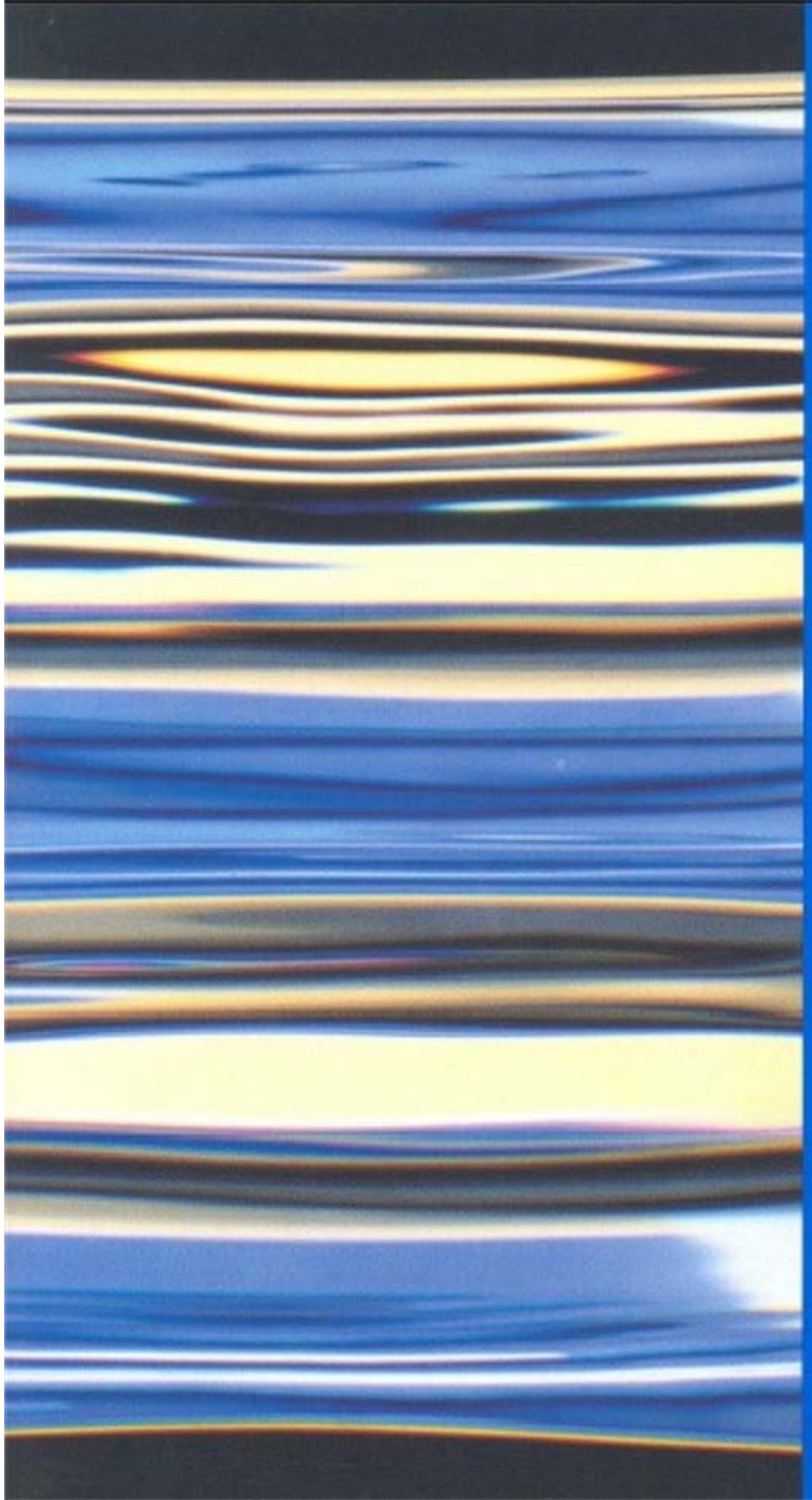
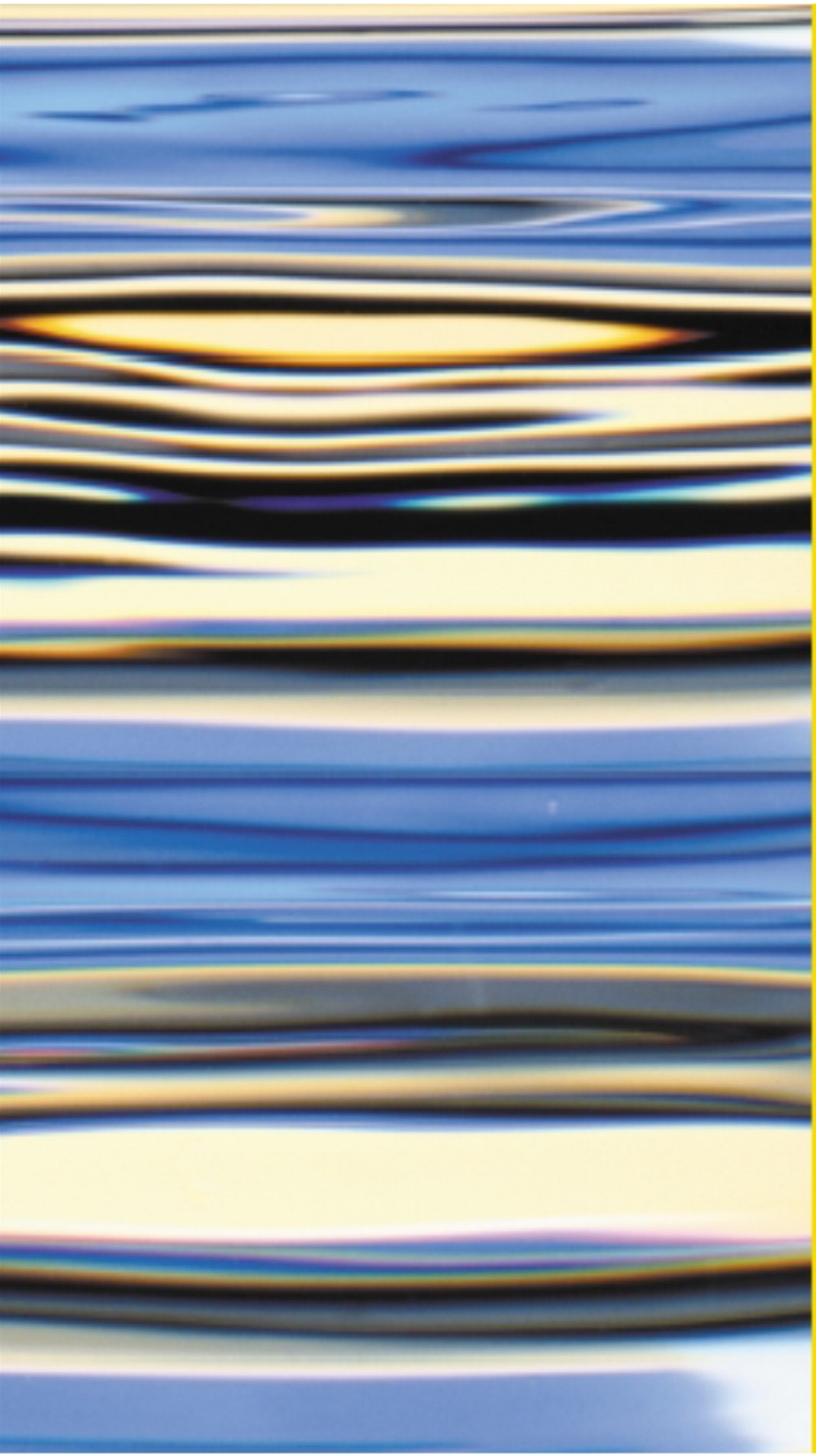


THE WORLD BANK

WATER RESOURCES SECTOR STRATEGY

STRATEGIC DIRECTIONS FOR WORLD BANK ENGAGEMENT

INTERNAL STRATEGY



THE WORLD BANK

The Water Resources Sector Strategy: An Overview

Managing and Developing Water Resources to Reduce Poverty

FEBRUARY 2003

Water Resources Sector Strategy

Strategic Directions for World Bank Engagement

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OVERVIEW AND EXECUTIVE SUMMARY

Many developing countries face daunting water resources challenges as the needs for water supply, irrigation and hydroelectricity grow; as water becomes more scarce, quality declines and environmental and social concerns increase; and as the threats posed by floods and droughts are exacerbated by climate change. As a consequence, there is a high and increasing demand for World Bank engagement. Lending for water resources development and water-related services accounted for about 16 percent of all World Bank lending over the past decade.

There is a high and increasing demand for World Bank engagement in water resources activities

Progress in ideas and practice

In 1993 the Board of the World Bank endorsed a Water Resources Management Policy Paper (WRMPP).[1] In that paper, and in this Strategy, water resources management comprises the institutional framework (legal, regulatory and organizational roles), management instruments (regulatory and financial), and the development, maintenance and operation of infrastructure (including water storage structures and conveyance, wastewater treatment, and watershed protection). The 1993 Policy Paper reflected the broad global consensus that was forged during the Rio Earth Summit of 1992. This consensus stated that modern water resources management should be based on three fundamental principles (known as "the Dublin Principles"). First is the *ecological principle,* which argues that independent management of water by different water-using sectors is not appropriate, that the river basin should be the unit of analysis, that land and water need to be managed together and that much greater attention needs to be paid to the environment. Second is the *institutional principle,* which argues that water resources management is best done when all stakeholders participate, including the state, the private sector and civil society; that women need to be included; and that resource management should respect the principle of subsidiarity, with actions taken at the lowest appropriate level. Third is the *instrument principle,* which argues that water is a scarce resource and that greater use needs to be made of incentives and economic principles in improving allocation and enhancing quality.

A decade later, evidence is accumulating on experience with implementing the Dublin Principles. First, experience shows that the Dublin Principles have provided inspiration and direction for many water reform processes and that the Principles remain powerful, appropriate and relevant. Second, a major review of industrialized countries by the Organisation for Economic Co-operation and Development (OECD) has concluded that progress in implementation has been difficult, slow and uneven and that even the most advanced countries are far from full compliance with the Dublin Principles. Third, another review (by the World Bank Operations Evaluation Department, OED) of the experience of the World Bank concluded that, while the 1993 Policy Paper remained relevant and appropriate, the major challenge was developing context-specific, prioritized, sequenced, realistic and "patient" approaches to implementation.

Scope and methodology of this Strategy

Managing water resources involves a dialectic between integration (Dublin Principle 1) and subsidiarity (Dublin Principle 2). Within the World Bank, business strategies for specific water-using sectors (such as water and

sanitation, irrigation and drainage, and hydropower) are, in accordance with the subsidiarity principle, determined primarily as part of the strategies for these sectors. This Strategy focuses on how to improve the development and management of water resources, while providing the principles that link resource management to the specific water-using sectors.

Since implementation is the focus of the Strategy, its preparation relied heavily on reviews of on-the-ground experience in implementing World Bank projects. Both the brainstorming and review stages involved much work in the field, and extensive consultations (14 in all) in developing countries. These investigations and consultations identified areas where World Bank assistance was going well and others that were less successful, and then honed in on practices that the Bank needs to change to become a better development partner. The country consultations were supplemented with consultations on the draft Strategy with specific stakeholder groups. There were also extensive and intensive consultations with Bank staff, management and the Board.

Water resources management and development are central to sustainable growth and poverty reduction

In these consultations, two distinct classes of challenges emerged that need to be faced if the World Bank is to be an effective partner. The first set of challenges relates to the many areas of water resources management where there is broad consensus, where Bank practices have changed for the better and where the need is for "more of the same." They include more attention to water quality, conservation, groundwater management, watershed management and institutional reform. The World Bank has increased it activities in these vital areas over the past decade and will continue to increase such lending. Precisely because there is momentum and no particular barriers to Bank engagement with these issues, no major changes of course are required, and there is no need for Bank management and the Board to focus specifically on them. These issues—which are very important and constitute the majority of activities with which the Bank is involved—are thus treated briefly in this Strategy.

The second set of challenges relates to a few fundamental areas where there is no global consensus, where the Bank has not charted a consistent set of rules of engagement and where, as a result, the Bank has not performed as a predictable, timely and effective partner. This Strategy focuses primarily on these difficult and contentious issues where World Bank practice needs to improve.

The main messages of this Strategy

Message 1: Water resources management and development are central to sustainable growth and poverty reduction and therefore of central importance to the mission of the World Bank. Effective water resources development and management play a fundamental role in sustainable growth and poverty reduction, through four different mechanisms. First, broad-based water resources interventions, usually including major infrastructure such as dams and interbasin transfers, provide national, regional and local benefits from which all people, including poor people, can gain. Second, because it is usually poor people who inhabit degraded landscapes, poverty-targeted water resources interventions designed to improve catchment quality and provide livelihoods for poor people are of major importance. Third, broad-based water service interventions (aimed at improving the performance of utilities, user associations and irrigation departments) benefit everyone, including poor people. And fourth, poverty-targeted water service interventions (such as water and sanitation and irrigation services for the unserved poor) play a major role in reaching some of the Millennium Development Goals. In most developing countries growth-oriented, poverty-reducing water resources strategies will involve action in all four areas. The corollary is that the World Bank should be available as a "full service partner" to assist development of integrated, prioritized and consistent action in all four arenas.

Message 2: Most developing countries need to be active in both management and development of water resources infrastructure. For the World Bank to be an effective partner, it must approach water resources challenges without preconceptions. The Bank must not fall into the trap of thinking that all problems can be

solved with infrastructure, or the equally dangerous trap of assuming that even in environments with minimal infrastructure all problems can be addressed through better management.

Message 3: The main management challenge is not a vision of integrated water resources management but a "pragmatic but principled" approach that respects principles of efficiency, equity and sustainability while recognizing that water resources management is intensely political and that reform requires the articulation of prioritized, sequenced, practical and patient interventions. To be a more effective partner, the Bank must be prepared to back reformers and to pay more explicit attention in design and implementation to the political economy of reform. This means that solutions will have to be tailored to specific, widely varying circumstances and that the art of reform is in picking the low-hanging fruit first, not in making the best the enemy of the good; in recognizing broader reforms outside of the water sector (often relating to overall economic liberalization, fiscal and political reform); in providing the pre-conditions for improving resource and service management; and in recognizing that those who are willing to change must design reform programs and must be supported.

Message 4: Providing security against climatic variability is one of the main reasons industrial countries have invested in major hydraulic infrastructure such as dams, canals, dykes and interbasin transfer schemes. Many developing countries have as little as 1/100th as much hydraulic infrastructure as do developed countries with comparable climatic variability. While industrialized countries use most available hydroelectric potential as a source of renewable energy, most developing countries harness only a small fraction. Because most developing countries have inadequate stocks of hydraulic infrastructure, *the World Bank needs to assist countries in developing and maintaining appropriate stocks of well-performing hydraulic infrastructure and in mobilizing public and private financing, while meeting environmental and social standards.*

Message 5: There is a large and increasing demand from the World Bank's borrowers for lending and nonlending services related to water resources development and management. The ability of the Bank to respond has been mixed. On the very important "soft" side, Bank engagement is growing, rapidly and effectively. But for the many countries that need to make major infrastructure investments to complement management reforms, the Bank is often a reluctant, unpredictable and expensive partner. To be a more effective partner, *the World Bank will reengage with high-reward–high-risk hydraulic infrastructure, using a more effective business model.* This new business model, which will be followed by both the Bank and the International Finance Corporation (IFC), puts development impact first, assesses the development impact of both engagement and nonengagement by the Bank, considers the rights and risks of those directly and indirectly affected by such projects, meets social and environmental standards, treats projects supported by the Bank as corporate projects from the start, rewards and supports staff who manage such projects, and aims at transparent, crisp, time-bound and predictable decisions.

Most developing countries need to be active in both management and development of water resources infrastructure

Message 6: The Bank is perceived by many to have a major comparative advantage in the water sectors, and there is, accordingly, a strong demand for Bank services and a strong demand that the Bank engage. There are two dimensions to the Bank's comparative advantage. On the one hand, as water challenges grow in scale and complexity, the Bank is perceived as one of the few institutions that can provide integrated support on the macroeconomic, financial, technical, social and environmental dimensions. On the other hand, borrowers find that the Bank is unique in performance and knowledge, convening power, relations with almost all riparian countries, a combination of knowledge and financial resources, engagement at all scales (local watershed, city, irrigation district, river basin and aquifer, country, regional) and ability to integrate across these. And the Bank, IFC, and Multilateral Investment Guarantee Agency (MIGA) play an indispensable role in attracting much-needed investment by the private sector.[2] There is simultaneously growing concern that, by disengaging from difficult, complex issues, the Bank is losing its credibility as a full-

service investment and knowledge partner. In particular, the Bank must be engaged in a complete range of water infrastructure and management activities in countries that have investment choices if the Bank is to remain a credible knowledge institution, since it is often experience in these countries that is relevant to poorer countries.

