessereh Dregrem en Develemment end Environment
	Spanish actoryin for Salvadoran Research Frogram on Development and Environment
NEA/EINA DIOC	Spanish coronym for International Network of Posin Organizations
SDS	Sustainable Development Department (IDP)
SDS	Stockholm Environmental Institute
SIDA	Swedich International Development Cooperation Agency
ΤΔΡΟΜΔ	Task Force for Portfolio Management (IDB)
IN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Education Science and Culture Organization
UNICEF	United Nations Children's Fund
US	United States of America
USAID	US Agency for International Development
WHO	World Health Organization (UN)
WMO	World Meteorological Organization
WWC	World Water Council
WWF	World Wildlife Fund

Introduction

In response to the mandates of the Eight General Increase in the Resources of the Bank, *this paper contains the strategy for its involvement in integrated water resources management in Latin America and the Caribbean.* The strategy applies to all Bank water related projects whether they have a government guarantee or not.

IDB-8 specifically calls for the Bank to "develop and implement guidelines on water resources management which support an integrated approach to watershed management based on consideration of all sources and uses of water in a particular river basin" (IDB, 1994).

It also calls for providing assistance to the borrowing member countries to develop viable fresh water sources and systems through a variety of initiatives, such as: developing and implementing guidelines; devising and employing integrated approaches that will converge over time upon least-cost solutions for investments in water resources development; identifying and preparing projects and project components, including water conservation programs; and encouraging better use of water resources and advances in water technology.

The period leading to the next century has been of rapid institutional change in LAC, including changes in policy, law and other institutions to increase efficiency and attain sustainability, allowing the participation civil society in making decision about issues that are important for the affected communities. Water is one, if not *the*, most vital of these issues.

Since its creation, the Bank has been active in water, predominantly financing projects in sanitation, hydropower, and irrigation and drainage, but also in other areas such as watershed management, flood control and waterway projects. Since 1961, the Bank has invested almost one billion US dollars per year in water-related projects, and this trend is expected to increase in the near future. The total amount of financing for water-related projects between 1961 and 1995 amounts to US\$32,270 million (in 1995 US\$) which is 25 percent of the total value of all Bank loans. Investments in hydroelectric projects dominate over the 35-year period (total US\$14,298 million), followed by investment in water supply and sanitation projects (US\$11,886 million). With increasing private investments and the creation of the Bank's private sector loan window, the emphasis on hydroelectric projects is giving way to other types of project-based generation more amenable to private sector investments. A similar situation has started to develop in water supply, although the effect of this in the Bank's pipeline is not yet apparent.

The Bank's investments have mostly been subsectoral and project-based; multipurpose projects have been the exception rather than the rule. However, useful lessons have been learned during the past 35 years, and some interesting trends can be noted both in LAC as well as in Bank financing of water-related projects. In particular, increasing attention has been paid to watersheds; to the quality of receiving waters; to management aspects in the water use subsectors; to concern for integrated water resources planning; and to financing private investments for the provision of services that for a long time were the sole domain of the public sector. Some of these, like hydropower, irrigation, water supply and sanitation, deal with the use of a common resource at both ends of the spectrum: the source of supply and the receiving bodies for the wastewater.

Despite advancements made to follow a water management approach when financing projects (water supply and sanitation, for example) one of the main problems still confronted is that the use of water resources has been regarded as one of production and consumption, and not one of integrated management, which would also include its links with other water uses as well as consideration of the quality of the water supply and of wastewater disposal (Corredor, 1996).

An international consensus exists that the efficient and sustainable use of water is one of the major global issues for the next century. Agreements have been reached about *what* should be done to achieve such purpose; namely, emphasis on integrated management, recognition of water's economic value, stockholder participation in decision-making, access to water services for the poorest users, ecosystem approach, and private sector contribution. Efforts are currently underway in different regions to reach agreements about *how* to do this since some of the proposed mechanisms are controversial.

The new elements brought in by the strategy therefore, focus on *how* the Bank:

- a. can incorporate elements of integrated water resources management into its water-related operations, in order to shift the emphasis of its actions in water resources from a project-based approach to increase supply to an integrated supply and demand management approach;
- b. using the instruments at its disposal, can help its borrower member countries to achieve integrated water resources management in order to:
 - < conserve water through a more efficient allocation of the resource;

- < solve conflicts among competing uses and users;
- < account for the social, economic and environmental value of water;
- < increase the participation of communities and the private sector in decision-making and financing.

The strategy focuses on *principles* and on the *flexible application* of *instruments* on a *case by case* basis. The strategy is also envisioned as a *continuum* involving a *succession of actions* of diverse nature, that does not start or end with this paper. It started with the strategy development and consultation process,¹ whose results are reflected in this document, and shall continue with an iterative implementation procedure, whose initial supporting actions are described in this document and whose results ought to be reflected and periodically evaluated in the field.

¹ The strategy draws from several background documents and consultations, both internally within the Bank as well as externally with international organizations, government water resources functionaries and NGOs. If interested in additional information and material, the reader is referred to the strategy study entitled *Integrated Water Resources Management in Latin America and the Caribbean* (No. ENV-123), and to the five *background documents* prepared as part of the strategy development process, available at SDS/ ENV, the REx/ENx and the Country Offices.

Water Resources in Latin America and the Caribbean

Water is the natural resource on which human life, food security and the health of ecosystems depend. The term *water resources sector* as used in this document refers to the portion of the hydrological cycle that provides overall economic, social and lifesupport functions to all possible needs for water, including economic, social and environmental needs.²

The region is well endowed with fresh water resources and ecosystems. It is basically a humid region. However, there are extreme variations in time and geographical availability within and between countries, as well as in the availability of surface and groundwater.

The use of water and the manner in which it is used varies by country and by water subsector. The principal *water resources subsectors* (i.e., those areas of the water resources sector that relate individually to specific economic, social or environmental activities that depend in whole or in part on water to fulfill their aims and goals) in the region as a whole are irrigation and drainage, water supply and sanitation including water transport of wastes, and hydropower. Navigation, prevention of natural disasters related to droughts and floods, fisheries, recreation, tourism, conservation of wildlife and of fresh, brackish and saline water ecosystems are also important in some subregions and countries. When water is extracted from its source for use, it is called extractive use or water withdrawal (not all withdrawals result in final consumption but water that is returned to the receiving waters has often undergone significant changes in quality). Extractive use of water withdrawals is mostly for agricultural purposes including irrigation and stock watering (which accounts for almost two thirds of total withdrawals; Davis, 1996), and for industrial and domestic uses. Although not an extractive use *per se*, the volume of water lost to evaporation from reservoirs is also important.

Water is also used without extracting it from its source, mostly for hydropower generation but also for other uses such as tourism and conservation of ecosystems. Efficiency varies between subsectors in both types of water use. Water use has not been homogeneous in the region and can be described as highly concentrated in a relatively few areas. One general characteristic is that about 90 percent of human population and activity are concentrated mainly in the region's dry and subhumid zones and in large cities. Much activity is also concentrated in coastal areas and for some Caribbean countries, the costal zone is of primary importance.

Although the overall availability of water has been considered generally constant, the per capita availability has decreased with time and quality has deteriorated with use causing "water stress" (UNDP/ UNESCO, 1995; Seragelding, 1995; Fernandez, 1996). In addition, water withdrawals and consumption are expected to continue to increase in the region (Davis, 1996). Based on projected population growth, a simulation model used by UNESCO suggests that the number of countries in LAC facing water stress could increase from three to eight in the next twenty-five years. The number of

² Although generically the water resources sector would also encompass coastal and marine brackish and saline waters, by common convention it refers only to major inland surface and ground water bodies such as rivers, wetlands, lakes and aquifers, mainly of fresh waters and only occasionally, of brackish waters. It does not specifically refer to water in other portions of the hydrological cycle such as precipitation, evaporation and evapotranspiration, or infiltration, although needless to say, they have to be accounted for and may be of similar importance in some specific instances and locations.

affected countries increased to fourteen when a projection on deteriorating water quality due to pollution was added to the simulation.