Message 7: The Bank's water assistance must be tailored to country circumstances and be consistent with the overarching Country Assistance Strategies and Poverty Reduction Strategy Papers. The 1993 Policy Paper and this Strategy can necessarily provide only broad principles for World Bank engagement and not inflexible prescriptions. What is appropriate in a particular country (or region) at a particular time will involve adaptation of these general principles to the specific economic, political, social, cultural and historical circumstances. An important new instrument developed in this Strategy is the Country Water Resources Assistance Strategy, which will pull together three different strands. The first strand is the specific water resources challenges and development opportunities in a particular country at a particular time. The second strand is the framework that the government and the World Bank have agreed on for the next three years. The third strand contains the broad principles articulated in the World Bank's 1993 Policy Paper and in this Strategy. The resulting Country Water Resources Assistance Strategies will provide an explicit program of Bank lending and nonlending support in water that is consistent with the Poverty Reduction Strategy Paper and the Country Assistance Strategy and that will govern the Bank-country partnership in water for the next three years.

The Bank is perceived by many to have a major comparative advantage in the water sectors, and there is a strong demand for Bank services

Notes

1. World Bank. 1993. *Water Resources Management: A World Bank Policy Paper.* Washington D.C.
2. Both the IFC and MIGA participated actively in development of this Strategy. While fully supporting the messages of the Strategy, the IFC and MIGA are independent institutions and thus this Strategy is formally an IBRD/IDA, not a Bank Group strategy.

1. Introduction and Development Context

The gloomy arithmetic of water

The World Commission on Water has described the "gloomy arithmetic of water."[1] During the past century, while world population tripled, the use of water increased sixfold. Irrigation accounts for 70 percent of global water withdrawals, industry for 20 percent and municipal use for 10 percent. The increased use of water has come at high environmental costs: some rivers no longer reach the sea, 50 percent of the world's wetlands have disappeared in the past century, 20 percent of freshwater fish are endangered or extinct, and many of the most important groundwater aquifers are being mined, with water tables already deep and dropping by meters every year, and some damaged permanently by salinization.

The World Commission on Water estimates that water use will increase by about 50 percent in the next 30 years. An estimated 4 billion people—one half of the world's population—will live under conditions of severe water stress in 2025, with conditions particularly severe in Africa, the Middle East and South Asia. Compounding the relative scarcity of water is the continuous deterioration in water quality in most developing countries. Again, it is the poorest countries and poorest people who are most directly affected.

This gloomy arithmetic of water is mirrored in the gloomy arithmetic of costs. While low-cost, often community-based solutions can and should be further exploited, the "easy and cheap" options for mobilizing additional major sources of supply for human needs have mostly been exploited. Many countries are now facing sharply increasing unit costs (often associated with interbasin transfers or desalination, and as often associated with the challenges of quality as with those of quantity).

Population and economic growth, and greater appreciation of the value of water in ecosystems, mean that water demands are growing and shifting. Tensions over water rights are increasing at the level of the village, city and basin. Some of these disputes are spilling over to international river basins.

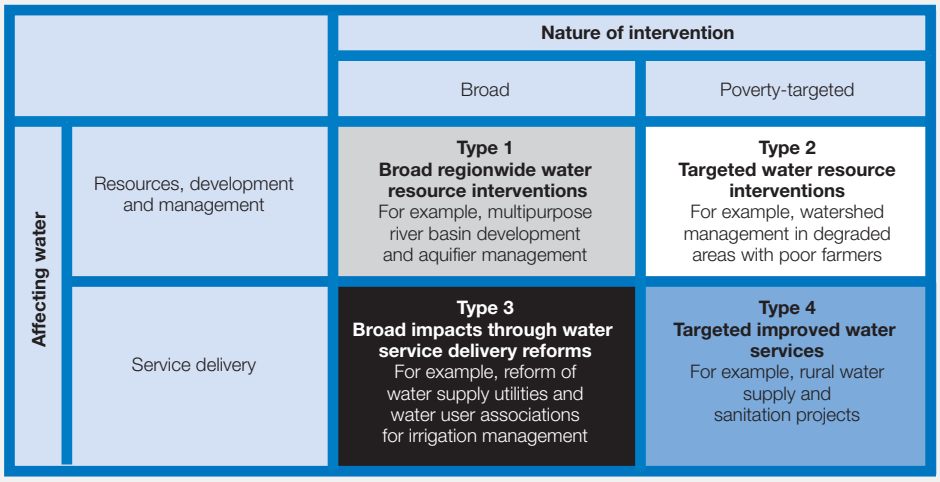
Shifting patterns of precipitation and runoff associated with climate change compound this gloomy arithmetic. An inability to predict and manage the quantity and quality of water and the impacts of droughts, floods and climatic variability imposes large costs on many economies in the developing world. If the computer simulations on climate change are correct, these impacts will only heighten in the coming decades.

Water resources management and development are critical to the World Bank's strategic objectives of sustainable economic growth and poverty reduction

The mission of the World Bank is poverty alleviation. Water development and management are relevant to poverty reduction in a number of different and complementary ways. Figure 1.1 provides a rudimentary but useful typology for assessing how water management affects poverty. Type 1 interventions are broad-based water resources interventions (including major water storage infrastructure) that provide national and regional economic benefits to all, including the poor. Type 2 interventions improve water resources management

Water development and management are relevant to poverty reduction in a number of different and complementary ways

f1.1 How water interventions affect poverty



Source: World Bank staff.

The dynamics of risk associated with water resources variability play out from the level of the household to that of the nation state

(such as watershed projects in degraded environments) in ways that directly benefit poor people. Type 3 interventions improve the performance of water service utilities, which benefit everyone, including the poor. Type 4 interventions provide targeted services (including water and sanitation, irrigation and hydropower) to the poor.

Type 1 interventions: Broad policies and investments that affect the development and management of water resources

The dynamics of risk associated with water resources variability play out from the level of the household to that of the nation state. Where variability is great, investment patterns are adjusted to mitigate these risks. At the household level, water availability and variability contribute significantly to the risks that poor people face in their daily lives, and this uncertainty constrains their economic expectations and their willingness to invest. Individuals will attempt to mitigate or to adopt coping strategies to address the risks posed by rainfall variability. If, however, it is uneconomic or infeasible to put in place measures that substantially mitigate the risks of rainfall variability—and hence output—farmers will be less likely to invest in land improvements and capital-intensive inputs and production technologies. Similarly, where water supply is unreliable, fewer enterprises will invest, and those that do will often construct independent water supplies, such as private boreholes. Countries faced with extreme climate variability also incur large opportunity costs in adapting to the effects of water-induced shocks to the economy.

There is abundant evidence of the broad economic impacts of droughts and floods: the Zimbabwe drought of the early 1990s was associated with an 11 percent decline in GDP,[2] the recent floods in Mozambique led to a 23 percent reduction in GDP[3] and the 2000 drought in Brazil led to a halving of projected economic growth.[4] As articulated by a finance minister for India, "every one of my budgets was a gamble on rain."[5]

An obvious and historic response to this rainfall variability is to mitigate the effects by investing in water storage. A particularly informative example comes from Europe. In temperate Europe rainfall is relatively regular, and there is natural regulation through lakes, groundwater storage and wetlands. This natural regulation means that over 40 percent of runoff is available for productive uses. In the semi-arid Iberian peninsula, the situation is dramatically different, with under 10 percent of runoff available through natural regulation. The responses have been logical—the countries of the Iberian peninsula have 150 times

more storage capacity per person than do France, Germany and the United Kingdom.[6]

Major water resources projects often form the basis for broad regional development, with significant direct and indirect benefits for poor people (and others). Major water development projects in Brazil,[7] India,[8] Malaysia[9] and the United States[10] show large direct benefits (from irrigation and hydropower) and indirect benefits that are typically twice as large. In many cases poor people benefit enormously from this economic activity. In Petrolina in Northeast Brazil, for example, water infrastructure has been the basis for the development of a dynamic rural economy. This has meant the creation of a large number of high-quality, permanent agricultural jobs (40 percent held by women). And for every job in agriculture, two jobs have been created in the supporting commercial and industrial sectors. These opportunities have meant a reversal in the historic pattern of outmigration, with the benefiting districts growing at twice the state average.[11]

Similarly in India, water infrastructure has evened out the seasonal demand for labor, resulting in major gains for the poor.[12] Recent analyses in India have shown that irrigation infrastructure has a major impact on the returns to investments in education. "The return to five years of primary schooling versus no schooling in Indian districts where agricultural conditions were conducive to the adoption of Green Revolution technologies was high (32 percent) whereas in districts where conditions were not conducive estimated returns to schooling were negative."[13] This multitude of direct and indirect impacts has a striking impact on poverty: in unirrigated districts 69 percent of people are poor, while in irrigated districts poverty drops to 26 percent.[14]

Changes in policies have a similarly substantial impact on opportunities for poor people. For example, in 1992 Mexico passed a new water law that introduced radical changes in the way water is managed. Most important was giving users much greater say and introducing tradable water rights. In some areas the effects have been dramatic, with substantial reductions in the (unsustainable) pumping of aquifers, and with water moving from traditional low-value crops to new high-value crops. Each drop of water now produces much higher economic returns and each hectare of land and each drop of water now generate a direct demand for more than twice as much agricultural labor (and therefore opportunities for poor people).[15]

It is these broad, systemic impacts that have made water-related infrastructure an essential building block for regional and national development in many OECD countries (Japan, the Netherlands, Norway, Spain, the western United States and others) and developing countries (among them Brazil, Egypt, Mexico, Pakistan, South Africa and Thailand). Recent research by the World Bank has shown that the average incomes of the poorest fifth of society rise proportionately with overall average incomes.[16] So too do the poor generally benefit from these systemic growth-inducing investments in water resources management and infrastructure. In Tamil Nadu in India, for example, it was hypothesized that it was large farmers who had benefitted most from the green revolution. A landmark study showed that large farmers did, indeed, benefit—their incomes increased by 18 percent over the course of a decade. But by far the biggest winners were, paradoxically, the landless, whose income increased by 125 percent as a result of the large increase in demand for their labor.[17] The appropriate image is not "trickle down" but "a rising tide lifts all boats."

The importance of water development as a source of growth-oriented sustainable poverty alleviation was highlighted at the 2002 World Summit on Sustainable Development

The importance of water development as a source of growth-oriented sustainable poverty alleviation was highlighted at the 2002 World Summit on Sustainable Development. The official declaration of the summit emphasizes the role that hydropower can play in poverty reduction in developing countries, recognizes all hydropower as a renewable source of energy and calls for increased support for developing countries' efforts to develop hydropower and other renewable sources of energy.[18]

The growth and poverty reduction potential of such infrastructure has been undercut in two important ways. First, too often the means has become the end. Instead of assessing different options for meeting human needs and considering structural and nonstructural alternatives, there has been a rush

to build major infrastructure. In too many instances the result was the construction of dams and other infrastructure that were economically, socially and environmentally destructive. Second, such infrastructure projects often paid little attention to particular and vital groups of poor people: those who had to be resettled and those who were adversely affected by changes in river flows. Too often the idea was that these sacrifices were "for the greater good" and therefore justified. Some of the World Bank's greatest and most publicized failures have involved the financing of dams that were planned and built without sufficient attention to social and environmental consequences. In recent decades thinking and practice have changed dramatically, and there is now a broad consensus that those directly affected must be made the first beneficiaries of such infrastructure, and growing experience that, with commitment and ingenuity, this is usually possible.

Cooperation on international waters can provide a vital component for broad-based economic development and regional security

Finally, cooperation on international waters can provide a vital component for broad-based economic development and regional security. A number of the largest water management interventions by the World Bank, dating back to the Indus Water Treaty of 1960 and extending forward to current projects (including the Lesotho Highlands Water Project and regional initiatives for the Mekong and Nile) fall into this category. While all citizens in the riparian countries reap the direct economic benefits of such cooperation, there is also often a security dividend that, under certain circumstances, can be a powerful catalyst for broader cooperation, growth and security. These broad benefits do not bypass poor people; on the contrary, it is poor people who are the most vulnerable to insecurity and who are accordingly the particular, albeit indirect, beneficiaries of such cooperation. The Global Environment Facility has played an important role in catalyzing cooperation on international waters and in bringing the environmental benefits of such cooperation to the fore.

Type 2 interventions: Poverty-targeted policies and investments that affect the development and management of water resources

In recent years it has become widely understood that better management of water resources requires greater attention to management of the land-water interface. There are several different perspectives on this. There is growing evidence that the services provided by hydraulic infrastructure are dependent on how land in the catchment is managed. There is also growing evidence that communities living in vulnerable land-water environments (such as eroded mountains, salinized plains and the floodplain) can benefit greatly from the improved opportunities that arise when local land and water resources are managed more effectively. Accordingly, there has been a surge in projects—including projects financed by the World Bank—that focus on land and water management activities that simultaneously increase the livelihoods of poor people (who constitute a large proportion of the population in these degraded environments) and improve the quality of the land and water resources.

Two projects in the World Bank's portfolio in the Ganges Basin are outstanding examples of the success of such approaches. The Shivalik Hills Watershed Management Project seeks to scale up the lessons from many successful watershed management projects led by non-governmental organizations (NGOs). The project aims at simultaneously reducing erosion, increasing groundwater recharge and improving the livelihoods of poor people. The major investments are in building terraces, establishing small check structures in eroded ravines, planting vegetative cover on denuded hills, building small dams and digging wells and canals that make better use of the preserved water resources. The Uttar Pradesh Sodic Lands Project in the plains works with poor, usually landless, people living in areas where land has been degraded by salinization. The project organizes groups of landless farmers into small cooperatives and provides technology and advice on land reclamation. A notable feature of the project is that while the men in the farmers cooperatives failed to manage the important credit component, women's micro-credit groups have filled the vacuum and constitute an indispensable element in the overall success of the project.

An interesting variant—stimulated by the recognition of dam owners that upper catchment management is imperative for maintaining the value of their assets—is co-

operative watershed management. Thus, for example, the proposed Nam Theun 2 Hydropower Project in Lao PDR provides support for communities to improve management of the catchment. Similarly, private companies that operate the water concessions in Manila are investing heavily in catchment management to preserve the quality and quantity of the water on which the city depends.[19]

Finally, early efforts at better management of ecological flows from dams have had impressive results for poor people. Fishers in the Senegal River in Mauritania, for example, saw their annual catches increase from 10 tons a year to 110 tons after the operating rules for a hydropower dam were changed to allow for artificial floods.[20]

The bottom line is that there are (as highlighted in the World Bank's recent Environment Strategy[21]) many opportunities for simultaneously improving resource management and the lives of poor people. Such win-win projects constitute a substantial and growing part of the World Bank's water resources portfolio.

Type 3 interventions: Broad policies and investments that affect the development and management of water services

Abundant evidence shows that poor people suffer most when water services (water supply, irrigation and hydroelectric power) are managed poorly.[22] In city after city in the developing world unserved poor people pay 10 or more times the price for a liter of water than do their fellow citizens who are served by formal supplies. The corollary is that poor people benefit immensely when they live in a town where water is supplied by a modern, accountable and financially viable utility that can extend services to a larger number of users. To cite just one case, the concession contract in Buenos Aires has meant that 1.5 million more people (most of them poor) now have access to piped water and that 600,000 more people (most of them poor) now have access to sewerage connections.[23]

Put simply, water utility reform usually means substantial benefits for poor people.

An important element of the overall impact on poor people is the impact on poor women. In most countries it is women who fetch and carry water, and it is women who suffer disproportionately when services fail poor people. Because of this gender reality, women can and should play a central role in programs that address the water and sanitation needs of poor people.

The irrigation story is more complex, because water services are just one of several critical inputs (along with seeds, fertilizer, information, credit and marketing). There is growing evidence that, as in urban areas, transparency and participation benefit poor people. Thus in the Liuduzhai Project in the Yangtze Basin in China, for example, the introduction of water user associations has led to greater transparency, lower costs and better and more services to poor people.[24] Other cases suggest more complex but equally important pathways through which poor people benefit from broad reforms in irrigation management.

Water utility reform usually means substantial benefits for poor people

A particularly interesting case is the irrigation projects in Northeast Brazil, where the initial model—five hectare lots to poor farmers—was ostensibly pro-poor but in fact meant that expensive infrastructure was being used for subsistence agriculture, because the poor farmers were unable to solve endemic technology, credit and marketing problems. An apparently antipoor change in policy (auctioning off 50 percent of new areas to "commercial farmers") ushered in a growth-stimulating and poverty-reducing cycle. The commercial farmers were able to address the issues of technological innovation, credit and marketing. Poor farmers benefited in two ways. First, the poor farmers piggy-backed on the opportunities created by the commercial farmers, often becoming subcontractors to these farmers. Second, the poor farmers benefited by finding employment in the industries that grew up to supply inputs and process the products of this now-dynamic agricultural sector.[25] The key conclusion is that water infrastructure and market-oriented reforms (which are often decried as "antipoor"), when well-designed, can be the basis for growth and opportunities for the poor.

Type 4 interventions: Poverty-targeted policies and investments that affect the development and management of water services

Poverty-targeted policies and investments are the classic and most obvious way in which water projects affect poverty, with documentation most complete for urban water supply. Those who are excluded from formal services (always poor people) typically pay much more for water than do those who receive formal services (always the better off).[26] Accordingly, poverty-targeted rural and urban water and sanitation projects are very important for the poor. These projects are almost always accorded high priority by communities in rural development and slum upgrading programs and form a growing part of the World Bank's water and sanitation portfolio. Similarly, giving smallholders access to improved and appropriate irrigation technology (such as treadle pumps) has important impacts on the lives of poor people.

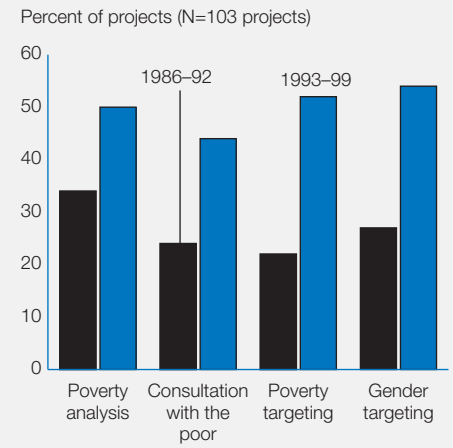
Summary on water resources and poverty

There are several main observations on water resources and poverty:

- Water resources management policies and investments affect poor people in a variety of direct and indirect ways, most of which are important in most contexts.
- There has been substantial improvement in how World Bank-financed water projects directly address poverty and social concerns (figure 1.2).
- There are important distinctions in the fiscal implications of different interventions. Broad interventions (types 1 and 3) generally stimulate growth and revenue, whereas targeted interventions (types 2 and 4) usually depend on subsidies.
- There are also important distinctions between the impact of management interventions (where the benefits are often indirect and long term) and the impact of development projects (which are direct and immediate).
- There are distributional distinctions between the poverty impact of rehabilitation (which benefits those who benefited from the initial investments) and new projects (which benefit new people and which are, other things equal, more equitable).

There has been substantial improvement in how World Bank-financed water projects directly address poverty and social concerns

f1.2 Poverty and gender targeting in World Bank projects has increased



Source: World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy.* Washington D.C.

An appropriate strategy for countries is a blend of all of these interventions: operating on the resource and on water services, intervening in a broad, systemic manner, and directly targeting the poor. For example, well conceived water infrastructure should:

- Provide the basis for overall regional development and associated economic opportunities for poor people (type 1 benefit).
- Have components that aim at improving watershed management, with associated benefits for poor people who usually constitute the majority of people living in such degraded environments, and develop operating rules that specify ecological flows for the benefit of downstream riparians (type 2 benefit).
- Be associated with reform of the power, irrigation and water supply sectors, with broad benefits from which poor people, and especially poor women, benefit (type 3 benefit).
- Provide targeted benefits to poor people who are resettled or otherwise affected by the project or who live in the vicinity of the project, and generate revenues that are dedicated in part to specific pro-poor activities (type 4 benefits).

t1.1 Water resources management and the Millennium Development Goals targets

Target and description	Relevant water interventions (from figure 1.1)
Target 1, which aims at reducing the proportion of people whose income is less than $1 a day.	**Types 1 and 2**, through their contribution to overall and targeted economic growth. **Types 3 and 4**, through better general and targeted growth-inducing services.
Target 2, which aims at reducing the proportion of people who suffer from hunger.	**Types 1 and 2**, through their contribution to overall and targeted economic growth, food production and hunger reduction. **Types 3 and 4**, through better general and targeted growth-inducing and food-producing services.
Target 5, which aims at reducing the mortality rate of children under five years old.	**Types 1 and 2**, through their contribution to overall and targeted economic growth and thus mortality reduction. **Types 3 and 4**, through better general and targeted services, some of which (such as irrigation) increase income and thus reduce mortality and some of which (water supply and sanitation) directly reduce mortality.
Target 9, which aims at integrating the principles of sustainable development into country policies and programs.	The Dublin ecological, institutional and instrument principles, incorporated into the World Bank's Water Resources Management Policy, are the broadly accepted principles for sustainable water resources development. This Strategy focuses on how to make these principles effective in country policies and program.
Target 10, which aims at reducing the proportion of people without sustainable access to safe drinking water.	**Types 1 and 2**, through their contribution to overall and targeted economic growth and thus demand and willingness to pay for better services. **Types 3 and 4**, through better general and targeted water supply services.

Source: World Bank staff.

An important task is to translate this typology into guidance to ensure that water is fully and appropriately incorporated into Poverty Reduction Strategy Papers (PRSPs) and into the Country Water Resources Assistance Strategies. The Water Resources Management Group, which brings together the regional and sectoral leadership on water across the World Bank, has started this work. This will include mapping "down" to ensure that macro actions benefit poor people, both directly and indirectly; mapping "up" to assess the broader implications and sustainability of local water actions; and integrating actions to ensure consistency and synergy across the four types of interventions illustrated in figure 1.1.

Finally, water resources management is directly relevant to several of the international development targets set by the UN Millennium Assembly in October 2000 (table 1.1).

The World Bank's borrowers face a wide range of water development and management challenges

The World Bank's client countries confront two major water resources challenges. First, all countries face major challenges in developing the laws, regulations and institutions required for managing water resources in a more economically productive, socially acceptable and environmentally sustainable fashion. Improved resource and demand management is therefore appropriately given high priority by the World Bank and many of its borrowers. The Dublin ecological, institutional and instrument principles[27] provide a compass, but the details have to be tailored to the historical, cultural, environmental, social, economic and political circumstances of each country.

Second, all countries face a major challenge in developing and maintaining an appropriate stock of water infrastructure. Framing this challenge is the reality that the costs of water infrastructure are rising rapidly in many countries. An analysis of World Bank repeater water supply projects shows that the cost of bulk water for the future project is often two to three times greater than that for the previous one.[28] The World Commission on Water has estimated that investments in water infrastructure in developing countries need to increase from the current level of about $75 billion to $180 billion a year over the next 25 years.[29]

In meeting these challenges, circumstances differ among countries. In Central Asia, for example, where extensive water infrastructure is fast decaying, a key challenge is triage—deciding what infrastructure to rehabilitate, given environmental and economic

The World Commission on Water has estimated that investments in water infrastructure in developing countries need to increase from about $75 billion to $180 billion a year over the next 25 years

constraints and the dependence of more than 35 million people on the maintenance of this infrastructure. In other developing countries there is significant underdeveloped potential, as suggested by the following comparisons. Australia and Ethiopia have similar degrees of climate variability, but whereas Australia has 5,000 cubic meters of water storage capacity per person, Ethiopia has 45 cubic meters.[30] The United States and Nepal have roughly equivalent economically exploitable hydropower potential, but whereas installed hydropower capacity in the United States is about 70,000 megawatts (MW), in Nepal it is less than 600 MW.[31]

This Strategy does not focus on the water-using sectors but on water resources management and the connections between resource use and service management

Water management must make a series of important transitions

To meet these water resources challenges, a series of transitions is under way, with major implications for water management:

- *From development* or *management to development* and *management.* For decades water resources management was equated with construction of water infrastructure. Experience showed this to be a major error, for economic, social and environmental reasons. In reaction, some have stigmatized dams, dykes, canals and other major hydraulic infrastructure as unnecessary and destructive. The emerging view is that both extremes are wrong and that in most developing countries both management improvements and priority infrastructure have essential and complementary roles in contributing to sustainable growth and poverty reduction.
- *From local to regional and international management.* Water management is moving from being just a local issue to being a national and an international issue, requiring new approaches to financing, dispute prevention and resource management.
- *From disputes to cooperation.* Growing demand for water for cities, industries and the environment means a greater need for consensual mechanisms (from the local to the international level) for dispute prevention and resolution and for flexible, voluntary methods for reallocating water in response to changing demands and values. Water can be a cause of conflict; alternatively it can be a major catalyst for cooperation at all levels—even economic integration. Experience has shown that cooperative programs for water resources management have been important to regional integration and stability in Eastern Europe (the Baltic Sea), Southeast Asia (Thailand and Lao PDR), South Asia (the Indus Basin) and Southern Africa (Lesotho Highlands).
- *Toward public-private partnerships.* Much of the necessary hydraulic infrastructure is multifunctional (such as reservoirs that generate electricity and protect against floods). Financing for water resources infrastructure is not cleanly separable into public and private sectors; increasingly, it requires public-private partnerships, both in investment and operation. While private investment and management are playing, and must play, a growing role, this must take place within a publicly established long-term development and legal and regulatory framework, and without crowding out community-managed infrastructure and beneficiary participation in design and management of water systems. Attracting private investment into low-income countries is particularly important and necessarily a major focus for institutions like the World Bank.

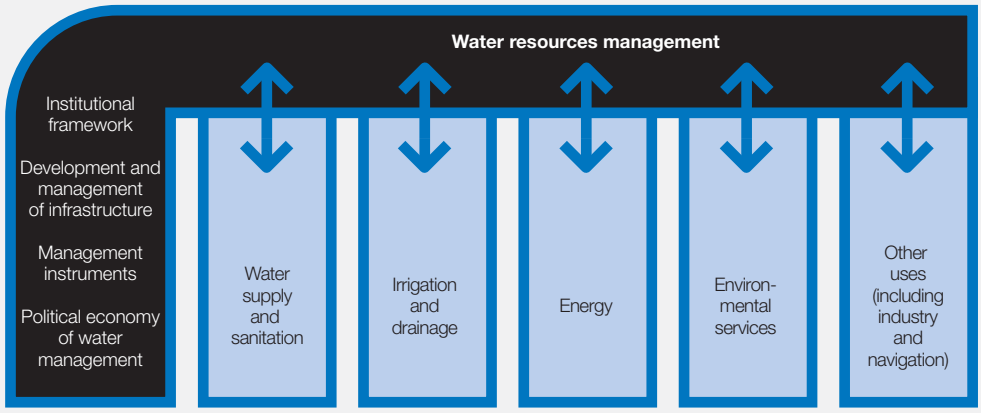
The scope of this Strategy

Water management can be conceptualized as a "comb," in which the "teeth" are the water-using sectors and the "handle" is the resource itself, defined by its location, quantity and quality (figure 1.3).

This Strategy does not focus on the water-using sectors (which are addressed in other World Bank sector and business strategies,[32] including energy, environment, rural development, irrigation and drainage, and water supply and sanitation) but on water resources management and the connections between resource use and service management. This means addressing:

- *The institutional framework,* including the definition and establishment, at levels ranging from local watershed management institutions to international basin

f1.3 Scope of this Strategy: A focus on water resources management, not services



Source: Global Water Partnership Technical Advisory Committee. 2000. *Integrated Water Resources Management.* Stockholm: Global Water Partnership.

agencies, of laws, rights and licenses; of responsibilities of different actors; and of standards for water quality and service provision (especially to poor people), for the environment, for land use management and for the construction and management of infrastructure that affects the quantity and quality of water resources.

- *The management instruments,* including regulatory arrangements, financial instruments, standards and plans, mechanisms for effective participation of stakeholders, and knowledge and information systems that increase transparency; motivate effective water allocation, use and conservation; and secure maintenance and physical sustainability of the water resources systems.
- *The development and management of infrastructure* for annual and multiyear flow regulation, for floods and droughts, for multipurpose storage, and for water quality and source protection.
- *The political economy of water management and reform,* in which there is particular emphasis on the distribution of benefits and costs and on the incentives that encourage or constrain more productive and sustainable resource use.

Key strategic issues in the main water-using sectors

As is obvious from figure 1.3, there is symbiosis between resource management and service sectors. While the details of the water-using sectors are appropriately managed at the sector level, the linkages between resource management and the service sectors are central to overall resource management and thus to this Strategy.

Application of the principle of subsidiarity is not a matter of Cartesian mechanics, but one of judgment and art. Since use of water always precedes concerns with resource management, the culture and principles of the major water-using sectors have a profound influence on the ways in which societies approach the challenges of water management. When specific water-using sectors make heavy use of water resources, a strategy for resource management must closely examine the internal workings of those sectors. Although World Bank approaches for water-using sectors are addressed in detail in other sector strategies and business plans, it is pertinent here to outline the main relevant features of these companion strategies, focusing on the links to the management of water resources.

When specific water-using sectors make heavy use of water resources, a strategy for resource management must closely examine the internal workings of those sectors

Irrigation and drainage and water resources management

Increased world food security is one of the great development achievements of the last 40 years. Over this period, despite rapid population growth, per capita grain production increased 30 percent, and average daily

caloric intake increased from 2,000 to 2,800. This remarkable achievement has been driven by increases in yield as a result of the green revolution, and a sharp increase in irrigated area, from 110 million hectares in 1950 to 280 million in 2001. Irrigated agriculture, which accounts for less than 20 percent of farmed land, contributes 40 percent of the world's food production.[33]

The World Bank has played a central role in the irrigation sector in developing countries. Although World Bank investments in irrigation have declined sharply in recent years (with project numbers and investment levels in the late 1990s only 40 percent of the levels 20 years earlier), the World Bank remains a major actor both directly and through key partnerships, including the Consultative Group for International Agricultural Research (CGIAR).

Although World Bank investments in irrigation have declined sharply in recent years, the World Bank remains a major actor both directly and through key partnerships

The Rural Board is developing an Irrigation and Drainage Business Plan, to be presented to the World Bank Board as part of an overall Agriculture and Food Security Strategy in fiscal 2003. While respecting the principle of subsidiarity, and without preempting the upcoming Irrigation and Drainage Business Plan, this section outlines the challenges facing the sector in some detail because in no other water-using sector is the relationship between the sector and overall water resources management so large and so fraught with daunting institutional and political obstacles.

First, irrigation is by far the largest user of water globally, accounting for an estimated 85 percent of water use in developing countries.[34] Second, many of the conflicts between water development and environmental sustainability are, at their core, conflicts between irrigation and environmental conservation. Large-scale diversion of rivers and pumping of aquifers have adversely affected wetlands, fisheries, coastal and marine ecosystems and the populations that depend on them; inadequate drainage has led to large-scale waterlogging and salinity; and reclamation of flood plains for irrigation has increased vulnerability to flooding. Third, while the irrigation philosophy of the 1960s through the 1980s, of continuous publicly financed expansion, has run its course, a new one has yet to take its place. The irrigation community is still a long way from:

- Making a transition from the era of expansion and construction to an era of intensification and management.
- Articulating and operationalizing a modern institutional model that unbundles the bulk infrastructure from the distribution infrastructure, separates the public and private aspects of the systems and clarifies the public roles (legal framework and regulation) and private (profit and nonprofit) roles for service delivery.
- Articulating sound, achievable, sequenced approaches to cost recovery for different components of irrigation and drainage systems.

There is broad agreement among borrowers and the professional irrigation community that the World Bank has an indispensable role to play in this vital reform process, both because of the major role it has historically played in irrigation and because of its ability to access and integrate the wide range of institutional and technical skills required.

Drawing on a broad basis of sector work, OED reports and external assessments, the World Bank is formulating a new strategy for the irrigation and drainage sector, with fundamental implications "on the farm" and for the management of water resources.