The forecasted increase in demand for human consumption and agricultural or industrial uses, as well as new and expanding uses associated with tourism in some countries, means that surface and ground water resources as well as coastal areas, will experience increased pollution, increasing conflicts between the established beneficial uses and between these and the new uses and the environment, endangering land, freshwater and marine biodiversity. The small island states of the Caribbean, with their high reliance on groundwater and interaction between inland and coastal resources, face a number of unique challenges.

These trends will also have a serious effect on the region's freshwater ecosystems. Extensive wetlands are being transformed into rice fields, and new technologies are being applied to drain native wet grasslands for plantations with little consideration for the long-term groundwater needs of these areas. Shrimp farms have also replaced once-extensive mangroves in certain areas and dams and channelization are also potentially undermining important wetland resources (Bucher et al, 1996). Also, valuable freshwater ecosystem functions and services have been mostly ignored and left out of water resources planning, resulting in their rapid deterioration or destruction. The benefits that they can provide to society in addition to water supply or flood regulation, such as protection from natural forces, micro-climate stabilization, global carbon sink, high rate of production per unit of land, habitats for threatened species, etc., usually have not been considered.

When population and economic development pressures were relatively low and water use conflicts both in quantity and in quality were relatively rare, emphasis was on subsectoral project-based water resources development,3 rather than on integrated (sometimes referred to as comprehensive) water resources management (IWRM). The aim of the actions and projects in an IWRM approach also include the allocation of water and reduction in the number of conflicts between competing water resource subsectors and uses, both in quantity and in quality (see Annex I). IWRM deals, for example, with issues such as how much water from a given source in a given watershed will be allocated to irrigation and how; how much to water supply and sanitation; how much to the environmental needs of ecosystems; how much should be left unallocated, etc. It is the process of diagnosing, responding to and resolving water use problems acknowledging their interrelationships.

The legacy of past fragmented approaches that treated water as an unlimited resource, are rapidly leading to increased conflicts, inefficient use and deterioration of this valuable resource (ASCE, 1996; World Bank, 1993; UNICEF, 1995; Asian Development Bank, 1995; UNDP, 1996).

Because of similar findings in other regions, a consensus has developed among professional associations and international organizations that current practices are not sustainable from either economic or environmental perspectives (Serageldin, 1995). Increasingly in LAC, the growing demands and scale of developments; the need to make the best use of scarce resources among competing uses, users and generations; the need to conserve water; the

³ As used in this document, the term *water resources devel*opment refers to projects or actions aimed at *increasing the supply* of water for one or more specific subsectors. They can be single or multi-purpose, depending on the number of beneficial uses of water for which the projects or actions are conceptualized, designed, operated and/or applied. *Integrated water resources management* involves projects and actions aimed at *increasing the conservation of water and the efficiency in its use* and by increasing complementarity and/or decreasing conflicts between competing uses, both in quantity and in quality, by managing both supply and demand and enabling adequate organizations, regulatory frameworks (laws, policies, strategies, plans, programs and rules) and human resources. For more information, see also Annex I.

Box 1 Main Water Resource Management Problems Identified in LAC

Main shortcomings identified in water resources management in LAC to whose solution the Bank could contribute:

- C The delivery of water services is typically centralized in government organizations and agencies which are often overextended, underfunded, and ill-organized to provide quality services, resulting, for example, in deteriorated infrastructure and low efficiency.
- C Regulatory approaches have been traditionally favored over marketing or other incentivebased approaches. Changes in management have occurred mostly through centralized government and without the participation of the stakeholders.
- C In many instances, water resources management legislation includes provisions which may no longer be relevant and may actually constrain new management initiatives. A more significant concern is the general lack of rules and regulations for monitoring and enforcing existing legislation.
- C Water resources management often is hindered by a lack of adequate and reliable hydrologic, meteorologic, and water quality data, as well as information on socioeconomic characteristics and indicators of water use efficiency and, in general, reliable indicators to be used as a basis in conflict resolution.
- C High rates of urbanization pose unique problems and challenges to water resource managers.
- C Water resources management activities are diffused and fragmented and, more often than not, divorced from environmental management. Water resources management is often hindered by ignoring the many ecosystem functions and services.
- C Water resources management often is hindered by shortage of adequately trained human resources at all levels.

SOURCE: (Lord and Israel, 1996; IDB/San Jose Proceedings, 1996; WMO/IDB, 1996; OAS, 1996).

need for environmental sustainability; the recognition that water has both an economic and a social value; and the fact that independent maximization of benefits for each specific use creates serious conflicts in quantity and quality, are the forces driving this shift. However, many obstacles have been identified that still hinder integrated water resources management in the region (Lord and Israel, 1996; IDB/San Jose Proceedings, 1996; WMO/IDB, 1996; OAS, 1996). Some of these are summarized in Box1.

Investments will still be necessary, but have ceased to be a sufficient condition to solve these problems. Lessons learned through the execution and evaluation of the Bank's water-related operations (IDB/EVO, 1996) have prompted changes toward subsectoral water resources *management* which have been lately reinforced by the recently approved Bank policy on public utilities (OP-708). However, drastic changes in attitudes and behavior are still needed in order to shift to an *integrated* water resources management approach (Annex I).

It is likely that the cost of Bank water-related investment projects to society could have been far lower if an integrated approach to water resources management had been followed. Increasing the emphasis on integrated demand management, for example, contributes to minimizing the size of treatment plants, supplies farmers with nutrient-rich water reducing fertilizer costs and generates revenue for wastewater treatment plants. Additionally, it allows for more fresh water to be used for other purposes such as human consumption and conservation. As can be seen in Annex I. IWRM responds better to the requisites that water activities need in order to be environmentally conscientious and sustainable. Therefore, a Bank strategy is needed for the following reasons:

! to support the process of sustainable changes for the implementation of the well-known and recognized principles of integrated water resources management which are derived from declarations, such as the Dublin principles, that reflect the international consensus (Annex II);

- ! to apply the best-suited methods for allocating physically limited and economically valuable water resources among competing needs;
- ! to promote efficiency in water use;
- ! to balance highly water consuming productive activities and highly polluting societal water uses in municipalities and industries with long-term environmental conservation needs;
- ! to properly assess how much water is available for meeting expected demand and evaluating the impact of development works and pollution on the water system in particular and the environment in general; and
- ! to help bridge the gap between what is technically desirable and what is socially and politically feasible.

The strategy poses a comprehensive, incentiveoriented, participatory and environmentally conscientious approach that emphasizes integrated management in the Bank's water-related operations.

Goals, Objectives and Characteristics of the Strategy

Goals

The goals of the Bank's strategy are to support water resources conservation through a process of change regarding water resources issues; namely, *a shift from development to management and from a sectoral to an integrated approach* following the accepted principles of the Dublin Declaration, Agenda 21, the San Jose Declaration and the Declaration and Action Plan approved by the Heads of State at the Summit of the Americas on Sustainable Development held in Santa Cruz de la Sierra, Bolivia, in December 1996.

These changes, which have already been initiated in the region, aim to:

- ! conserve water through more efficient ways to allocate the resource giving due consideration to social equity issues;
- ! find better ways to solve conflicts among competing uses and users, including environmental uses and freshwater ecosystem functions and services;
- ! account for the social, economic and environmental value of water in the process of sustainable development; and
- ! increase the participation of communities and the private sector in decision-making and financing.

In addition, the Bank will be sensitive to other goals that individual countries may have regarding water resources management, such as strengthening regional⁴ trade, reaching agreements on the use of transboundary water resources, strengthening sub-regional links among groups of countries, or using natural advantages for subregional development.

Objectives and Characteristics

The strategy is meant as a guide for the Bank's involvement in integrated water resources management in Latin America and the Caribbean. Its aim is to enable the inclusion of critical aspects of integrated water resources management related to each country's water resources sector in general in the Bank's water-related operations.