The on the farm elements of this reform agenda include:

- *Increasing the productivity of water and infrastructure.* World Bank-financed activities aim at higher productivity (more crops, cash and jobs per drop) through a combination of means—economic, institutional, agronomic (cropping patterns, intensification), hydrological (reducing nonbeneficial evapotranspiration), and ecological (salinity management, waterlogging control, deficit irrigation, water harvesting in rain-fed areas).
- *Developing a realistic, sequenced approach to cost recovery.* For decades there has been a yawning gap between simple economic principles (farmers should pay the full financial costs—operation and maintenance, rehabilitation, debt servicing on

existing infrastructure—and the opportunity costs of water) and on-the-ground reality. In developed countries, in the words of the OECD, "agricultural water use is still heavily subsidized," and in developing countries farmers typically pay only a fraction of operation and maintenance costs and nothing for rehabilitation and amortization of investments. In the Indian state of Rajasthan, for example, the state pays 75 percent of the costs of operation and maintenance of irrigation, with these costs amounting to 18 percent of the state's recurrent budget.[35] As discussed in more detail later, the key to better cost recovery is a changed set of institutional arrangements and incentives and much greater attention to the political economy of moving from here to there.

- *Scaling up user associations and ensuring that they are representative of all farmers.* The past decade has seen a revolution in the role of farmers in irrigation, with the World Bank playing a powerful advocacy and demonstration role. Water user associations empower users to operate and maintain their systems, collect fees, hire professionals and manage water rights. They have proved effective for increasing efficiency and productivity; for improving accountability, performance and responsiveness to farmers; and for improving the financial sustainability of irrigation systems. An important element of such reforms is to ensure that women, who often play a major but undervalued role in irrigation, are specifically included in such associations.
- *Modernizing formal irrigation institutions and the framework in which they operate.* While there have been gains from water user associations, it has also become clear that irrigation reform has to be fully supported by institutional reform. If the agencies themselves are not modernized, then user associations cannot function effectively and eventually are undermined. Reforming public sector agencies, which currently manage most of the world's large irrigation systems, is arguably the number one priority for improving overall performance of the irrigation sector. As with other infrastructure services, increased accountability and a competitive environment are vital for improving performance.
- *Explicitly addressing the political economy of reform.* Perhaps the greatest of all challenges in the irrigation sector is the articulation of a prioritized, sequenced and sellable program for getting from here to there. While the pace and content of reform processes are necessarily place and time specific, World Bank experience suggests that there are two overriding rules governing such processes. First, the impetus for change typically comes from a crisis, sometimes (such as a water quality disaster or declining water tables) within the sector, but more often outside because of an overall fiscal crisis or process of political reform. Experience further suggests that the World Bank is most effective when staff remain aware and able to take advantage of exogenous opportunities, concentrating the World Bank's convening and investment resources to back reformers. Second, given the very large vested interests (not only millions of farmers, but, in just one state in India, over a hundred thousand public sector employees in the irrigation department), a reform program must deal as much with issues of fiscal and civil service reform as it does directly with irrigation issues. Here the World Bank, given its comprehensive engagement with governments, has a comparative advantage, which it is now starting to use more consistently and more strategically, for example, in state-level reform in Brazil and India.
- *Supporting partnerships that focus on the production of new crop technologies.* While institutional reforms are crucial, it is evident that the water–environment–food production square cannot be circled without the development of new generations of crop varieties. Accordingly, a high priority for the World Bank is support to the CGIAR for the development of crops that are less susceptible to droughts, floods and salt, that result in more production per unit of water use, that are less vulnerable to pests and spoilage and that use smaller quantities of water-polluting fertilizers and pesticides.

The past decade has seen a revolution in the role of farmers in irrigation, with the World Bank playing a powerful advocacy and demonstration role

The irrigation reform agenda items that have major implications for water resources management include:

The World Bank is gaining practical experience in the legal and administrative machinery for setting up and managing rights-based systems of water management

- *Greater attention to basinwide efficiency.* The arithmetic of water conservation is not a simple matter. In some circumstances, field efficiency is important because return flows degrade land and water resources. In other circumstances, one farmer's water loss is another farmer's recharge, and improved farm-level irrigation efficiencies often result in only paper, not real, water savings. Required is an improved, customized understanding of water balances and water quality in specific basins, so that the benefits from often costly interventions to reduce farm and system losses are assessed in terms of the contribution to overall basin water use efficiency and water quality. Such understanding includes determining how much water can be consumptively used on a sustainable basis while still meeting environmental and other in-stream flow requirements or without overexploitation of groundwater.
- *Increased emphasis on drainage.* Underinvestment in drainage has meant that an estimated 30 million hectares have become unproductive as a result of the twin curses of waterlogging and salinity, and large amounts of water are lost through nonbeneficial evapotranspiration. Accordingly, public and private investments in drainage are imperative for arresting the decline of the resource base on which irrigated agriculture (and much of the world's food supply) depends and for maintaining the health of rivers and wetlands. A central element in the World Bank's overall push for irrigation sector modernization is the development of a portfolio of investments and management tools to address the financing and institutional arrangements for development and maintenance of drainage and environmentally sustainable disposal of drainage water.
- *Recognizing and managing water rights.* Recognizing and managing water rights is as essential for managing irrigation systems as for managing river basins or aquifers. Doing that in most countries first requires clarifying that water is publicly owned and that a water right is usufructory—it is a right to use, not a right to own water. The essence of this change is that water rights (of individuals and communities, including traditional users) enjoy the same legal certainty as land and other property rights. Once established, such rights give rise to a series of fundamental and healthy changes. First, those requiring additional resources (such as growing cities) will frequently be able to meet their needs by acquiring the rights of those who are using water for low-value purposes. Second, there are strong incentives for low-value water users to voluntarily desist, making reallocation both politically attractive and practical. Third, the establishment of formal water rights gives rise to strong pressures for improving the data required to manage the resource. And fourth, this reduces the pressures of a "race to the bottom," since those who have rights have a powerful interest in sustainability.

  This is not to suggest that there is unanimity on the concept of water rights, for some see this as an unhealthy commodification of a public good. Nor is it meant to imply that it is simple to introduce rights-based systems for a fugitive resource with deep cultural implications in administratively weak environments. Nonetheless, there has been substantial progress in recent years (in Brazil, Chile, Mexico and South Africa), and there are pressures from the local level (villagers who have stored rainwater in Rajasthan, for instance) to the international level (between the United States and Mexico, for example) to define the rights to use an ever-scarcer resource.[36] The World Bank is gaining practical experience in the legal and administrative machinery for setting up and managing rights-based systems of water management.
- *Reducing perverse subsidies for groundwater pumping.* The most dynamic and progressive actors in the irrigation sector in many developing countries are the numerous farmers who use groundwater. In contrast to the heavily-subsidized surface irrigation systems, groundwater farmers typically pay the full financial costs of well drilling, pumps and irrigation systems. In many countries, however, groundwater farmers have managed to obtain and defend large subsidies for their biggest recurrent cost, electricity. In conjunction with a lack of property rights (and associated problems

in managing common pool resources), the energy subsidies have meant heavy overexploitation of groundwater. It is estimated that 10 percent of the world's food supply is based on unsustainable pumping of groundwater.[37] Phasing out such subsidies is simultaneously an economic and environmental necessity and a daunting political challenge. There is some evidence, from Mexico, for example, that progress can be made when these perverse subsidies are replaced in a carefully phased manner with "virtuous subsidies" (such as for investments in modern irrigation equipment).[38]

In summary, in many developing countries the irrigation and drainage sector is at a crossroads. Irrigated lands must produce greater quantities of the food and fiber required to feed and clothe growing populations. In most countries this growth cannot come from mobilizing additional land and water resources (as was done in the past), but must come from getting more out of less—more crop, cash and jobs per drop. This new era requires institutions that are radically different from the top-down, construction-oriented irrigation agencies that developed over the past half century. The World Bank's borrowers see the Bank as an indispensable partner in effecting this transformation. They perceive the World Bank to have a unique combination of legitimacy, institutional and technical skills, knowledge, advocacy and financing power, and they look to the World Bank for leadership in revitalizing the sector. Many are concerned about a perceived decline of the World Bank's interest in and commitment to irrigation and drainage. Borrowers and other partners, accordingly, give high priority to the process and outcome of the planned Irrigation and Drainage Business Plan.

Energy and water resources management

There is now a broad consensus—exemplified in the World Bank's recent Energy Sector Business Strategy[39]—on what constitutes a sound energy sector. Central concepts include the importance of financial and environmental sustainability, and the need to distinguish the roles of electricity providers (increasingly private) and those of legislation, regulation and planning (the vital role for the state). The Energy Sector Business Strategy emphasizes such issues as stimulating competition among energy suppliers; developing and strengthening objective, transparent regulation; establishing commercial pricing and enterprise viability; and expanding private sector participation. The Energy Sector Business Strategy also articulates a role for the World Bank, IFC, and MIGA in mitigating risks beyond the control of private investors and private risk insurers, in spreading lessons of reform and in internalizing local and global environmental externalities.

These broad modernizing reforms in the electricity sector have had profound implications for water resources management in countries that depend heavily on hydroelectricity. They have meant a broad acceptance that hydropower developments (particularly those involving storage) should be planned, optimized, designed and operated in the basin context in cooperation with other water-using sectors. (Although, as with most other aspects of water management, practice lags behind principle. Even in well developed environments such as Chile, for example, there remain substantial challenges in reconciling the management of hydropower facilities with the needs of downstream populations.[40])

These reforms also have meant that the owners of dams have increasingly realized that substantial amounts of storage (0.5–1.0 percent globally) are lost each year due to sedimentation and that sediment management in catchments and dams is vital to maintaining asset value. Responsible hydropower developers have become strong advocates for good environmental and social practice, as articulated, for example, in the report of the World Commission on Dams.[41] This includes extensive consultation with stakeholders, ensuring that resettlement is done well, investing in community management of watersheds and ensuring that local people become beneficiaries.

World Bank and IFC experience has confirmed that hydropower projects offer windows for improving social and environmental

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performance. In countries such as Brazil and China this means building on strong domestic capacity and experience; in poor countries such as Lao PDR and Uganda it means using strong external private sector developers as a means for advancing good practice and developing local capacity.

A recent and important development is the formal recognition at the World Summit on Sustainable Development that hydropower (large and small) is a renewable source of energy and that, in the words of Implementation Plan, there is "a sense of urgency, [to] substantially increase the glob2l share of renewable energy sources.…"[42] This should foster mechanisms enabling environmentally and socially sustainable hydropower (small and large) to benefit from the nascent trading in carbon permits. Among the first activities of the Prototype Carbon Fund are two transactions to purchase emission reductions from small hydropower projects—$3.9 million for a $20 million project for displacing diesel oil with hydroelectricity from small projects in the West Nile region of Uganda, and $3.5 million for a run-of-the-river hydropower facility set up in cascade with other hydropower projects in a $37 million project in Chile.[43]

World Bank and IFC experience has confirmed that hydropower projects offer windows for improving social and environmental performance

Finally, a specific but very important implication for water management is that a "modern" energy sector should not provide large hidden subsidies for groundwater pumping, one of the most environmentally destructive of perverse subsidies. Experience has shown that this is a particularly difficult and politically sensitive area. There have been only a few successes thus far in replacing destructive energy subsidies with equivalent virtuous subsidies. Mexico is a notable example of good practice, having replaced energy subsidies with subsidies for the purchase of modern, energy- and water-saving equipment.[44]

Water supply and sanitation and water resources management

Just as there is a global consensus on what constitutes a sound energy sector, so too is there broad agreement on the central features of a sound water supply and sanitation sector. This agreement draws on the same principles of separating the role of provision (public and private) from that of regulation, policy formulation and assessment (a public role), and of stimulating competition among providers. While work on a new World Bank Water and Sanitation Business Plan (to be finalized in fiscal 2003) has just started, it is possible to broadly identify priority policies and approaches to their implementation within the water and sanitation sector and to describe how these relate to the management of water resources.

An overriding thrust of the World Bank's work on water and sanitation is to ensure that poor people gain access to safe, affordable water supply and sanitation services by reducing costs and increasing accountability. In urban areas this means targeting subsidies to the poorest, largely unserved consumers to partially finance up-front costs of connection; incorporating the preferences of poor communities for service quality standards, delivery modality and management arrangements; permitting entry and fair competition between conventional utilities and small-scale service providers; and structuring contracts, regulatory incentives and legislation to facilitate extension and upgrading of services to poor communities. In small towns and rural areas this means empowering communities to make informed choices about their participation, service levels and service delivery mechanisms; realigning the rights and obligations of key stakeholders; vesting communities with ownership rights and authority to select service providers; building local capacity to support community decisionmaking in planning, management and delivery of services; and establishing financial policies and instruments that provide incentives for communities to contribute to capital costs and pay for all operation and maintenance costs. An important element of such approaches is to make sure that women can, in forms that are practical in each cultural setting, play a role that is commensurate with their knowledge of local water services and interest in improving them.

A central part of this thrust is to stimulate the development of financially sound, operationally efficient, consumer-oriented water and sanitation utilities. This includes realigning policy, regulatory and service provision

functions and governance structures to enhance accountability and incentives for distinct actors to perform; strengthening regulatory oversight capacities, institutions and processes to provide greater transparency and predictability; building commercially oriented and customer-focused utilities to ensure sustainability of service; strengthening government capacity to contract services in transparent and accountable ways; balancing remuneration with allocation of risks; increasing the creditworthiness of water providers to enhance their capacity to mobilize financing for long delayed investments in rehabilitation, upgrading and expansion; gradually raising average tariffs to reflect actual costs and instituting predictable, transparent adjustment mechanisms; eliminating generalized supply-side subsidies in favor of narrowly targeted subsidies to achieve specified outcomes and to serve poor, largely unserved households; and promoting the development of financial policies and instruments that facilitate more efficient allocation of public funds and increased access to local capital markets.

An important change in World Bank practice over the past decade has been supplementing traditional support for accountable, public sector utilities with support for private sector involvement in the provision of water and sanitation services. About 40 percent of projects it finances now involve some form of private sector participation.[45] This change has been motivated by several factors. First, while some public utilities have managed to maintain high performance over protracted periods, few poorly performing public utilities have bootstrapped themselves to achieve sustained good performance. Second, private sector involvement in developed and developing countries alike, has challenged the idea of permanent unregulated public monopolies and has stimulated public operators to improve their performance. Third, entry of the private sector has stimulated the development of more transparent, impartial regulation and greater disclosure of information: in short, greater accountability to consumers and taxpayers. The World Bank has played an important role in this, through projects and by building hands-on, utilitywide capacity through sponsorship of the International Network of Utility Regulators.[46] Fourth and fundamental is the concern with finding better mechanisms for getting cost-effective, accountable services to the billions of people who still do not have access to water supply and sanitation services. Important as the entry of the private sector is, public utilities currently provide and will for the foreseeable future provide water to the vast majority of people in developing countries. Accordingly the World Bank continues to devote attention and resources to improving the performance of public utilities.

Experience shows that these changes in the water and sanitation sector have profound implications for the management of water resources. First, accountable utilities (public and private alike) are acutely aware that the services they provide depends on the availability of a reliable quantity of good quality raw water.[47] Second, once there is a separation between regulator and provider, the provider recognizes that it can no longer simply confiscate water from farmers and other users in times of scarcity.[48] This means that reformed utilities often become active proponents of modern water resources management: they want to participate in making resource management decisions, they want clarity on the rules and processes that govern allocation, they push for market-based rules for facilitating voluntary temporary or permanent transfer of water rights from low-value to high-value users, they become advocates of investments in sustainable watershed management and they push for pricing policies to ensure that bulk water infrastructure is maintained and operated effectively.

In the past, most World Bank water and sanitation operations dealt with the water side. In part due to a natural sequencing of demand (people first want water, then sanitation, then wastewater disposal[49]) and in part due to more aggressive advocacy by the World Bank, the "dirty water" side is gaining prominence in the World Bank's work in the sector. The World Summit on Sustainable Development also added sanitation to the Millennium Development Goals. The key issues are the sequencing of on-site and off-site investment, simultaneous consideration of the costs incurred and the benefits accrued in terms of improved downstream water

An overriding thrust of the World Bank's work on water and sanitation is to ensure that poor people gain access to safe, affordable water supply and sanitation services by reducing costs and increasing accountability

quality and step-wise approaches to investments in tandem with local demand and local institutional and financial capacity. Since the setting of wastewater goals and standards is the responsibility of river basin authorities and other public water resources management agencies, close coordination is required between utilities and these bodies. Experience shows that unaccountable, financially unsustainable utilities often operate in a climate of impunity, and pay little attention to these public responsibilities. Conversely, reformed utilities that are separated from the implicit or explicit regulatory apparatus and that are accountable for their performance engage actively in devising sensible, sequenced strategies for improvement.

In summary, the institutional changes in the water supply and sanitation sector over the past decade have had profound implications not only "within the city" but "at the city gate." This has meant that, out of enlightened self-interest, the better water utilities have become major change agents, assuming a progressive role as advocates for better water resources stewardship in many instances.

Environmental services and water resources management

Environmental concerns, such as legal and regulatory instruments governing water allocation, environmental assessment and pollution control, form part of the core water resources management activities

The environment is, of course, a special water-using "sector," in that most environmental concerns are a central part of overall water resources management and not part of a distinct water-using sector. Environmental concerns, such as legal and regulatory instruments governing water allocation, environmental assessment and pollution control, form part of the core water resources management activities. There are, however, as in other sectors, important environmental service activities that are typically the responsibility of environmental rather than water management agencies:

- *Terrestrial services,* including management of forests and land in watersheds, which are essential for moderating hydrological variability, reducing silt and conserving biodiversity. In the past decade there has been a rapid increase in World Bank activity in watershed management at different scales, ranging from land management of the whole of the Loess Plateau in China to community-based watershed management in the foothills of the Himalayas. As stressed in the recent Environment,[50] Rural[51] and Forest[52] Strategies, the core lesson from these experiences is ensuring that such activities produce economic benefits for local people who then have an incentive to maintain the activities. Such activities can strongly benefit the poor people who often inhabit these fragile areas. An encouraging recent development is recognition by users of downstream water infrastructure of the importance of catchment preservation. Water utilities and hydropower companies are developing innovative partnerships with upstream communities for maintenance of catchment quality, and upstream catchment enhancement is becoming a standard feature of most World Bank-financed large dam projects.
- *Aquatic services,* including the conservation and management of wetlands and floodplains, underpin the fisheries and crop production systems on which many poor communities depend and serve vital functions in attenuating extreme hydrological events. The report of the World Commission of Dams has correctly stressed that the rights of "downstream ecosystems and people" have historically been ignored.[53] Here, too, new forms of practice are evolving, with maintenance of ecological flows now being addressed in the design of new infrastructure and the recalibration of operating rules in river basins. The World Bank is actively engaged in bringing best practice to bear, through knowledge generation, partnerships and its operations.

An environment issue of major relevance to water resources management is climate change. The effect of climate change on stream flow and groundwater recharge varies regionally and between climate scenarios. A consistent projection across most climate change scenarios is for increases in annual mean stream flow in high latitudes and Southeast Asia, and decreases in Central Asia, the Mediterranean, Southern Africa and Australia, although the amount of increase or decrease varies by scenario. For other areas, including mid-latitudes, there is

no strong consistency in projections of stream flow, partly because of differences in projected rainfall and partly because of differences in projected evaporation, which can offset rainfall increases. The amplitude and frequency of extreme precipitation events are likely to increase over many areas, and the return periods for extreme precipitation events are projected to decrease. This would lead to more frequent floods. It is likely that global warming will increase the variability of Asian summer monsoon precipitation.[54]

The historical challenge of water resources management has been the reconciliation of human needs for predictable and regular flows of water with the variable patterns of precipitation and stream flow. The challenge is, of course, particularly large where average flows are especially low and where variability is high. Societies have developed a combination of structural and nonstructural mechanisms for attempting this reconciliation. The principal lessons from the experience of industrial countries are, first, that infrastructure (dams, levies and canals) is critical, and, second, that infrastructure investments need to be complemented by previously neglected nonstructural investments (in watershed management, land use planning and information, and systems management, for example). The emphasis in infrastructure-rich industrial countries is now heavily and appropriately focused on nonstructural solutions.

Developing countries face three major challenges. The first is that many have stocks of water infrastructure that are much smaller than those of climatically similar industrial countries. There are, accordingly, major needs for priority water infrastructure to be developed following best practice, from a technical, economic, social and environmental perspective (much of which is described in the report of the World Commission on Dams). The second challenge is to invest simultaneously and heavily in nonstructural management solutions. Most developing countries have understood this and are now doing so (efforts range from the massive watershed management project in the Upper Yangtze catchment in China, to the development of improved hydrology data in India, to elimination of water-using invasive alien plants in South Africa.) The third challenge is that global change exacerbates, in most cases, the underlying imbalances between human demands and natural hydrologic patterns, making the task of developing an integrated package of structural and nonstructural tools more urgent.

While climate change has profound implications for water resources management, the reverse is also true: properly managed, water can play a role in stabilizing greenhouse gas concentrations in the atmosphere. Hydropower can, in principle, make a major contribution to reducing the greenhouse gas intensity of energy production. Currently about 19 percent of the world's electricity is produced from hydropower.[55] While about 70 percent of hydropower potential in Europe and North America is already tapped, only 20 percent has been developed in Asia, 15 percent in Latin America and 5 percent in Africa.[56] Greenhouse gas emissions from most hydropower plants are relatively low, with the one important exception being large flat lakes in heavily vegetated tropical areas.[57]

While climate change has profound implications for water resources management, the reverse is also true: properly managed, water can play a role in stabilizing greenhouse gas concentrations in the atmosphere

The Implementation Plan from the World Summit on Sustainable Develoment firmly establishes hydropower (small and large plants) as a renewable source of energy whose production should be stimulated. Given the considerable untapped hydropower potential in many developing countries, the World Bank should actively support the development of small and large hydropower plants, ensuring, of course, that this is the most appropriate option and that good environmental and social practices are followed. Finally, recognition by the World Summit on Sustainable Development of hydropower as a source of renewable energy means that environmentally and socially sound hydropower plants should be eligible for revenues from the Clean Development Mechanism. An encouraging start (with small hydropower plants) has been made by the Prototype Carbon Fund.

Pricing and water rights: principled pragmatism

Many countries face multiple concerns regarding the growing scarcity of water, including associated conflicts among users and ways of transferring water from low-value to high-value uses. It has often been stated that

having users pay the full cost of water would solve these problems. Experience has shown the situation to be considerably more complex and nuanced, requiring more than extoling the virtues of pricing. This section outlines a different approach—one of "principled pragmatism." *Principled* because of the importance of economic principles, such as ensuring that users take financial and resource costs into account when using water. And *pragmatism* because solutions need to be tailored to specific, widely varying natural, cultural, economic and political circumstances, in which the art of reform is the art of the possible. The general arguments are illustrated by focusing on two major users—farmers and cities. Four issues are addressed:

- The quite different economic environments that pertain in these two sectors.
- The crucial distinctions between the perspective of economists and the perspective of users on what constitutes "appropriate pricing," and some of the practical implications of these distinctions.
- The critical distinction between the financial cost of providing a service and the opportunity cost of the resource itself, and the implications of this distinction.
- A review of some good practice developments, and the implications for a country-specific, practical, sequenced approach to dealing with these crucial issues in World Bank-financed projects.

If the government of a developed country chooses to subsidize the water used by its farmers, this has an impact on world prices and thus a direct impact on producers in developing countries

Issue 1: The radically different markets in which irrigation and urban water operate

The first, fundamental distinction is between the markets in which urban water supply and irrigation operate. With urban water supply the product can largely be considered as a local, nontradable good. The price charged for water in Helsinki is entirely immaterial to the price charged in Timbuktu. More specifically, if Helsinki chooses to subsidize its water users, that has no relevance to water users in Timbuktu.

With irrigation, where the end products are agricultural goods that trade on a global market, the situation is quite different. If the government of a developed country chooses to subsidize the water (and other inputs and outputs) used by its farmers, this has an impact on world prices and thus a direct impact on producers in developing countries. Since agricultural subsidies in OECD countries are huge (about $350 billion a year),[58] this has a major impact on the prices of agricultural products in developing countries and on the economic returns from farming. These distortions reinforce the demands of farmers in developing countries for subsidies for water, energy and other inputs, usually causing further harm to the economy and the environment.

This crucial fact makes the political economy of water pricing reform especially complex (both in theory and practice) for irrigation. Experience suggests that the appropriate approach is to acknowledge the need for subsidies and to document the existing levels. Then it is possible—as has been done in Mexico, for example[59]—for the government and farmers to agree on a subsidy-neutral transformation from a package of perverse subsidies (of fertilizers, pesticides and water, for example) to a package of virtuous subsidies (such as for improving land quality and for more efficient technology).

Issue 2: What economists and users understand by "appropriate pricing" and the implications for practice

Economists have long had a sound theoretical basis for assessing the resource implications of pricing, namely charging users for the marginal cost of producing the next unit of input. The rule is clear and correct, since it causes users to take into account the cost of the next unit of production when they consider using another unit of the resource. Unfortunately, even sound theory does not always translate into rules that can easily be understood and applied in practice.[60]

The first reason for this is that ordinary users understand a price as a payment for a service rendered. When the supplier is a monopoly (and prices are set outside of the market), users view the "legitimate" price as the cost to an efficient producer (usually a public utility) to produce the service. In economic terms, this means that users consider average, not marginal, cost to be legitimate.

Two more questions arise from this: what is included in "cost," and what happens if the service provider is not efficient? Costs that users readily consider legitimate include the

costs of operating and maintaining the existing infrastructure. And, with some explanation and communication, experience shows that users see the costs of replacement as legitimate costs. But even under the most advantageous of settings, users vigorously resist the notion that they should pay for sunk costs which, in their eyes, have already been paid for by taxes or other assessments.

The issue of the efficiency and accountability of the service provider is critical. "Why should I pay the costs of the Water Department when it is overstaffed, corrupt and fails to maintain our systems?" is a frequent and legitimate complaint from consumers and farmers. An illustration of the "lower bound" of these inefficiencies comes from the state of Victoria, Australia. Before reform, irrigation services were provided by a government department with well-trained and well-performing staff, and there was little corruption. After reform, once farmers had to pay the full costs of operation and maintenance, increased scrutiny of the supply agency led to a 40 percent reduction in these costs.[61] In most developing countries the inefficiency is much greater, and users' resistance to paying for these services is correspondingly higher. Exhortations to increase cost recovery without addressing these fundamental accountability questions are a major part of the reason why cost recovery has been so poor in many countries. An Operations Evaluation Department review of World Bank experience with irrigation shows that, despite the World Bank's insistent advocacy of cost recovery for decades, "there is no evidence of better cost recovery or of covenant compliance either."[62]

The bottom line, then, is that in most urban and irrigation systems cost recovery is critical for the supply of good services. The road to cost recovery does not lie in conditionalities, however, but in re-aligning the institutional arrangements so that suppliers are accountable to users, and so that charges become a principal tool used for ensuring the mutual obligations of suppliers and users.

Issue 3: The crucial distinction between financial costs and opportunity costs, and the implications for practice

User payments for the financial costs of services rendered is a fundamental requirement for any financially sustainable water supply system. This is very important. But the claims for pricing typically go beyond that of maintaining and operating infrastructure, and suggest that if "the prices are right, allocation will be optimal."

Proceeding from the point of view of users (as one must when considering the political economy of reform rather than theoretical elegance), it is vital to distinguish between two different types of cost. First are the costs that any user can understand, the financial costs associated with pumps, treatment plants and pipes. Second is the far more subtle concept of the opportunity cost of the resource itself. There have been many proposals for doing sophisticated calculations of this opportunity cost and charging users to ensure appropriate resource allocation. This has not worked for two fundamental reasons.[63] First, because it is impossible to explain to the general public (let alone to angry farmers) why they should pay for something that doesn't cost anything to produce. And, second, because those who have implicit or explicit rights to use the resource consider (appropriately) such proposals to be the confiscation of property.

Another important factor is that the ratio between financial and opportunity costs is often quite different for different sectors. Although everything in water (like politics) is local, there are two broad patterns. It costs a lot to operate the dams, treatment plants, pumps and pipes that provide households with the modest amounts of water they use. Alongside these large financial costs, the opportunity cost of the resource (as measured by the value of the raw water in its next best use, often irrigation) is typically quite low. For municipal and industrial water, therefore, financial costs generally dominate opportunity costs. Accordingly, as described in the earlier section on water supply and sanitation, discussions of water (supply) as an economic good focus on financial costs and on the associated issues of accountability, sustainability and transparent subsidies to ensure that poor people have access to services.

For irrigation the situation is almost exactly the opposite. It costs relatively little (per unit

Discussions of water (supply) as an economic good focus on financial costs and associated issues of accountability, sustainability and transparent subsidies to ensure that poor people have access to services; for irrigation the situation is almost exactly the opposite

of water) to build, operate and maintain the usual gravity systems that provide very large quantities of water. But the opportunity cost of the water (for cities and, increasingly, for high-value agricultural uses) in situations of scarcity is often much higher (a factor of 10 in typical cases of scarcity) than the financial cost of supplying the water.[64]

These numbers (remembering, of course, that every place is different) have profound implications. For ensuring that users take into account the cost of the resources they are using, the emphasis must be on financial costs for municipal supplies and on opportunity costs for irrigation. (Cost recovery for irrigation remains, as discussed above, very important for infrastructure sustainability, but not for allocative efficiency, which is the focus in this section.) The great challenge for irrigation, in light of these theoretical and practical realities, is how to have farmers take account of the opportunity cost of the resource.

For ensuring that users take into account the cost of the resources they are using, the emphasis must be on financial costs for municipal supplies and on opportunity costs for irrigation

In most parts of the world where water is scarce, informal water markets have arisen, in which those who have (implicit) rights sell water to those who need it. In some cases the practice has existed for hundreds of years and has been formalized (as in the Water Court of Valencia, Spain, which has managed transfers among users for a thousand years[65]). In many other cases (such as Western India[66]) water markets are extensive, sophisticated and illegal. Throughout the arid western United States water rights have long been legal property and, under different rules in different states, allowed for approved transfers between willing buyers and willing sellers.

As other parts of the world have experienced scarcity, and as the balance between the state and the individual has been adjusted, a number of countries facing water stress have turned towards formal, legal, managed water markets. This happened in Chile in the 1980s, and in Australia, Mexico and South Africa in the 1990s.

From the perspective of "how to ensure that users take account of opportunity costs, these arrangements have a unique virtue. Once users have clear, transferable property rights, they automatically consider whether they wish to forgo a particular use of water in exchange for compensation from another user who may place a higher value on the water. Reallocating water then becomes a matter of voluntary and mutually beneficial agreements between willing buyers and willing sellers, and not a matter of confiscation or an endless search for new sources of supply.

This is not to suggest that the establishment of water markets is simple or a panacea. The operation of such systems is demanding in terms of rules for establishing initial rights (including those for the environment and informal customary rights, especially of the poor and women, and recognition and protection of the rights of small users; the plumbing required to measure and move water; the regulatory institutions need to protect the rights of other water users and the environment and to ensure that the public interest is represented; and the information and management systems. Many consider these prerequisites to be so onerous that they cannot be made to work in most developing countries. And many point to early problems that all countries have faced in making such changes.

Without minimizing these challenges, three observations are germane. First, the prerequisites are essential for any form of well-managed allocation system, and the absence of such prerequisites is a problem for all allocation systems, including the administrative allocation systems practiced in most countries. (As with everything in water management, the choice is not between first and second best, but between "imperfect" and "even more imperfect.") Second, one of the many virtues of a market-based system is that, once started, there is a strong demand for better measurement, transparency, regulation and information. Third, all such established systems, often after initial adjustments, are working reasonably well. In none of the countries that have adopted such systems is there any thought of returning to the previous allocation procedures.

Issue 4: The political economy of change and the consequences for World Bank actions

The implications for World Bank actions are clear. First for financial cost recovery the key

is an institutional framework for making service providers accountable and efficient. When this happens, and when users see that their payments are used to improve the quantity and quality of services, they can and will pay. Here (as discussed in the sections on specific water-using sectors) the key watchwords are "competition," "regulation," transparency," "benchmarking" and "accountability." In urban water supply and the energy sector these ideas are common, and World Bank actions are mostly consistent with them.

In the irrigation sector they are little understood. The World Bank has recently become active in adapting these general institutional principles. Having made considerable progress at the users' level, it is now moving to tackle the major challenges of accountability and efficiency in public irrigation agencies. A critical element of this approach is to develop innovative mechanisms for breaking out of the typical low-level equilibrium, in which services are poor, users won't pay, so service quality declines further. In one innovative approach the World Bank helped the government break the circle by guaranteeing a new, accountable operator a declining proportion of "reasonable costs" over a five year period.[67] In the first year, then, the operator had sufficient revenues (mostly from the IDA credit, but some from users) to improve the operation of the system. As the level of service improved, users were informed that they would be charged for the new, improved service and that, eventually, they would pay the full costs of the service.