To this end, the strategy focuses on *principles* and on the *flexible application* of *instruments*, not on the instruments themselves, such as privatization, tradable water rights, river basin councils, community participation, watershed management, or investments in civil works. How the Bank chooses to use these instruments for the objectives it has chosen to pursue, needs to be clearly identified and agreed to with each country on a *case by case basis*.

However, the dialogue with the countries will not be passive, in the sense that information on the local conditions will be obtained, but at the same time, information about how these instruments operate will be given to the countries.

⁴ As used in this document, *regional* refers to Latin America and the Caribbean, *subregional* refers to a group of countries such as the Caribbean, Central America, etc., *national* refers to a country in particular, and *subnational* refers to a specific area within a country.

The strategy is *flexible* despite the fact that it provides guidelines for the analysis of water-related Bank projects. Different countries and regions within countries may be at significantly different levels of development and management with respect to water resources. As a result, they may have very different needs and very different resources available to address water problems. The Bank will strive to work within the *existing* political, legal, economic, and socio-cultural frameworks and management propose institutional and legal changes in the water resources sector, when necessary.

The strategy is also *adaptive* and recognizes that different water use problems as well as the conservation of freshwater ecosystems may be structurally different, each requiring very different approaches. It is a *problem-solving* strategy that recognizes the substantial contribution that the Bank can make to decisions about water resources in LAC.

Guiding Principles of the Strategy

The following principles that comprise the general philosophy of the strategy for the Bank's involvement in integrated water resources management will serve as a guide for the development and implementation of Bank assistance programs in the water resources sector.

Promote Comprehensive Subregional and/ or National Water Resources Policies and Strategies

The relationship between a country's water resources and its socioeconomic development is intricate. The diversity of hydrologic regimes, legal and administrative infrastructure, relative degrees of development, cultural characteristics, social aspirations, investment priorities, and geographical conditions precludes the development of a general water resources strategy for all subregions or even for all countries within a subregion.

There is little hope for improved water resource management in LAC countries unless the countries possess national policy and legal environments which conducive to effective water resource are management. Formulation of national water resources strategies should begin by evaluating the effectiveness of existing top-level organizations, current legislation and policies, and unique administrative and governmental features. The result of this exercise would be a national water plan, that is, steps aimed at removing existing bottlenecks for effective integrated water resources management. Several international organizations (World Bank/ Frederiksen et al., 1994; World Bank/Le Moigne et al., 1994; FAO/World Bank/UNDP, 1995; FAO, 1995) have established guidelines for developing national water resources management strategies.

A major component of the national strategies will be a focus on subnational or basin level water resources management. This requires a careful identification and assessment of available water supplies, projections of future use (including ecological uses) and the presentation of development options and their potential impacts (water budgets or balances) as well as the establishment of water rights systems and ways to assign them that are socially and politically feasible. Economic efficiency should be sought but equity and environmental considerations must not be sacrificed.

The strengthening and/or rehabilitation of hydrometeorological collection networks and the building of capacity to properly quantify and forecast hydrometeorological events such as floods and droughts caused by phenomena such as hurricanes and the El Niño Southern Oscillation, are of importance not only for this purpose but also for disaster prevention and mitigation.

A basin-level water resource management approach also requires the consistency of each new activity or project with the overall basin plan or program.

To satisfy short-term needs, and still ensure a reasonable prospect of consistency with future comprehensive national strategies and river basin management plans, procedural consistency requirements will be based upon the conduct of a problem assessment process to ensure that the proposed project could effectively solve real problems.

Available resources, both financial and technical, cannot support the simultaneous undertaking of national water resource assessments in each of the LAC countries, nor would every country be equally receptive to performing such an assessment. Undertaking subregional assessments or just a few at a time (perhaps in the wake of drought, serious water contamination, or other water use problems), offers the additional advantage of testing and modifying the program as experience with is gained.

To focus on subregional and/or national characteristics, the Bank will consider a series of assessments, with the participation of the stakeholders, aimed at developing integrated subregional and/or national strategies for managing water resources at the sub-regional or basin level and/or improving policies and laws in this sector.

Emphasis on Institutional Innovation and Capacity Building

Priority must be given to institutional analysis and change, both within the water use subsectors and the water resources sector, over or on a par with building physical infrastructure. Water resources management does not only consist mostly of institutional design and implementation, but even the successful operation of individual projects depends fundamentally upon having appropriate institutions in place.

Many of the activities involved in integrated water resources management (demand management, community participation, or the preservation of ecosystems, for example) have little to do with building projects. A continued focus solely on infrastructure projects will fail to identify needed institutional changes.

A shift from subsectoral to integrated approaches, and from development to management will be easier for some LAC countries than for others. Many factors may work against change. Nevertheless, this shift in focus must be recognized as the first step in improving water resources management, for water institutions must be inventoried, characterized, and analyzed just as explicitly, comprehensively, and carefully as hydrologic and economic conditions. From a generic point of view, taking into consideration the lessons learned from the evaluation of past Bank water-related operations (IDB/ EVO, 1996), and given the present major shortcomings and trends that have been identified in LAC (Lord and Israel, 1996; IDB, San Jose Proceedings, 1996), the following basic principles can be enunciated: (I) the regulatory function of the water resources sector should not be housed within any of the water use subsectors; (ii) the water resources entity should favor a "two-track" approach⁵ to allow for effective community and user participation; (iii) it should favor an incentive-based approach for water allocation among competing uses, avoiding a vertical, mainly top-down discretionary approach; (iv) it should facilitate the participation of the private sector in the appropriate water use subsector; and (v) it should favor an integrated approach for water resources management, giving due consideration to ecosystem services and functions.

Some examples are presented in Table 2. However, it is strongly emphasized that real individual solutions must evolve from the analysis of specific situations. Specific solutions should be sought, and tailored, for these situations through a problemsolving approach using an analytical framework such as the one presented in the Operational Guidelines Section of this paper.

The Bank will assist the LAC countries in building or improving their water resources capabilities at all levels at which actions take place and decisions are made. Special attention will be paid to the organizations that will assume the responsibility for managing water resources as a consequence of decentralization, and the entities whose role will be merging macro and micro concerns.

The Bank is aware of existing institutional biases that prevent the full participation of women in the solution of water resources issues, and will take that into consideration. Training and education will cover

⁵ Considering both the "top-down" (macro concerns) and "bottom-up" (micro concerns) approaches.

all levels, and special attention will be given to training those persons who will be assuming water management responsibilities. Since women play a central role in the provision, management and safeguarding of water, especially at the community level, all capacity building programs should have a strong gender content to create an enabling environment so that the recommendations of Table 2 (sections A.12 and B.15) can be put into operation.

Building institutional capacity and efficient, effective management is not a one-shot affair. It needs to be systematic and continuous. Capacity-building can be carried out through existing specialized institutes in LAC that could serve as think tanks, researching and analyzing capacity-building projects in their regions. The Bank will build capacity by helping and promoting the financing of two types of activities: the creation of a knowledge base for institutional innovation, and training for country water resource professionals in multidisciplinary analysis methods.

Application of the Strategy: Attention to Short- and Long-Term Efforts for Bank Action

Developing an institutional structure in the water use subsectors and the water resources sector, which will lead to improved water resources management is a long run, indeed, never-ending process of experimentation, adaptation, learning, and improvement (Lord and Israel, 1996). Public and private decisionmakers need time to change ways of thinking and acting that have been long established. Likewise, the water users themselves need time to adapt to changing water management measures, practices, and rules. Furthermore, enacting farreaching changes in national or subnational water policies and laws should not be done in haste. It requires serious analysis and informed debate by representatives of all major stakeholder groups.

There is little prospect that country interest in loans for individual water resource development projects in the traditional mold will cease just because the emphasis of international aid programs and lending organizations shifts away from such projects and toward water resource management (Lord and Israel, 1996). Nor should there be a hiatus in funding such projects unless and until a comprehensive national water strategy has been adopted or until river basin management plans are far enough advanced to produce project plans. There will be certain projects which are so obviously and urgently needed (like community water supply or municipal wastewater treatment facilities for example), that no national strategy or river basin management plan will be required to confirm their desirability. Nevertheless, current knowledge concerning what constitutes good water resources management should play an increasing role in generating and evaluating proposals for them. However, it is the strategy, not the projects themselves, that needs to be comprehensive using the river basin or watershed as the natural evaluation, planning and management unit.

The Bank will encourage the development of medium- to long-term water resources programs that can be implemented in phases to reach specific goals at specific times, while encouraging and facilitating the long-term process of institutional innovation in LAC countries, both for IWRM as well as for natural disaster prevention and mitigation. It will also continue to fund short-term or quick-response projects to solve immediate and pressing water use and conservation problems, but will institute increasingly stringent requirements for good integrated water resources management. Eventually, conformity with an integrated national water resources management strategy based on the river basin as the management unit will be a condition of all loans for water-related projects on a case-by-case basis.

Incentives for Involvement and Coordination

Country Involvement

Country involvement is critical to the success of integrated management efforts, not only in the institutional analysis, but in the evaluation of the costs and benefits of proposed projects. Traditional lending practices have been oriented to increasing water supply or wastewater treatment projects that, at least in principle, result in marketable products. Governments are willing to borrow for such projects even though the loans are not directly guaranteed by potential returns. On the other hand, some activities, such as the conservation of freshwater ecosystems, do not generate a revenue stream and may even diminish revenue expectations. However, such measures may be justified on the basis of their potential reductions in costs. The Bank will support the development and use of analytical procedures that yield the future costs and benefits of noncapital projects such as those whose aim is the conservation of freshwater ecosystem functions and services. These procedures would not only fairly display the long-term value of such measures, but could become the basis for evaluating loan programs.

All water-related projects will, in principle, be eligible for funding. However, within their realm, the Bank will assign higher priority to financing meritorious and promising proposals within an IWRM framework, including urban water supply and sanitation projects, and projects to conserve freshwater ecosystems. Other investments and activities that will be eligible for priority funding include protection of upstream and downstream resources, water quality and aquatic ecosystems; strengthening of hydrometeorological networks for water resources assessments and natural disaster prevention; and technical cooperation activities for restructuring the water resources sector and building institutional capacity. Other types of incentives could be tailored to encourage different types of improvements in integrated management.

Coordination Within the Bank

This strategy is a *Bank-wide operational strategy* and thus involves the Bank's Operational Regions and the Central Departments. By not proposing a unique and "must do" line of action, but rather showing a spectrum of possibilities within an agreed upon path leading to agreed upon goals (validated as much as possible by consultations with the member countries and nongovernmental organizations) it seeks to coordinate, not dictate, individual approaches.

Although not unique to this strategy, the need for coordination is emphasized. Incentives will be considered so that Bank operations groups will cooperate and coordinate their individual approaches to water resources management and strive for consistency in how the various instruments at their disposal are used. Incentives will have to be created to encourage a transition from project lending to successful project implementation.

Water resources management affects numerous sectors and activities for which the Bank already has or is developing an implementation policy or strategy, including Public Utilities (OP-708), Sanitation (OP-745), Public Health (OP-742), Environment (OP-703), Disaster Mitigation (OP-704), Urban Development (OP-751) and Rural Development (OP-752); as well as those for which strategies have or are being developed, such as Delivery of Social Services, Resettlement, Coastal and Marine Resources, Energy, and Rural Poverty.

These policies and strategies deal with water-related issues in their specific water use subsector. The links with other water use subsectors are not within their scope. The IWRM Strategy is consistent with, and supports, the principles of these policies and strategies, and provides those links as well as the links to the hierarchical water resources sector.

Coordination and Cooperation with International Organizations

The technical assistance and financial incentives tools at the disposal of the Bank and other international agencies can be most effective if used in a cooperative and coordinated manner. The Bank will actively seek to coordinate its water resources management approaches and activities with all the major lending and technical cooperation agencies involved in the region, such as the World Bank, UNDP, UNESCO, the World Meteorological Organization (WMO), and other bilateral donor country water resources organizations. It will also seek to participate actively in global IWRM organizations such as the World Water Council (WWC), the International Network of Basin Organizations (RIOC) and the Global Water Partnership (GWP), through its normal regional LAC activities.

Transboundary water resources can be important elements in subregional integration and development processes in some countries. Even when the direct or market economic value of some shared resources is marginally significant, their environmental value and the need to protect them will require international cooperation and coordination. Support provided by entities such as the Organization of American States, ECLAC, the Latin American Parliament (PARLATINO), the Pan American Institute of Geography and History (PAIGH), or the Central American Regional Water Resources Committee (CRRH), for example, can be instrumental in establishing new treaties; facilitating the continued operation of existing agreements; and promoting cooperation among the public, private, and nongovernmental entities that may be involved. The Bank will seek their collaboration.

Strategic Instruments for Integrated Water Resources Management

Much of the literature on water resource management advocates such instruments as cost recovery, capacity building. stakeholder participation, decentralization, private sector participation, tradable water rights and river basin councils to solve a wide range of water use problems. Although a consensus exists about the use of most of them, there is a plurality of opinions on the inclusion of instruments like water markets and privatization, or river basin councils. The strategy supports the application of all of them as tools to solve particular problems. However, it is not the purpose of the strategy to specify the use of any one of these measures, that is, the strategy does not generally encourage or discourage their use. These conclusions should emerge from the national assessments and evaluations of local conditions and problems.

Cost Recovery, Capacity Building and Stakeholder Participation

There is little discussion about the soundness of searching for cost recovery mechanisms as a basis for financial sustainability, and that capacity building may be a needed prerequisite for successful IWRM. There also appears to be a general agreement that certain instruments, such as stakeholder participation, should be part of all integrated water management strategies, and the Bank supports it in this and other sectors.

Stakeholder participation may take different modalities according to the level at which actions take place and decision are made. It is especially important at the project level, where water user's problems are resolved. Water resources institutions must be able to integrate these needs and concerns into a broader picture shared at the top in a "twotrack" approach. In this manner, civil society representatives can be empowered as decision makers and partners in project execution and monitoring, and in the management and conservation of water resources.

Decentralization

One of the Dublin principles⁶ states that decisions should be made at the lowest *appropriate* level. But it is important to keep in mind that this does not mean that decentralization must be achieved at all costs and to the *lowest possible level*. For example, recent subsectoral attempts at piecemeal decentralization, decision making by isolated user groups or sectors, and privatization experiments in hydroelectric power generation, irrigation and water supply, have increased the fragmentation of the entities that administer water resources at the subsectoral level, making it more difficult for them to manage the process and reinforcing the need for coordination and for taking a more integrated approach to water resources management (Davis, 1996).

It is also important to keep in mind that those who will be made newly responsible for the provision of water services at lower decision levels, such as municipalities, user groups or rural communities, should be capable of deal with them successfully. There is a strong connection with the need for *capacity building* in the decentralization process, and *the Bank will support it as a pre- or co-requisite* for decentralization in the water resources sector and subsectors.

⁶ See Annex II.

Private Sector Participation and the Role of the Public Sector

It is generally accepted that privatization can have considerable economic benefits. Moreover, increased private sector participation in water-related public utilities is the stated policy in many LAC countries (ECLAC, 1995). However, in general terms and for the region as a whole, it is still incipient and in most countries the greater part of the infrastructure is still managed by the public sector (ECLAC, 1997).⁷ It is important to note that historically, many water-based services such as electricity generation, drinking water supply, and irrigation, were provided by the private sector and it was not until the 1920s that these services were turned over to the states or municipalities, and not until the 1940s (and in some countries even the early 1950s) that agencies of the central government undertook that responsibility (Lee, 1990). And it is only since the 1970s and early 1980s, beginning in Chile, that Latin American and Caribbean governments have started to transfer many public companies to the commercial private sector to try to overcome problems such as poor management and lack of cost recovery (ECLAC, 1995; European Commission, 1997).