From the point of view of opportunity costs, entitlements and markets, the World Bank has been an active partner where systemic changes have been made in developing countries. The World Bank is also engaged in disseminating the lessons of experience and in stimulating thinking on these issues in many other countries. In all cases this will require close attention to the political economy of reform. This will mean, as with many other reform, picking the low-hanging fruit first, for instance, by starting with temporary trading in well-defined systems where good infrastructure is in place; not making the best the enemy of the good, by having a well-defined, sequenced, prioritized and patient approach for moving toward improvement rather than seeking to attain perfection in one fell swoop; keeping one's eyes peeled, by understanding that it is broader reforms outside the water sector (often relating to overall economic liberalization, fiscal and political reform) that will provide the preconditions for making the critical first steps.

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The political economy of reform will mean picking the low-hanging fruit first, and not making the best the enemy of the good

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2. Stocktaking and Evaluation

This Strategy does not aspire to rewrite the 1993 Water Resources Management Policy Paper, but to complement it by focusing on the lessons in translating its principles into practice

Building on the 1993 Strategy and consulting with stakeholders

This Strategy, a product of the World Bank-wide Water Resources Management Group, takes as its starting point the well-received 1993 Water Resources Management Policy Paper. This Strategy does not aspire to rewrite the Policy Paper, but to complement it by focusing on the lessons in translating its principles into practice. The Strategy draws heavily on the OED report assessing experience in implementing the 1993 Policy Paper, complementing the OED findings with results of the following reviews and consultations held in preparing this Strategy:

- An assessment of the World Bank's portfolio, with reports written on—and discussed with—each region.
- In-country consultations during the data gathering stage with broad cross-sections of stakeholders in Brazil, India, Nigeria, Philippines and Yemen (with complete reports of the presentations, proceedings and conclusions posted at www.worldbank.org/water).
- In-country consultations with the governments of Brazil, China, Ethiopia, Jordan, Lao PDR, Nepal and Thailand (in the process of consulting on the report of the World Commission on Dams).[1]
- A global consultation on international waters hosted by Germany in Berlin.[2]
- An extensive process of soliciting views on the draft Strategy. The draft Strategy was posted on the Bank's external Web site for comment, and eight external consultations were held with stakeholder groups in Brazil, India, Nigeria, Philippines and Yemen, along with special consultations with the private sector, bilateral donors and international NGOs.[3]
- Discussions with relevant sector boards and regions within the World Bank.
- The report of a high-level World Bank-wide panel that examined options for a new business model for World Bank engagement in high-reward–high-risk hydraulic infrastructure.

Finally, this Strategy draws heavily on two major recent international reports—the World Commission on Water Report delivered at The Hague World Water Forum in March of 2000,[4] and the report of the World Commission on Dams of November 2000[5]—and the recent World Summit on Sustainable Development.

There is broad consensus on what constitutes good water resources management, but all countries are far from managing water resources according to these principles

The main thrusts of the World Bank's 1993 Water Rescources Management Policy Paper[6] are consistent with the global consensus (embodied in the Dublin principles forged at the 1992 Earth Summit process and re-affirmed thereafter) that water resources should be managed holistically and sustainably, respecting subsidiarity and ensuring participation, and treating the resource as an economic as well as social good. The Operations Evaluation Department review[7] (and the World Bank's experience) indicates that the goals of the 1993 Policy Paper remain relevant and appropriate, but that progress has been slow in getting actions on the ground.

The Policy Paper offers a vision toward which countries should be moving. While

experience has reinforced the relevance and importance of the Dublin Principles, a detailed recent review by the Organisation for Economic Co-operation and Development shows that even the most advanced countries are far from full implementation of these principles in practice, as indicated by the following excerpts:[8]

- "Insufficient progress with integrating environmental and sectoral policies."
- "Basic water quality standards not yet met."
- "Prices rarely reflect full economic and environmental costs."
- "Most work in improving water use efficiency remains to be done."
- "Demand management policies are still little developed."
- "Agricultural water use is still heavily subsidized."
- "The progress achieved to date is the result of many years of effort."

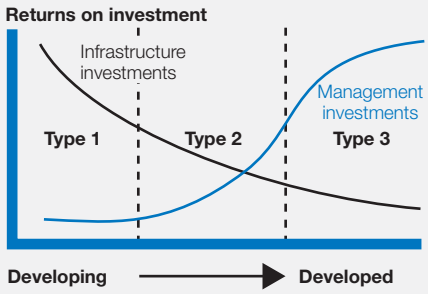
The implication is not that the principles are irrelevant, or that progress is not possible. Rather it is that it takes vision, persistence and patience to make progress.

A wide variety of water resources challenges in the regions

In **the Africa Region** great rainfall variability militates against growth and poverty reduction. Whereas countries with temperate climates can typically use about 40 percent of annual runoff through natural regulation (baseload in streams, groundwater and water held in wetlands and lakes), in arid environments with high rainfall variability, less than 10 percent of runoff can be captured through natural regulation. In such environments artificial storage becomes a necessity. As a result of this and other factors, the levels of water-related services (water supply, irrigation and hydropower) in Africa are much lower than in other regions.

Much of the infrastructure built in Africa has been managed and operated poorly. Thus African countries give high priority to integrated programs aimed at better management of existing water infrastructure and at the development of new, growth-inducing

f2.1 Rates of return on investment by development of water infrastructure



Source: World Bank, China Country Water Resources Assistance Strategy 2002.

infrastructure. Given the extraordinary density of international river basins in Africa—including the Nile, the Senegal, the Niger, the Zambezi, the Congo and the Orange—cooperation and benefit sharing on such basins present a host of opportunities and challenges in terms of developing benefit-generating infrastructure and of managing both the infrastructure and the rivers.

The countries of **East Asia and Pacific,** large and small, increasingly see water resources management as critical for growth, poverty reduction and sustainable development. That said, the challenges vary widely along the spectrum of situations illustrated in figure 2.1 (developed by the Bank's East Asia and Pacific Region). Much of eastern and northern China face type 3 challenges, in which management of scarce water resources, existing infrastructure and greater attention to pollution are the major concerns. In western China the situation is more a mixed type 1 and 2, with an emphasis on harnessing the productive potential of water resources for hydropower and irrigation, and simultaneous attention to integrated basin management and watershed management. Indonesia, the Philippines, Thailand and Vietnam are also facing mixed type 1 and 2 conditions. These countries have abundant water resources but are experiencing water shortage and competition for water around large cities, as well as serious water pollution problems that will require a mix of management and infrastructure investments. In addition, large, less developed areas in these countries are in need of significant

African countries give high priority to integrated programs aimed at better management of existing water infrastructure and at the development of new, growth-inducing infrastructure

investments in infrastructure. In smaller countries of the Region (Lao PDR, for example) the situation is pure type 1. Here, the export of hydropower is one of the very few options for generation of revenue and use of these revenues to stimulate growth and reduce poverty.

In much of **Europe and Central Asia** the challenges are quite different. Most countries in the region inherited large stocks of water infrastructure—so large that national budgets are inadequate for maintaining the stock. In the Russian Federation, for example, it is estimated that 3 percent of hydropower generating capacity is being lost each year due to inadequate maintenance. With some important exceptions, the challenge in the region is not building more infrastructure, but developing an appropriate strategy for deciding what infrastructure will be maintained and rehabilitated, and what retired. Ensuring the safety of existing dams is an important priority.

Most countries in Europe and Central Asia inherited large stocks of water infrastructure—so large that national budgets are inadequate for maintaining the stock

Investments in infrastructure are needed, however, for improved drainage management and flood management in several countries. And there is potential for the large-scale development of hydropower in the upstream riparian countries of the Amu Darya and Syr Darya rivers in Central Asia. There are also needs for investments in water quality improvements in the north and west, primarily in environmentally sound agriculture to reduce runoff into rivers, and in wastewater treatment to meet EU accession standards. A further major challenge includes development of institutions, governance arrangements and incentive policies for efficient and equitable water management in the transition from centrally planned to market economies. An additional challenge is that irrigation infrastructure was developed for large farms and is ill-adapted to the small farms that have emerged since land privatization.

In **Latin America and the Caribbean,** too, there are a wide variety of water resources challenges. First, many countries in the region are vulnerable to recurring natural disasters from floods and droughts. Second, water quality management, and the associated unmet demand for urban environmental infrastructure, are a major challenge facing all urban areas. Third, development of renewable hydropower is an important opportunity, with only about 20 percent of the economically viable potential currently tapped. Fourth, inland navigation is growing rapidly and plays a vital economic development role in the interior of the continent, but with major environmental implications. Fifth, protection of inland and estuarine freshwater ecosystems is an important challenge. Sixth, the development of major water infrastructure is quite uneven across the continent. In recent decades there have been some major advances in the use of innovative instruments for managing water, such as river basin authorities, stakeholder participation and water rights. In the advanced areas of the region there is a need for consolidation and refinement of these and other innovative instruments; in much of the region that process is yet to start.

The **Middle East and North Africa Region** has the highest level of water stress. Of overriding importance are technical innovation and more efficient allocation and use of surface water and groundwater. The challenges of re-use of water, desalination, irrigation modernization and orderly mechanisms for the voluntary transfer of water from low-value uses (especially agriculture, which uses 85 percent of the water) to high-value uses (especially urban and industrial) are of high priority. Increasing the level of wastewater treatment (from the current 27 percent) and re-use is a central, and expensive, challenge. While the primary focus in the region is on better management, there are major infrastructure challenges, too, often with an international waters dimension and often with major political, environmental, cultural property, economic, institutional and financial implications. Addressing the water challenges of the region will require detailed assessment of the long-term options facing both low- and middle-income countries, including desalination, waste water treatment and groundwater management. And it will require helping countries in the region enhance research to find innovative solutions.

The **South Asia Region** is, in many ways, a textbook case for the impacts, positive and

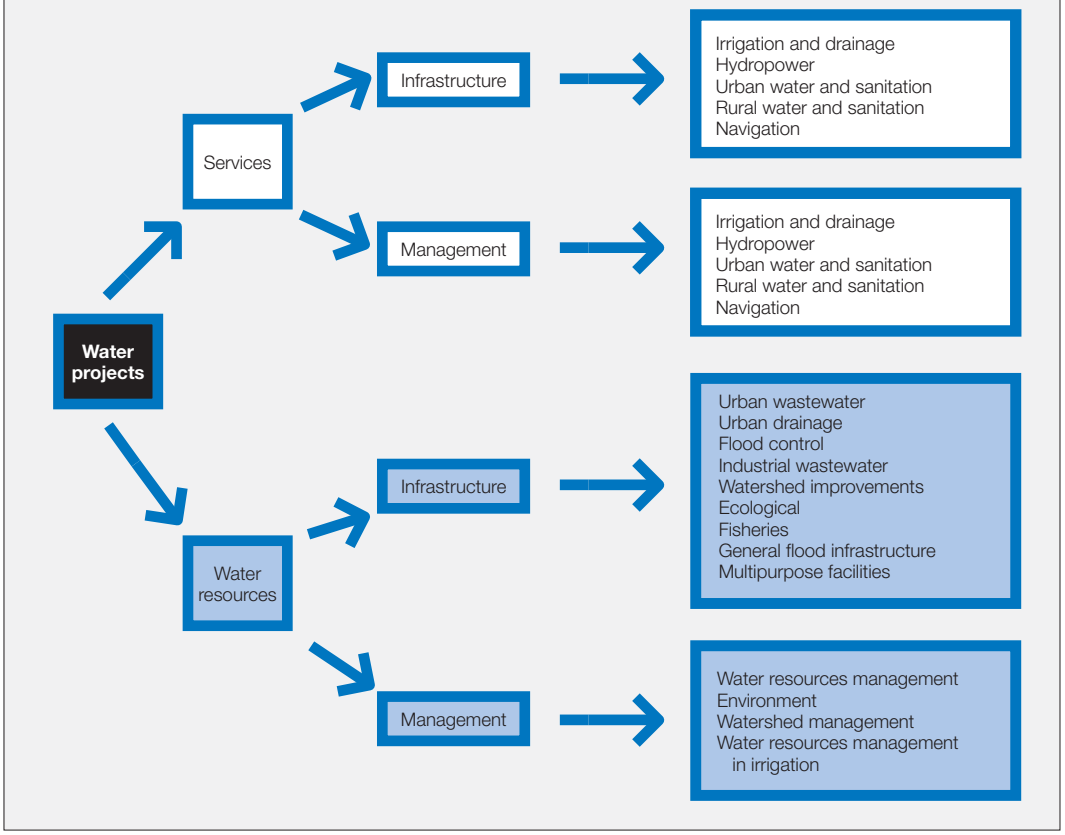
negative, of water on growth, poverty reduction and sustainability. Major public investments were made in both colonial and independence eras in water storage, transmission, management and use. As documented earlier in this Strategy, these investments had huge, mostly positive, impacts on poverty, through direct effects on farmers and indirect effects operating through the multitude of linkages of agricultural production with the development of local commerce and industry, and even with the economic returns of investments in human capital. Over time, however, serious challenges emerged. The adverse effects of large water projects on some groups of people were not adequately taken into account, nor was the evidence of declining performance and rising environmental problems (especially salinization) as a result of more attention to construction than to management.

Compounding these problems has been a regionwide lack of reform of the fundamental underlying water-use sectors (electricity, irrigation and water supply). A number of governments in the region have embarked on major reform programs in these sectors. While commitment to reform is necessarily mixed in such a large region, and progress (for such complex issues) necessarily slow, the direction is clear. The World Bank supports such reform processes and has directed resources to governments making such reforms. As these reforms advance, and as illustrated in the Andhra Pradesh example below, the South Asia Region will focus on simultaneously supporting such reform processes and financing appropriate investments in infrastructure. As in other settings, progress will require principled pragmatism. The World Bank will act as a partner in supporting realistic, prioritized and sequenced locally driven reform packages and in supporting appropriate infrastructure investments, which are an essential complement to such reforms.

The overall picture, then, is one of enormous diversity and one that defies a standard,

The Middle East and North Africa Region has the highest level of water stress

f2.2 **Water services and water resources**



prescriptive approach to determining actions and priorities. This means that there is a need for customized, localized analytic work in each region, country and subnational entity to identify the priority, mix and sequence of needed management and infrastructural actions (figure 2.2).

World Bank engagement in water resources development and management

Developing countries invest about $70 billion annually in water-related investments. About 90 percent of investment comes from domestic sources. The World Bank has historically invested about $3 billion a year in water-related sectors, accounting for about 5 percent of investment in developing countries.

The World Bank has historically invested about $3 billion a year in water-related sectors, accounting for about 5 percent of investment in developing countries

The level and composition of water resource-related lending Bankwide and in the regions

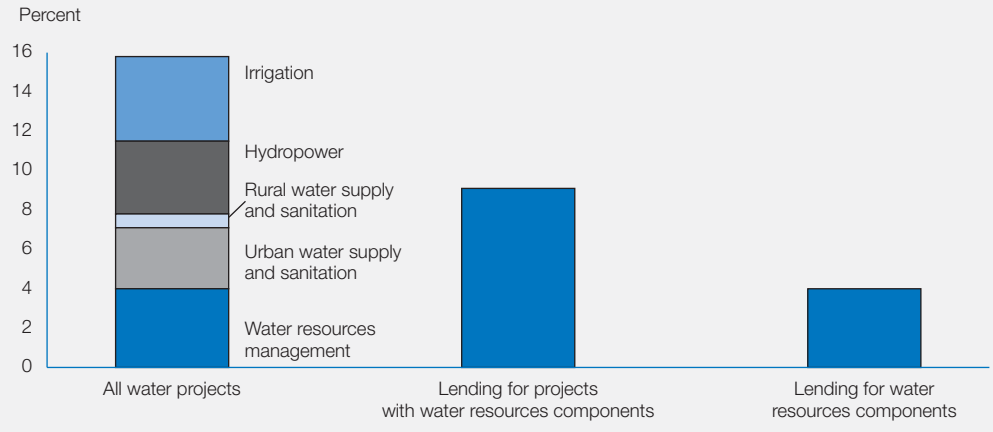
For this strategy, all World Bank-financed water projects in the past decade were reviewed and costs allocated to the specific items shown in figure 2.3.[9] Anticipated lending for projects with water resources components and for the components themselves was estimated for the projects in the lending pipeline for 2003–05.