There are many reasons indeed to believe that private enterprises will be more efficient than public enterprises,⁸ as discussed in ECLAC (1995). "A perception has developed that donors regard the turning-over of state-run water-related functions as a panacea for efficiency gains" (European Commission, 1997). However, the provision of water services, especially water supply and sanitation, tends to be a natural monopoly (ECLAC, 1995) and countries are faced with difficult decisions, such as:⁹

- ! continue provision through a public enterprise, although capital shortages are prompting the consideration of other alternatives;
- ! encourage autonomous, self-governing voluntary cooperatives, although this has worked better for small systems in rural areas and small towns;
- ! accept that paying monopoly prices for a high quality service may be better than continuing with an inferior service; or
- ! transfer services to private management and use regulatory policy and instruments as a means to influence private sector behavior.

Although some still favor the first alternative, the last alternative mentioned above is being increasingly considered by many countries in the region. This requires the establishment of an appropriate system of incentives to guide economic decisions in the private provision of water-related services under conditions of natural monopoly, where the regulator acts as a substitute for the market, attempting to provide similar incentives (ECLAC, 1995). Under such conditions, the importance of strong public institutions capable of maintaining an adequate regulatory framework in place cannot be overemphasized. "There is clear evidence that, under regulation, some kind of private sector involvement is beneficial to users." But where regulation is limited or unenforceable, it may genuinely be that transfer to the private sector is either not viable or undesirable (European Commission, 1997).¹⁰

⁷ Although private investment is increasingly common in small water supply and sanitation systems, especially in Caribbean resorts and high income suburban developments, and ambitious plans are abundant, there are limited examples (largely limited to countries such as Argentina, Mexico or Trinidad & Tobago), in which management responsibilities for major water supply and sanitation systems have been transferred to private companies (ECLAC, 1996, 1997).

⁸ Such as reduced political interference, strengthening property rights and providing incentives to reduce costs, avoiding concentration of ownership, and providing more effective financial management.

⁹ There are various forms for private sector participation in the water resources sector. These are summarized in Annex III. More information can be found in ECLAC, 1995 and 1996.

¹⁰ Furthermore, some fear that "where regulation is limited or unenforceable, an uncontrolled private sector can be predatory, exploiting the vulnerability of the poor" (Euro-

The Bank's public utilities policy (OP-708) includes important objectives and conditions that must be met for it to succeed, such as the separation of policy, regulatory and provision functions, an adequate legal and regulatory framework, an enabling subsectoral institutional structure that promotes competition, and strong political will from the government. The mere transfer of assets and institutions from public to private management is not enough. Moreover, the privatization of water services forces а reconsideration and readjustment of the role of the state in water management. It completely changes the demands on the public water management institutions and calls for a thorough reconsideration of the water management policies of the past (ECLAC, 1995). This situation also requires the strengthening of the capacity of public sector organizations to meet their new role.

Lately, many new opportunities for private sector involvement are appearing, besides the traditional hydropower, water supply and sanitation, and irrigation water-related services. Data gathering and processing, wastewater treatment, recycling of wastewater and agricultural return flows, and new environmental technologies in general, are fields now benefitting from the innovative entrepreneurship of the private sector. This should be encouraged whenever conditions are favorable.

But as with the rest of the instruments described in this section, private sector participation in the water resources sector should not be seen as a panacea nor as an end in itself, but as a valuable instrument that can help reach further objectives, such as better service and broader coverage of water supply and sanitation, for example. Within that context, the Bank will support and encourage private sector participation and better public sector enabling and regulatory capabilities in all water-related activities and services, as an important component of broader actions for the modernization of the water supply and sanitation, hydroelectric and irrigation subsectors, as well as the water resources sector as a

pean Commission, 1997).

whole.

Tradable Water Rights

The shift to IWRM represents a move toward economic efficiency, together with a need to protect the environment and to manage the political and social effects of resource allocation (Streeter, 1997). Every LAC country, according to its constitution, laws and/or tradition, has a system for assigning water to users.¹¹ The criteria for allocation or reallocation of water rights must be part of any IWRM policy or strategy.

Tradable water rights is a favorite tool of resource economists. If water markets are adequately implemented, they can provide a method for reallocating water from low-value to high-value uses, increasing economic efficiency. However, a number of conditions are necessary for successful implementation.¹²

Streeter (1997) suggests that the areas where a water rights market could most readily be developed need to meet the following criteria: (I) limited availability of "new" water; (ii) hydrological conditions which allow the change of the point of withdrawal; (iii) reasonable size of resource area with identifiable

¹¹ In some countries water is linked to land ownership and in others, water is in the public domain and permits or rights for use or disposal of wastes are assigned. As long as there is or was enough water in a given watershed or region, problems were minimal. However, as demand increases and exceeds supply and more licences or concessions are given for withdrawals and disposal than is considered sustainable, pollution, dried-out wetlands, low-flow rivers, low water tables and user conflicts arise. Then the re-allocation of resources from lower-value to higher value uses becomes an alternative (Streeter, 1997).

¹² For example, the California Water Plan (California Department of Water Resources, 1994) states that: (I) water rights transfers must be voluntary, result in a real transfer of resources, must not impair rights of sellers, must not harm fish and wildlife habitats; (ii) will not cause degradation of ground water basins; (iii) efficient use of existing water supplies must be demonstrated by those receiving the transfer; and (iv) impacts on third parties, especially small agricultural communities must be considered.

geographic boundaries; and (iv) increasing demand with large number of traders.

Identification of a water scarcity problem in a national assessment,¹³ supported by feedback from previous experiences and good practice analyzes, could lead to a recommendation for institutional changes to facilitate water marketing and thus allow scarce water resources to flow to their economically most valuable uses. The Bank might then require that the changes in water resource management rules which would permit water marketing also contain provisions for long-term viability, for avoiding monopolistic tendencies by effective beneficial-use clauses, for avoiding environmental degradation, and for assuring maintenance of adequate potable water supplies for the poorest users; goals which unconstrained free markets might fail to achieve.

The advantages and disadvantages of this instrument were discussed in a seminar organized by the Bank,¹⁴ where most of the participants agreed on the following major points and caveats:

- ! Countries have individual characteristics and specifics, thus there are no universal "cookbook" approaches to water management, a point policymakers and advisers should bear in mind when implementing schemes for water resources management.
- ! When water is truly scarce, current systems of administration based on public administrative decision-making usually result in inefficient

allocations of water and alternative mechanisms for reallocation should be considered.

- ! Water markets are an economic tool that, if adequately implemented, provides a method to reallocate water from low value uses to high value uses, resulting in economic efficiency gains.
- ! Water market transactions must recognize third party effects and the market should function under a regulation that ensures compensation to third parties negatively affected by market transactions.
- ! Water markets have an impact on public goods such as environmental quality. The implementation of the market should include ways to protect environmental quality. It should also protect social and cultural values that will also be affected by the market.
- ! Water user associations play a significant role in functional markets and should therefore be strengthened. Without water user supervision, it is unlikely that the market will provide its stated benefits.
- ! Transaction costs must be minimized. Otherwise, water markets will fail to transfer the commodity from low value uses to high value uses.
- ! Any water market should limit individual or cartel market power. The existence of monopolies inhibits an efficient allocation of water resources.
- ! There are certain conditions necessary to implement a successful water market. Certain capabilities should exist. Among them are an adequate legal framework (water law), a minimum institutional setting that guarantees transparency and credibility, and a competent system of information that reduces transaction costs.

¹³ Such as in an arid or semiarid region where water resources are scarce and large water uses such as irrigation are important.

¹⁴ Seminar on Economic Instruments for Integrated Water Resources Management: Privatization, Water Markets and Tradable Water Rights, held at Bank headquarters on December 2, 1996 (IDB/Washington DC Proceedings, 1996). A more complete discussion about the advantages and disadvantages of these and other measures, and examples of experiences in the US and some LAC countries can be found in the seminar's Proceedings and in IDB/ San Jose Proceedings, (1996).

! If the effective beneficial-use clause¹⁵ is required for parties in the market, it must be clearly defined in order to avoid bureaucratic problems due to a variety of interpretations. However, its use is not incompatible with water markets.

River Basin Organizations

The watershed or river basin organization approach is another example of an incentive-based participatory mechanism for solving conflicts and allocating water between competing users or uses. In some instances it has been considered as an alternative to market allocation (Kelman, 1996), such as allocation by consensus. However, it is an economic allocation and not entirely incompatible with market allocations since the organizations assign value to the different uses and may decide, by consensus, to leave water allocation to the market within the irrigation subsector, for example, or between the water supply and irrigation subsectors.

The watershed or river basin organization approach is recommendable to establish integrated water resources management strategies and to plan for national and subregional assessments of water resources.

It may also be advisable to establish basin committees or councils to coordinate the actions of several overlapping national organizations and administrative jurisdictions. The basin committees can also promote the role and responsibility of the various interest groups in the basin and facilitate coordination as a problem-solving mechanism. It may also be a useful mechanism for achieving greater stakeholder involvement and to agree on schemes to account for opportunity costs. *However, it does not mean that basin committees or councils must be established across the board.*

Transboundary River Basins

Many countries in Central and South America are highly dependent on transboundary waters because the origin of most of their water resources is not within their territory. At the highest level, the LAC countries have expressed the high priority given to the sustainable use of water resources, including through the use of existing transboundary agreements.¹⁶ Situations in which rivers and lakes border multiple countries, rivers flow from one country to another, and aquifers underlie more than one country are numerous and represent potential sources of conflict.¹⁷ Notwithstanding international efforts,¹⁸ there are no clear property rights and universally accepted conflict resolution rules pertaining to transboundary water resources.

However, agreements for "equitable and reasonable use" have been reached through lengthy negotiations. The ministries of Foreign Affairs of some countries, like the United States, Mexico, Guatemala and El Salvador, have established bilateral boundary and water commissions with their neighboring countries. Others in South America, have created bilateral or

¹⁵ A clause that requires the buyer to use the water for any beneficial-use of water within a specified period of time, or the right will be lost.

¹⁶ Sustainable Development Summit, Santa Cruz, Bolivia, December 1996; meeting of Ministers of Environment, Peru, March, 1998.

¹⁷ Frederick (1996) identifies two theoretical doctrines: (i) *unlimited territorial sovereignty*, which would give a country exclusive rights to the use of waters within its territory, and (ii) *unlimited territorial integrity*, in which one country cannot alter the quantity and quality of water available to another. In practice, upstream countries would tend to favor the first while downstream countries would favor the second.

¹⁸ The International Law Association's Helsinki Rules dating from the mid-sixties was a serious attempt. The United Nations Convention on the Law of the Non-navigational Uses of International Watercourses was approved in May 1997 by the General Assembly with 103 votes in favor, 3 against and 27 abstentions. To date, only seven countries have ratified it. However, both of these provide general principles and rules that could guide States in negotiating future agreements on specific watercourses.

trilateral river basin commissions.¹⁹ In the subregional domain, this approach may be useful in solving problems related to the management of the water resources of transboundary river basins, as a vehicle to promote subregionally coherent water policies and legislation. This may become increasingly ne-cessary given present globalization and integration efforts and trends.²⁰

Every water-related project in a transboundary river basin will include an evaluation of its effect on the water resources and the environment on the entire basin. The legitimate interests of the countries involved will be taken into account. The Bank will support and encourage all IWRM initiatives in transboundary river basins agreeable to the countries involved, especially but not exclusively, the formation of transboundary river basin organizations. The experience, expertise and collaboration of regional organizations such as the OAS will be sought.

Application to Given Situations

Most of these strategic instruments have been widely promoted throughout the region, yet they remain underutilized. Nevertheless, it must be understood that none is a panacea. Each is feasible in some situations and not feasible in others. Each is a promising solution to some problems and is likely to be ineffective in solving others. And, each is really a general term, within which considerable variation may occur (Lord and Israel, 1996). What is important is to determine how and in what contexts to adopt and implement these strategic instruments, and in what specific forms. The potential success or benefits of these measures should be evaluated relative to existing conditions in Latin American and Caribbean countries and the possible long-term impact they could have on integrated water resources management, not only on the conclusions of theoretical models.

The solution process should assess how local political, institutional, technical, economic and financial conditions match the requirements for successful implementation of the instrument under consideration.

¹⁹ The watershed approach is also now under consideration by the U.S.-Canada International Joint Commission (American Geophysical Union, 1998). These mechanisms fall within what Samson and Charrier (1997) categorize as the "prevention" side of conflict resolution before diplomatic action, which would be the mildest form of a "resolution" effort, before open dispute arises. However, these actions are not linear and a dispute may give origin to these institutional mechanisms to prevent further conflict.

²⁰Frederick (1996) proposes the introduction of markets to promote a more efficient way to allocate water resources located in transboundary basins, but notes that the obstacles for this are at present formidable, and recognizes that achieving a sense of equity among the countries involved may be a more realistic short-term goal than economic efficiency in settling international disputes.

Operational Guidelines

This section gives operational guidelines on how to integrate the principles of the strategy with the operational plans of the Bank, using the *operational instruments already at the Bank's disposal*.

Project Preparation

At any moment during the project cycle of waterrelated Bank projects, an assessment will be made by the project team, based on the analytical framework described here,²¹ to identify the concrete situations and opportunities for solving integrated water resources management problems and implement the appropriate corrective measures, if needed. These will be incorporated into the proposed project(s) if possible, or recommended for future Bank action.

To facilitate this task, subregional and/or national water resources assessments, based on this analytical framework, followed by national integrated water resources management strategies will be encouraged, and the Bank will collaborate to this end with interested countries and other organizations. When appropriate, these assessments will also include estimation of water balances by watersheds or river basins and the strategies will include data collection programs.

Before major expenditures are authorized, proposed projects and programs will be evaluated using the analytical framework at the operational or *water use level*, the organizational or *water resource management level*, and the constitutional or *water policy and law level* (Lord and Israel, 1996). This is especially important in those projects where assurances of a dependable water supply, private sector involvement, public sector modernization and user participation is needed for the project to reach its intended goals and objectives. Examples of situations to analyze at each level are as follows:

a. Water Use:

- ! Problem Identification and Classification. What is the nature and type of problem the proposed project is intended to solve? Does it affect any important freshwater ecosystems? What are the main functions and services of these ecosystems?
- ! *Actors*. Who are the actors (public sector, civil society, private entrepreneurs) and what is their role in decision making and execution of the project?
- ! *Environment*. What are the principal characteristics of the water use environment that will shape the actions of the actors?

b. Water Resources Management:

- ! *Rules and Their Effectiveness.* What rules are now in place for utilizing water? for solving use and conservation conflicts? for allocation between users and generations? for water quality control? water resources development, con-servation and/or management? How effectively do they address the social, economic and environmental causes of water conflicts?
- ! *Approach*. Is the approach project-based, subsectoral, or integrated? Does it prioritize development or management, or includes both? Is it isolated, watershed or river basin oriented? Does it consider upstream and downstream uses and effects, including coastal areas if appropriate? Are there any groundwater

²¹ The analytical framework (Lord and Israel, 1996) uses a structured problem-solving approach that aims to improve problem identification and to avoid implementation of inappropriate measures.

resources and water quality issues and are they considered?