The results, in brief:

- Lending for water accounted for about 16 percent of World Bank lending over the decade (figures 2.3 and 2.4).
- The major water services components (irrigation, hydropower, and water supply and sanitation) each accounted for about 4 percent of overall World Bank lending over the period (figures 2.3 and 2.4).
- Lending for projects with substantial water resources management components accounted for about 9 percent of World Bank lending (figures 2.3 and 2.5).[10]
- Lending for water resources components accounted for about 4 percent of Bank lending (figures 2.3 and 2.6).
- As documented by the Operations Evaluation Department, in recent years there has been a shift away from traditional infrastructure sectors toward investments in the environment and resource management.[11] About 80 percent of Bank lending for water resources is for water resources infrastructure and about 20 percent for institutional capacity building. The proportion going to institutional capacity building is higher than average in the Latin America and Caribbean, South Asia, and Middle East and North Africa Regions.

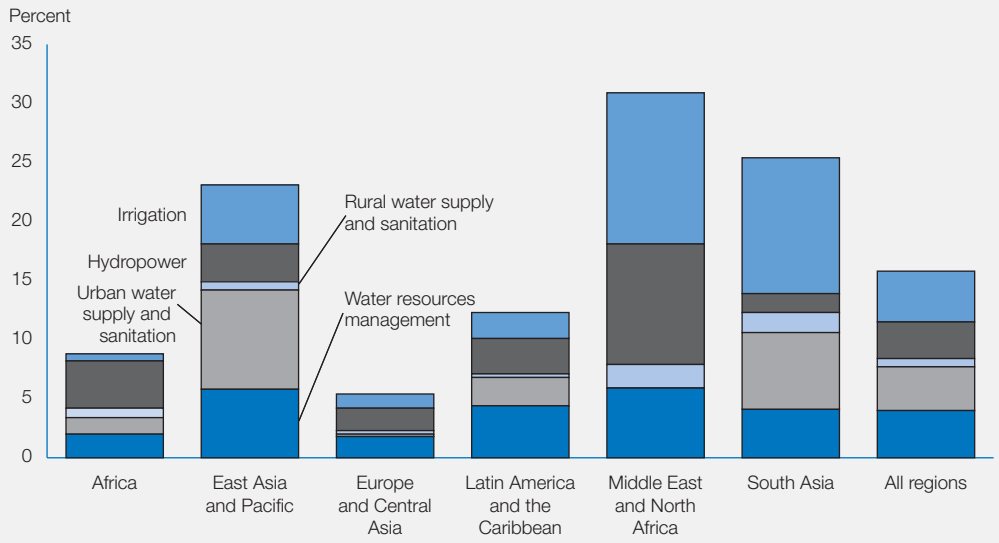
There are wide regional variations in current and anticipated levels and patterns of lending

f2.3 Composition of the World Bank's water portfolio as share of Bank lending, fiscal 1993–2002



Source: World Bank staff estimates.

f2.4 Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002



Source: World Bank staff estimates.

Lending for water accounted for about 16 percent of World Bank lending over the decade

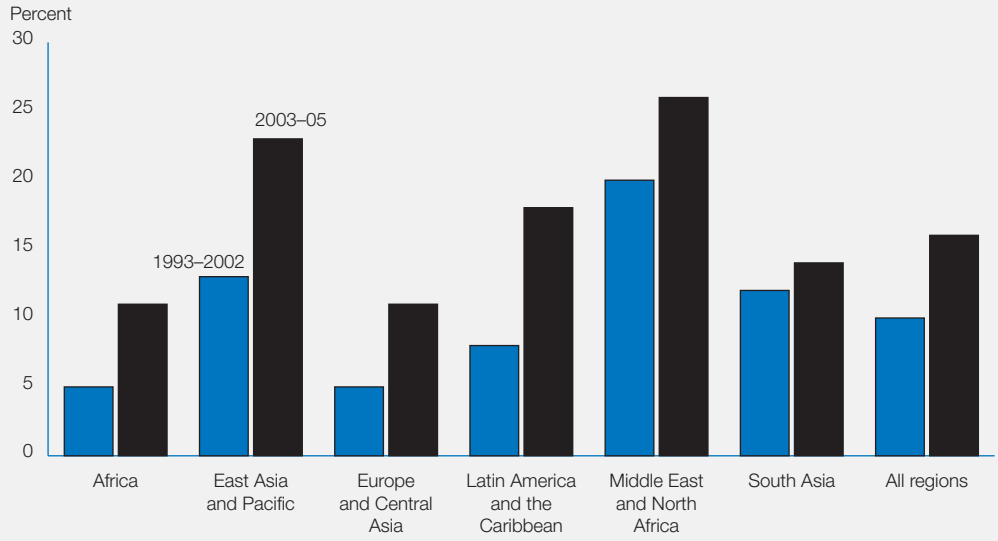
for water-related projects (figure 2.4), for projects with water resources components (figure 2.5) and for water resources components themselves (figure 2.6). In broad outline:

- **Africa**
  - Lending for water-related projects accounts for only 8 percent of Bank lending in the region over the last decade, compared with 16 percent Bankwide (figure 2.4). Most of this lending is for urban water supply and sanitation projects.
  - Lending for projects with substantial water resources components is projected to rise rapidly, from 5 percent over the last decade to 11 percent in 2003–05 (figure 2.5), in considerable part due to the large investments the Africa Region has made in analytic and advisory work on water.
  - Lending for water resources components will rise from 2 percent (portfolio) to 3.5 percent in the pipeline (figure 2.6).

- **East Asia and Pacific**
  - Lending for water-related projects accounts for 22 percent of Bank lending compared with 16 percent Bankwide over the last decade (figure 2.4). The region has had the largest hydropower program, sizable irrigation and water resources programs and modest lending for urban water supply.
  - Lending for projects with substantial water resources components is expected to rise rapidly, from 13 percent over the last decade to 23 percent in 2003–05 (figure 2.5).
  - Lending for water resources components will rise from 6 percent to 7 percent of regional lending (figure 2.6).

- **Europe and Central Asia**
  - The region has the smallest portfolio (relative to overall regional lending) of water-related lending (figure 2.4). Lending for water-related projects accounts for only 5 percent of Bank lending in the region over the last decade, compared with 16 percent Bankwide.
  - Lending for projects with substantial water resources components is expected to rise rapidly, from 4 percent over the last decade, to 11 percent in 2003–05 (figure 2.5).
  - Lending for water resources components will stay about constant, at a low 2 percent (figure 2.6).

f2.5 **Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05**



Source: World Bank staff estimates.

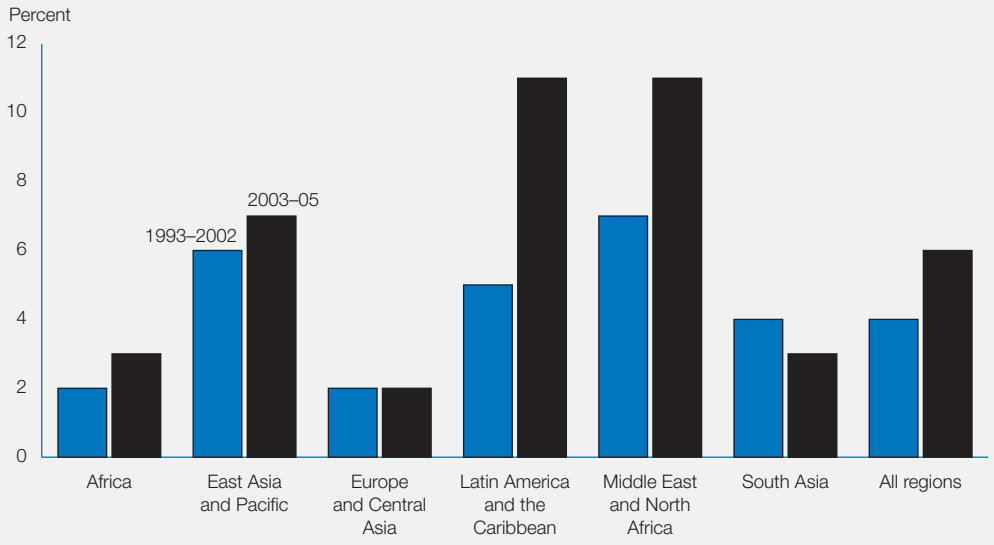
Lending for water resources components accounted for about 4 percent of Bank lending

- **Latin America and the Caribbean**
  - Lending for water-related projects accounts for about 12 percent of Bank lending in the region over the last decade, compared with 16 percent Bankwide (figure 2.4). The region has a balanced portfolio of water resources, hydropower, urban water supply and irrigation lending.
  - Lending for projects with substantial water resources components is projected to rise rapidly from 8 percent over the last decade, to 18 percent in 2003–05 (figure 2.5).
  - Lending for water resources components is projected to rise from 4 percent (portfolio) to more than 11 percent in the pipeline (figure 2.6), giving the region the highest share of its lending to water resources components.

- **Middle East and North Africa**
  - As the driest region the Middle East and North Africa has the largest (as a proportion of regional lending) water portfolio in the Bank (figure 2.4). Lending for water-related projects accounts for 31 percent of Bank lending in the region over the last decade, compared with 16 percent Bankwide. The Region has substantial portfolios of irrigation, urban water supply and water resources lending.
  - Lending for projects with substantial water resources components is projected to rise still further, from 17 percent over the last decade to 26 percent in 2003–05 (figure 2.5).
  - Lending for water resources components will rise from 6 percent (portfolio) to 11 percent in the pipeline (figure 2.6).

- **South Asia**
  - Lending for water-related projects accounts for 25 percent of Bank lending in the region over the last decade, compared with 16 percent Bankwide (figure 2.4). The South Asia portfolio is dominated by large irrigation and hydropower projects.
  - Lending for projects with substantial water resources components is projected to rise slightly from 12 percent to 14 percent over the next three years (figure 2.5), while lending for water resources components is projected to decline from 4.1 percent to 2.8 percent of regional lending (figure 2.6).

f2.6 **Lending for water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05**



Source: World Bank staff estimates.

The changing composition of World Bank lending for water resources infrastructure in the regions

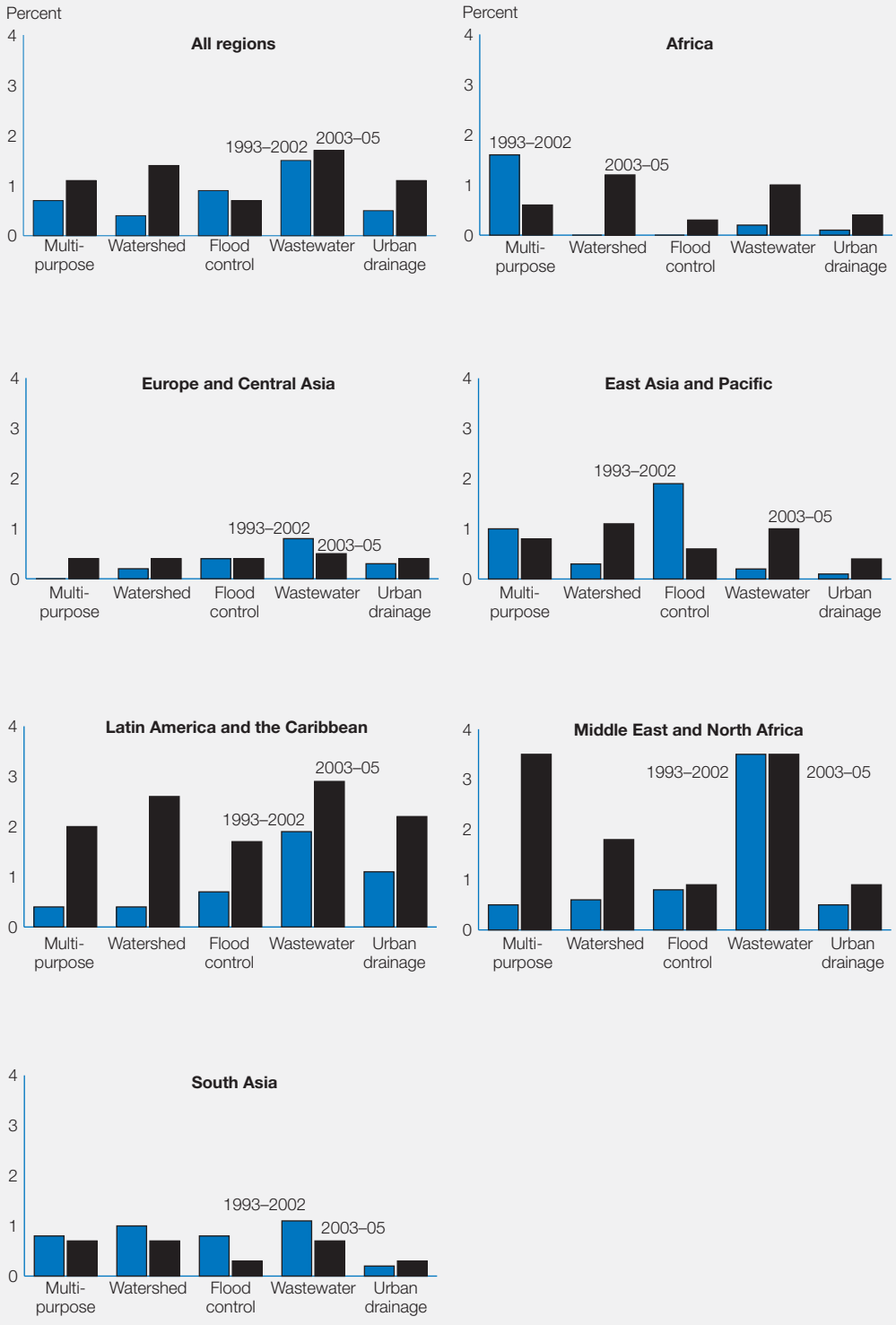
Figure 2.7 shows the composition of water resources lending in the portfolio and the pipeline, for the World Bank and for each region. Once again, the patterns are quite diverse, mostly related to the different challenges each region faces.

Overall, there have been large increases in Bankwide financing for water resources components of projects. Especially noteworthy are large increases in watershed management and urban drainage. Noteworthy trends in the regions include:

- Latin America and the Caribbean and the Middle East and North Africa Regions, the two regions with by far the highest investments in water resources management, invest heavily in wastewater treatment. The huge proportional increases in these regions are driven by large increases in multipurpose watershed and urban drainage components of projects.
- Africa is also expanding rapidly from a low base and moving toward a diverse portfolio of water resources activities.
- Water resources activities in Europe and Central Asia remain very low but are expanding gradually. Lending constraints in the region are tight, and in the first years of transition the Bank's emphasis has been on economic reform and social protection rather than on investments in infrastructure. Extensive sector work is ongoing.
- Although South Asia has a large portfolio of water-related projects, the levels of lending for water resources components in the region is low and projected to decline.

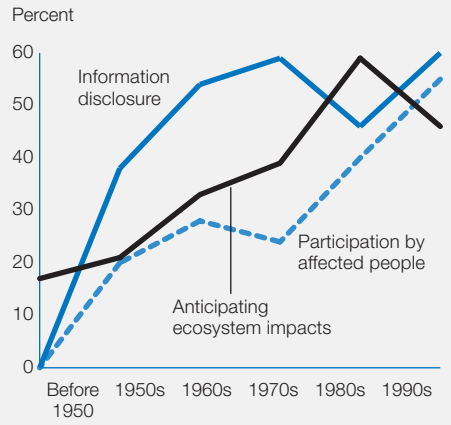
As documented by the report of the World Commission on Dams, the World Bank has become a global leader in integrating social and environmental considerations into water development and management and has contributed strongly to the steady improvements in practice (figure 2.8) that have taken place in developing countries.[12] This has meant changes in what is done with large increases in projects dealing (with watershed management, for example) and how. These positive changes notwithstanding, World Bank involvement in potentially controversial hydraulic infrastructure financing (such as dykes, dams, major canals and interbasin water transfers) has declined sharply. For

f2.7 Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

f2.8 The social and environmental quality of the design of large dams



Source: World Commission on Dams. 2000. *Dams and Development: A New Framework for Decision Making.* London: Earthscan.

example, whereas the World Bank financed 3.5 percent of dams constructed in the 1970s, it financed less than 1 percent in the 1990s, with World Bank lending accounting for less than 0.5 percent of total financing for new dams in developing countries.