- *Actors.* Who are the actors involved in applying these rules and approaches and what role does each play?
- ! Coordinating Mechanism and its Effectiveness. What mechanism is in place to coordinate the implementation of rules, approaches, and decisions? How effective is it? What is its relationship to environmental entities at other levels? Does it adequately merge micro concerns at the operational level with macro concerns at the constitutional level (merging "top-down" and "bottom-up" approaches)?
- c. Water Policy and Law:
- ! Are there, at the highest political level, adequate country-wide policy and legal instruments that facilitate an integrated approach to managing water resources? Are there important constraints that prevent it? How could they be eased?

Actions at the operational or *water use* level affect the environment and are aimed at improving social well-being and the preservation of ecosystems. In a simplified manner, solving these problems is what water resources management basically is, and requires changes in water use rules, which must be applied at the *water resource management level*. Creating an effective set of water resource management rules requires action at the *water policy and law level*.

To identify the integrated water resources management problems and propose the appropriate corrective measures, the Bank will promote realistic (from the social and political points of view) commitments from the highest possible political authority for each level.

At the water use level, such commitments will be sought for the restructuring of the water resources sector, so that representatives of civil society are empowered as decision makers, and as partners in project execution and monitoring and in integrated water resources management and conservation.

At the water resources management level, commitments will be sought so that the coordination of the integrated water resources management approach (including the merging of the "top-down" and "bottom-up" approaches) is made through an independent regulatory entity outside of the wateruse subsectors.

At the water policy and law level, commitments will be sought for necessary changes to be made (policies and/or laws) so that policy and legal instruments that facilitate an integrated water resources management approach are in place and/or constraints are eliminated.

For all three levels, and commensurate with the nature of the project, the project teams will identify what is already being done in the country to that end, and assess how the Bank can contribute effectively to this by the project at hand or by any parallel or complementary operations, and identify the actions and resources needed for that purpose.

Programming Missions and Country Papers

The country dialogue is a useful instrument at the constitutional or water policy and law level, to create awareness of the changes that need to be made. It is also useful for disseminating the objectives and goals of the strategy. Dialogues can be used not only by Bank programming missions, but also at any time by country divisions, field offices, and/or identification and orientation missions. The commitments that emerge will be used to define the Bank water resources sector strategy for the country within the country papers. Issue papers, or other similar documents can also be used.

Bank Financing

The Bank has several financing instruments that can be used to assist borrowing member countries achieve improvements in integrated water resources management (see Annex V). These are briefly reviewed below.

Country and Regional Technical Cooperations and Trust Funds

Whereas technical assistance is more important than financial assistance in the analysis and decisionmaking phases of basin-level management, financial assistance becomes the most important tool for international organizations to use in the implementation phase. Country and regional technical cooperations and trust funds will be used at both the constitutional and organizational levels. The interlocutors will involve deputy ministers, directors, middle managers, water resources sector regulatory and coordinating entities, private organizations, river basin councils, and user and community groups.

Sector and Hybrid Loans

These are important instruments to be used at the organizational level to implement the required changes and to focus on institutional innovation and capacity building. While their aim is long term, they can also have short-term objectives of financing specific and urgent measures or projects. When combined with hybrid loans, variations of the time-slice concept would be very useful in implementing the guiding principles of the strategy. When combined with technical cooperations and/or trust funds, the latter could be used to prepare a long-term strategy and action plan while the former could be used to finance the implementation of the action plan by stages.

Project-Specific Loans, Private Sector Loans, and Small Project Loans

The aim of these loans is short term, to solve specific environmental or water use problems and at present they comprise the bulk of Bank financing in waterrelated operations. For the most part they are fragmented approaches and eventually should fit within integrated national water resources management strategies with the river basin as the natural management unit, although their emphasis will remain on solving specific and concrete water use and/or environmental problems at the operational or water use level.

Cofinancing

Cofinancing will be sought as needed, but especially in those instances that will promote and/or strengthen cooperation and coordination between the Bank and the major international lending and technical organizations that are active in water resources in the region.

Implementation of the Strategy

The strategy will be implemented through the Regional Operational Departments, with the collaboration of the Central Departments. Within their mandate, the different Bank Committees will assist the Operational Departments in monitoring the implementation of this strategy.

To accomplish the external goals of the strategy, as stated in the chapter on the goals, objectives and characteristics of the strategy, Bank actions in the long and medium term will be targeted at the organizational *management*) (water and constitutional (water policy and law) levels, primarily through country dialogues, technical cooperations and sectoral and hybrid loans. In the medium and near term, Bank action will be targeted at the organizational (water management) and local (water use) levels by specific projects, technical cooperations and loans to the private sector. Initially, the main thrust of the IWRM activity will be geared to the organizational level, maintaining the necessary linkages to the other two levels, although all levels could be targeted simultaneously, if appropriate. Operations already in the pipeline will be used initially, but specific IWRM operations would be considered at a later stage.

Action Plan

The action plan summarized in Annex V was prepared for implementing the strategy. Actions have

started with countries that have expressed an interest in them.

Summary

Since the strategy is seen as a continuum of actions, as stated in the Introduction, some of these actions have already been completed, others are in currently underway and still others are in the planning stage and will have to be defined more precisely in discussions to be held between management (Central Departments and Operational Departments).²²

Annex IV presents a table with a simplified overview of the strategy, interrelating the guiding principles, the strategic instruments, the levels of action for the Bank, the principal actors, the types of problems, the main aspects to be assessed, and the IDB instruments and supporting actions.

²² Due to its dynamic nature, an updated version of this action plan will be placed periodically on the IDB Home Page http://www.iadb.org/sds/enve.cfm

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ANNEX I

Paradigm Shift Towards Integrated Water Resources Management

Isolated projects for water supply, irrigation and drainage, hydroelectric generation, navigation, recreation, etc.Projects for similar beneficial uses, but conceived within a sub-sectoral framework.Similar approach as before, but tries to solve water use problems such as scarcity, public interest, externality or open access, through infrastructure projectsSimilar approach as before, but individual projects and/or actions result from consideration of all uses, including the environment. Tries to solve conflicts between users and uses through increasing the supply but a given source of water exists exclusively for that project.Similar approach as before, but tries to solve water use problems such as scarcity, public interest, externality or open access, through infrastructure projects and/or institutional innovation.Similar approach as before, before, but individual projects and/or actions result from consideration of all uses, including the environment. Tries to solve conflicts between users and uses through increasing the supply but actions evolve from sub- sectoral re-structuring or modernization of the state programs (such as for theSimilar approach as before, before, but individual projects and/or actions estimation	Project-oriented Water Resources Development	Sub-sectoral Water Resources Development	Sub-sectoral Water Resources Management	Integrated Water Resources Management (IWRM)
What happens with water-use return flows has lesser importance.plans, such as irrigation and drainage, energy, water supply and sanitation, tourism, etc.water supply and sanitation sub-sector, the energy sector, the agricultural sector, the agricultural sector, the agricultural sector are tried to be mains, but generally regarding the needs of a particular sub- sector.to the adjectives of "comprehensive", environmentally sector, the agricultural sector, the agricultural sector, the agricultural sector, the agricultural 	Isolated projects for water supply, irrigation and drainage, hydroelectric generation, navigation, recreation, etc. Each project tries to maximize the benefits for that particular project. An implicit assumption is that a given source of water exists exclusively for that project. What happens with water-use return flows has lesser importance. Emphasis is on solving individual water use problems such as scarcity or public interest by augmenting the supply. May create serious conflicts between users and uses, but may be adequate if water is abundant and user requirements can be easily satisfied. May create serious environmental problems.	Projects for similar beneficial uses, but conceived within a sub-sectoral framework. Benefits for the sub-sector are maximized. An implicit as- sumption is that the sources of water exist solely for the purposes of that sub-sector; for example: irrigation, hydro- power, etc. Projects are generally derived from sub-sectoral master plans, such as irrigation and drainage, energy, water supply and sanitation, tourism, etc. Emphasis in solving problems by supply augmentation re- mains, but generally regarding the needs of a particular sub- sector. May solve conflicts between users, but may still create conflicts between uses. May be adequate under similar conditions as in the previous case and when only a few uses are predominant. May still create serious environmental problems.	Similar approach as before, but tries to solve water use problems such as scarcity, public interest, externality or open access, through infrastructure projects and/or institutional innovation. These projects and/or actions evolve from sub- sectoral re-structuring or modernization of the state programs (such as for the water supply and sanitation sub-sector, the energy sector, the agricultural sector, etc.), where benefits for given sub-sectors or sectors are tried to be maximized individually. For example, the unilateral assignment of water-use permits by the energy sector. It is a more efficient way to solve problems, especially when important conflicts exist between users or the scarcity is a consequence of the inefficiency of the providers. May still cause conflicts between uses. May still create serious environmental problems.	Similar approach as before, but individual projects and/or actions result from consideration of all uses, including the environment. Tries to solve conflicts between users and uses through increasing the supply but also through institutional innovation and managing the demand It usually responds better to the adjectives of "comprehensive", environmentally conscientious", " incentive- oriented"and "participatory", that the water resources activities need to have associated with, in order to be sustainable.

ANNEX II

Declarations Reflecting the International Consensus

The **DUBLIN PRINCIPLES** (1992) have been universally adopted by the water resources community to guide the use of water for sustainable development:

- C Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment;
- C Water development and managements hould be based on a participatory approach, involving users, planners and policy-makers at all levels, and making decisions at the lowest appropriate level;
- C Women play a central part in the provision, management and safeguarding of water;
- C Water has an economic value in all its competing uses and should be recognized as an economic good.

These have been updated in Stockholm (1996) and presented for adoption by the GLOBALWATER PARTNERSHIP:

- C Recognition that water is a finite global resource essential for human survival;
- C Agreement to follow integrated approaches to sustainable water resources management;
- C Wish to coordinate activities in water resources management with those of other organizations;
- C Aim to help people, especially the poor and other vulnerable groups, to benefit from improved water resources
- management, while safeguarding the environment;
- C Recognition that women play a central part in the provision, management and safeguarding of water.

In Latin America and the Caribbean, they are also reflected in the SAN JD SE DECLARATION (1996):

C Water resource agencies, along with other appropriate s and communities, should co-ordinate and integrate their efforts for the development of national policies, strategies, legislation and standards; and in addition, programs

should reflect the socioeconomic and environmental needs of countries and serve the interests and needs of water users at the local and community level with due regard to conservation of natural resources and bio-diversity.

As well as in the **DECLARATION OF BUENOS AIRES** (1996):

- C Strengthen water resources management through improved policies and information;
- C Establish mechanisms to address transboundary water resources issues;
- C Strengthen the capacity of nations to develop and manage water resources in the context of sustainable development;
- C Improve integrated water demand management through e conomic and regulatory mechanisms.

SOURCES: UNDP (1994), GWP (1996), WMO /IDB (1996), OAS (1996).

ANNEX III

Different Forms of Private Sector Participation in the Provision of Public Services

	Types of institutional forms by increasing degree of private responsibility
ļ	Public provision
ļ	Service contract
ļ	Management contract
ļ	Leasing
ļ	Concessions (including BOT, etc.)
ļ	Cooperative and communal arrangements
i	Private entrepreneurship (with majority private shareholding)

Distribution of Responsibilities under Different Forms of Private Sector Participation

Responsibility	ResponsibilityPrivate or CooperativeConcessions (Including BOT)Leasing		Leasing	Services contracts	Management contracts
Ownership of assets	Private	State or mixed	State or mixed	State or mixed	State or mixed
Investment planning and regulationNone or state agencyState negotiated with contractorContractor or separate state 		Contractor or separate state agency	Contractor or separate stateContractor separate s agencyagencyagency		
Capital financing	Private	Private	Public	Public	Public
Working capital	Private	Private	Private	Public	Public
Execution of works	Private	Private	Public	Private as specified	Public
Operation and maintenance	ration and ntenancePrivatePrivatePrivate as specified		Private as specified	Private	
Management authority	Private	Private	Private	Public	Private
Commercial risk	Private	Private	e Private Public		Mainly public

Responsibility	Private or Cooperative	Concessions (Including BOT)	Leasing	Services contracts	Management contracts
Basis of compensation	Privately determined	Based on results	Based on results	Based on services rendered	Based on services and results
Typical duration	Indefinite	10-30 years	5-10 years	Less than 5 years	About 3-5 years

SOURCE: ECLAC (1995), after Kessides (1993)

ANNEX IV

Simplified Overview								
GUIDING PRINCIPLES OF THE STRATEGY	STRATEGIC INSTRUMENTS	LEVELS OF ACTION FOR THE BANK	PRINCIPAL ACTORS IN THE DECISION MAKING PROCESS	TYPES OF PROBLEMS	MAIN ASPECTS TO BE AS- SESSED	IDB IN- STRU- MENTS	SUPPORTING ACTIONS	
Promote comprehensive national water resources management policies and strategies. Focus on capacity building Attention to long-term efforts. Conforming to Bank's and countries objectives. Incentives for country involvement and Bank coordination. Cooperation and coordination international organizations.	Capacity building Stakeholder participation	Constitutional (Water policy and law)	Heads of State Congress persons Ministers Politicians NGOs Lobbying and pressure groups	Non-existent, inadequate or non- complied integrated water resources management rules 	Adequacy of country (province, state)- wide policy and legal instruments Constraints to integrated water resources management	Country dialogue Sector and hybrid loans Technical coopera- tions and trust funds	Diffusion and outreach Assessment studies in selected countries National and regional Technical co- operations Strategy and action plan for integration of fresh water ecosystems Components of projects in Bank's pipeline	

Simplified Overview							
GUIDING PRINCIPLES OF THE STRATEGY	STRATEGIC INSTRUMENTS	LEVELS OF ACTION FOR THE BANK	PRINCIPAL ACTORS IN THE DECISION MAKING PROCESS	TYPES OF PROBLEMS	MAIN ASPECTS TO BE AS- SESSED	IDB IN- STRU- MENTS	SUPPORTING ACTIONS
Focus on institutional innovation and capacity building. Attention to both short and long-term efforts. Conforming to Bank's and countries objectives. Incentives for country involvement and Bank coordination Coordination and cooperation international organizations	Capacity building Decentralizatio n Cost recovery Tradable water rights River basin councils Private sector participation Stakeholder participation	Organizational (Water resources management)	Deputy Ministers Directors Middle managers Private organizations River basin councils Sectoral regulatory or coordination agencies	Non-existent, inadequate or non- complied plans, programs and instruments for efficient utilization of water, for water allocation and conflict resolution	Rules (strategies, plans, programs, regulations) Approach (sub- sectoral or integrated; development or management) and its effectiveness Actors and their participation Coordinating mechanism (entity) and its effectiveness	Technical cooper- ations and trust funds Sector and hybrid loans Component s of project specific loans	Diffusion and outreach Assessment studies in selected countries National and regional Technical co- operations Sub-regional data management studies for future loans Pilot projects through regional TCs Components of projects in Bank's pipeline New projects
Focus on innovation and capacity building. Attention to short-term action. Conforming to Bank's and countries objectives. Incentives for Bank coordination. Coordination and cooperation international organizations.	Capacity building Cost recovery Tradable water rights River basin councils Private sector participation Stakeholder participation	Operational (Water use)	Municipalities Communities Water-user associations NGOS Individual users Entrepreneurs Regulatory sub- sectoral agencies	Social well- being Conservation of freshwater ecosystems Scarcity Externalities Open access Public interest Short-term time frame	Problem identification and classification Actors and nature of their participation Characteristics of the environment (natural and/or man-made)	Project specific loans Loans to private sector Small- project loans	Diffusion and outreach Assessment studies in selected countries Projects and components of projects in Bank's pipeline