IFC has 6 investments (with total commitments of about $500 million for IFC's own account and the account of participants) in water and sanitation and 10 in hydropower (also totaling about $500 million in commitments for IFC and participants). Currently, MIGA provides political risk insurance to one water and sanitation project and four hydropower projects. Although business as usual scenarios suggest that hydropower would remain a relatively small portion of IFC and MIGA business, it is not inconceivable that they may be called to play an enhanced role as the private sector intensifies its efforts in the development of water infrastructure in emerging markets.

The great challenge is making progress, not achieving perfection

While there is broad consensus on the principles of integrated water resources management, in the words of the Operations Evaluation Department study on how the World Bank's portfolio has evolved since 1993, its consistency with the 1993 Water Resources Management Policy Paper and how portfolio ratings and quality have changed, "translating policies into practice is difficult."[13] The study found that the volume of World Bank lending for water has increased since 1993 and that the composition of the portfolio has changed considerably, with less spending on sectoral infrastructure, and greater attention to water resources management and environmental and institutional aspects. It also found that consistency with the Policy Paper has improved, with more sustainability, better institutional arrangements and some progress on water as an economic resource. The study's major lessons on implementation:

- *Selectivity and sequencing are important:* "Such a large task cannot be accomplished everywhere at once—or quickly. Selectivity is therefore important…. it is important to focus on doing a few things right to demonstrate new approaches that work. So, while it is necessary to be comprehensive, it is not necessary to be complex…. the agenda is extremely ambitious, and agreeing on the sequence and scope of activities in a country setting is difficult, time-consuming, and risky."
- *Progress takes place more through "unbalanced" development than comprehensive planning approaches:* "Institutional development efforts should abandon comprehensiveness of scope and schedule and a partial, cumulative, and highly focused approach [should be] pursued…."
- *Triggers for reform usually come from outside the water sector:* "In all cases the precursors to water reform were outside the water sector—and reform of water is typically second or third generation, following in many cases reform of the power sector….In many of these cases water reform also benefited from the synergy of political and economic liberalization."

There is some concern that this sequenced and prioritized approach means abandoning the idea of integrated water resources management, which was a core principle of the 1993 Policy Paper. This is not the idea. As noted earlier, even the world's most developed countries are a long way from integrated water resources management, and progress has

The goal of this Strategy is not to dismiss the goal of integrated water management, but to define practical, implementable and therefore sequenced and prioritized actions that can lead to that end

been slow and incremental. The goal of this Strategy is not to dismiss the goal of integrated water management, but to define practical, implementable and therefore sequenced and prioritized actions that can lead to that end.

The World Bank position on the "Guidelines" of the World Commission on Dams

As is evident in many places in this Strategy, the report of the World Commission on Dams issued in late 2000 is a major reference point in the ongoing debate about dams and their role in development. The main thrust of the report is advocacy of:

The World Bank is committed to support its borrowers in developing and managing priority hydraulic infrastructure in an environmentally and socially sustainable manner

- Five core values—equity, efficiency, participation, sustainability and accountability—for future decisionmaking on dams.
- Seven strategic priorities—gaining public acceptance, assessing options, addressing existing dams, sustaining rivers and livelihoods, recognizing entitlements and sharing benefits, ensuring compliance, and sharing rivers for peace, development and security.
- A set of criteria for assessing compliance and 26 guidelines for review and approval of projects at five stages of decisionmaking.

Most organizations involved in the debate concur with the five core values and seven strategic priorities. However, in the two years since the report was issued, no consensus has emerged on the applicability of the 26 guidelines.

The World Bank conducted a detailed comparison of the 26 guidelines and the Bank's safeguard policies (see Annex 1).[14] Although there is much in common, there are several important differences. First, while there is agreement on the importance of the rights of affected and indigenous people, the World Bank believes that adoption of the World Commission of Dams principle of "prior informed consent" amounts to a veto right that would undermine the fundamental right of the state to make decisions in the best interests of the community as a whole. Second, while there is agreement on stimulating good faith negotiations on international rivers, World Bank experience and policies are based on proactive engagement rather than disengagement from countries that are not already negotiating with their neighbors on international waters, as advocated by the World Commission of Dams. And, third, while there is agreement on the importance of consultation and public acceptance, experience suggests that the multistage, negotiated approach to project preparation recommended by the World Commission of Dams is not practical and would virtually preclude the construction of any dam.

The World Bank is committed to support its borrowers in developing and managing priority hydraulic infrastructure in an environmentally and socially sustainable manner. In doing this the Bank believes that the World Commission of Dams' core values and strategic priorities are appropriate principles and consistent with Bank practice and policies. The Bank will not, however, comply with the 26 guidelines. Rather, it will continue to work with its borrowers in effective implementation of current World Bank operational policies, which the World Commission of Dams describes as "the most sophisticated set of policies, operational procedures and guidelines amongst the international donor community."

A United Nations Environmental Program–led follow-up process (in which the World Bank is participating) is proceeding on a basis similar to that articulated by the World Bank: acceptance by all stakeholders of the core values and strategic priorities but recognizing that there is no consensus among stakeholders on the 26 guidelines.[15]

The comparative advantage of the World Bank and the need to revise business practices

The World Bank's role in water resources management has been discussed extensively with borrowers and other stakeholders in 14 formal and multiple informal consultations. There is much commonality in the views expressed, the most important of which include:

- Improved water development and management are *essential for sustainable*

growth and poverty reduction in many developing countries.

- *The World Bank has played a major role* in improving technical, financial, social and environmental performance of water management.
- Borrowers find that the World Bank has a *strong comparative advantage* in performance and knowledge, convening power, ability to link water issues to other sectors through economywide engagement, a multidisciplinary perspective, relations with almost all riparian countries, a combination of knowledge and financial resources, and engagement at all scales (local watershed, city, irrigation district, river basin and aquifer, country, regional) and ability to integrate across these.
- The World Bank, both directly and through its role in the Global Environment Facility, has a major role to play in facilitating cooperation on *international waters* and in helping finance priority investments resulting from cooperative management. The basis for success must be a focus on sharing benefits, not on sharing water. Recent work has shown that such an emphasis can bring benefits "to the river" (enhanced environmental quality), "from the river" (economic benefits), reducing costs "because of the river" (conflicts among riparians that are exacerbated by conflicts over water) and "beyond the river" (broader economic cooperation among riparians).[16]
- There is a strong appreciation for the scope of the World Bank Group's instruments to assist borrowers in the area of private sector participation in infrastructure. There are a number of instances in the water sector of successful *collaboration between the World Bank and IFC.*
- An important and growing area of World Bank involvement is in *increasing the benefits of existing hydraulic infrastructure* and in the associated challenge of rehabilitating and maintaining infrastructure stocks.
- Borrowers have *a strong desire that the World Bank remain involved,* especially in the most challenging and contentious issues.
- There is a broad recognition that *neither infrastructure alone nor management reforms alone are adequate,* and a general recognition that it is integrated packages of software and hardware that are needed in most developing countries. It is essential that a least-cost mix of infrastructure and management approaches be used to achieve development objectives.
- In all cases, the Bank must emphasize the importance of institutions and *capacity building* from the national to the local level.
- Borrowers expressed *concern with the increasing complexity, cost and rigidity of the World Bank's business processes,* and its inability to come to closure on controversial projects.
- Because of the high transactions costs and what some describe as the risk-averse approach of the World Bank, borrowers increasingly see the World Bank as *a less preferred source of financing* (compared with domestic sources, commercial lenders, bilateral donors and other multilateral development banks).
- The reduced Bank engagement with major infrastructure has *lessened the Bank's ability to influence critical legal, institutional and regulatory reforms.*
- The Bank must be engaged in a full range of infrastructure and management activities in "countries that have investment choices" if the Bank is to remain a *credible knowledge institution,* since it is often experience in these countries that is relevant to poorer countries.

Because of the high transactions costs and what some describe as the risk-averse approach of the World Bank, borrowers increasingly see the World Bank as a less preferred source of financing

These realities pose a formidable challenge for the World Bank, in basing advice on sound, objective analysis; in being realistic; in taking advantage of opportunities that arise; and in working with its borrowers to identify a set of prioritized, realizable management and infrastructure investments that can help make steady improvements through an evolving, long-term approach.

Notes

1. World Bank. 2001. "Responding to the WCD Report: A Progress Report from the World Bank." [www.worldbank.org/water, section on dams and the World Commission on Dams].
2. See www.worldbank.org/water under "Sector Strategy."
3. See www.worldbank.org/water under "Sector Strategy."

4. World Water Commission. 2000. *A Water Secure World: Vision for Water, Life and the Environment*. Marseille: World Water Council.
5. World Commission on Dams. 2000. *Dams and Development: A New Framework for Decision Making*. London: Earthscan.
6. World Bank. 1993. *Water Resources Management: A World Bank Policy Paper*. Washington D.C.
7. World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy*. Washington D.C.
8. Organisation for Economic Co-operation and Development. 1998. *Water Management: Performance and Challenges in OECD Countries*. Paris.
9. The data in this section are based on unpublished analysis done by World Bank staff for this Strategy.
10. A project is defined as having "substantial water resources components" when more than 30% of project cost is allocated to water resource infrastructure and management, as defined in figure 2.2.
11. World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy*. Washington D.C.
12. World Commission on Dams. 2000. *Dams and Development: A New Framework for Decision Making.* London: Earthscan.
13. World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy*. Washington D.C.
14. World Bank. 2001. "Responding to the WCD Report: A Progress Report from the World Bank." [www.worldbank.org/water, section on dams and WCD].
15. www.unep-dams.org.
16. Sadoff, C., D. Whittington and D. Grey. 2002. *Africa's International Rivers: An Economic Perspective*. Directions in Development Series. Washington D.C.: World Bank.

3. Strategic Options and Possible Business Implications

The additionality and focus of this Strategy

Two distinct classes of challenges need to be faced if the World Bank is to be an effective partner. Class 1 challenges relate to the many areas of water resources management where there is broad consensus, where Bank practices have changed for the better and where the need is for "more of the same." Class 2 challenges relate to a few fundamental areas where there is no global consensus, where the Bank has not charted a consistent set of rules of engagement and where, as a result, the Bank has not performed as well as it could as a reliable and effective partner.

Class 1 challenges are numerous. They include more attention to water quality, conservation, groundwater management, watershed management and small-scale, community-based solutions, and institutional reform. As documented earlier and in the Operations Evaluation Department report, the World Bank has invested heavily in these vital areas over the past decade and will continue to increase such lending.[1] Precisely because there is momentum and no particular barriers in Bank engagement with these issues, no major changes of course are required, and there is no need for Bank management and the Board to focus specifically on them. These issues—which are very important and constitute the majority of activities with which the Bank is involved—are thus treated only briefly in this Strategy. Instead the Strategy focuses on the difficult and contentious class 2 challenges that require the attention and guidance of senior management and the Board.

Because it is easy to misinterpret this Strategy (by incorrectly assuming that the amount of attention devoted to a particular issue implies how important an issue is judged to be), the approach is illustrated schematically. Figure 3.1 shows that this Strategy applies a magnifying glass primarily to the contentious and difficult issues, giving less attention to the more numerous (and very important) issues that progress naturally, with few impediments. Chapter 4 shows how the Strategy (and the 1993 Water Resources Management Policy Paper) might play out in different country contexts, showing in most cases that it will be a mix of management and development investments that need to be undertaken.

This Strategy applies a magnifying glass primarily to the contentious and difficult issues, giving less attention to the more numerous issues that progress naturally, with few impediments.

The objective of this Strategy is to position the World Bank as an effective partner for countries as they seek to develop and manage their water resources to stimulate sustainable economic growth and poverty reduction. The Strategy builds on the following assessment:

- In all countries there is a major need for more effective management of water resources, to ensure increased benefits across sectors while taking into account the diverse interests of stakeholders (including poor people).
- In all countries there is need for greater attention to water allocation, demand management, water rights and the use of pricing and other economic instruments.
- In all countries there is a need for improving the benefits from existing infrastructure and for developing institutional and financial arrangements for sustainable rehabilitation and maintenance.
- In many developing countries appropriate management and institutional actions need to be complemented by investments in a range of new hydraulic infrastructure.

Continued engagement by the World Bank Group can only take place in the context of a transparent and candid assessment of risks and the management of these risks through a diversity of instruments and oversight

These investments require long-term financing, and financing requirements will only continue to grow as costs increase. Effective support will require deployment of the full range of instruments available through the World Bank Group (including IFC and MIGA).

- As demands for water services rise, increases in supply will require the use of next-generation technologies, including demand management, interbasin transfers and the sharing of benefits from transboundary waters. Together, these result in significant increases in the financial and transaction costs of delivery.
- Potential returns to packages of management and infrastructure investments are large. In many countries investments in water resources management infrastructure can have high direct and indirect economic growth and development payoffs (including mitigation of climate change impacts on the poorest, and conflict prevention). There are risks, but there are also high returns.
- Sound water resources management is a significant public good (flood control, interbasin and transboundary issues) and is part of an effective strategy for poverty reduction (employment generation, health and livelihood enhancement).
- Continued engagement by the World Bank Group can only take place in the context of a transparent and candid assessment of risks (of both engagement and nonengagement) and the management of these risks through a diversity of instruments and oversight.

Many of these issues are complex, contentious and longstanding. It is not realistic to expect that this Water Resources Sector Strategy will bring quick and final closure to all, or even most, of these issues. The Strategy is thus not a detailed business plan. Rather it focuses on major strategic challenges in positioning the World Bank to be an effective "full service" partner to its borrowers.

Developing a portfolio of analytic work that informs management decisions and recognizes differences

While there are many common challenges facing all countries, there is also a high degree of specificity in water resources development and management. Accordingly, global lessons of experience have to be crafted into realistic and appropriate country and sometimes regional goals and strategies, depending on cultural, historical, political, economic and natural conditions. Economic and sector work is critical for this adaptation process. The Operations Evaluation Department report documents an encouraging increase in the quantity of water-related analytic work and a shift in such work toward the key management challenges.[2]

An important area for deepening the World Bank's portfolio of economic and sector work, as pointed out by the Bank's Quality Assurance Group, is in more explicitly linking analytic work, which focuses on the challenges to the country, to World Bank activities—both "upward" to the Country Assistance Strategies and Poverty Reduction Strategy Papers, and "downward" to investments. As part of the process of preparing this Strategy, each region has initiated (with seed funding from the Global Public Goods fund) a Country Water Resource Assistance Strategy for one priority country in the region. These will not usually involve new analytic work and will generally be short, action-oriented papers. They will be a mechanism for focusing the attention of the country team on water resources issues, for engaging regional and global water knowledge in the World Bank and for reaching agreement with clients. A

central element of the Country Water Resource Assistance Strategy will be the political economy of change in water resources management—identifying potential triggers and defining how to be selective and how to allocate World Bank resources where there are windows of opportunity. If successful, a Country Water Resource Assistance Strategy would eventually be prepared for a number of borrowing countries.

Working with partners

As described by the Operations Evaluation Department report, "creating a shared vision among the World Bank, borrowers, and other development partners is the key to successful implementation of the World Bank's water strategy…. and the World Bank has some major accomplishments" both at the global and regional level. "A major concern is the inability to meet the cost of proliferating partnerships."[3]

With the exception of first-hand access to global best practice, the regional development banks share most of the World Bank's comparative advantages. Accordingly, an emerging pattern in some countries is for close cooperation in knowledge sharing and finance between the World Bank and the regional banks. Bilateral agencies typically do not have the same global mandate or sectoral spread.

Partnerships that make things happen on the ground are already under way, not least at the regional level, where the Africa Region[4] and Middle East and North Africa Region,[5] for example, have developed highly effective operationally oriented regional water resources partnerships. The logical corollary is that the World Bank will give priority to action-oriented partnerships—such as the Global Water Partnership,[6] which stimulates action-oriented partnerships in regions and countries for better water management—and largely disengage from partnerships that do not directly lead to action on the ground.

Of particular importance is the development of a new set of bilateral partnerships for stimulating cutting edge action in World Bank water resources projects. The World Bank Netherlands Water Partnership Program provides a useful model.[7] Under this program the World Bank's Water Resources Management Group has identified a series of cutting edge issues (including poverty and livelihoods in water projects, international waters, watershed management, irrigation reform, wastewater management, water rights, river basin management, groundwater, ecological flows and flood management). For each issue a team of experts with field experience is assembled. World Bank operations have easy access to the services of these experts, who help incorporate these issues into World Bank operations and help disseminate lessons.

Finding new sources of financing for water resources infrastructure

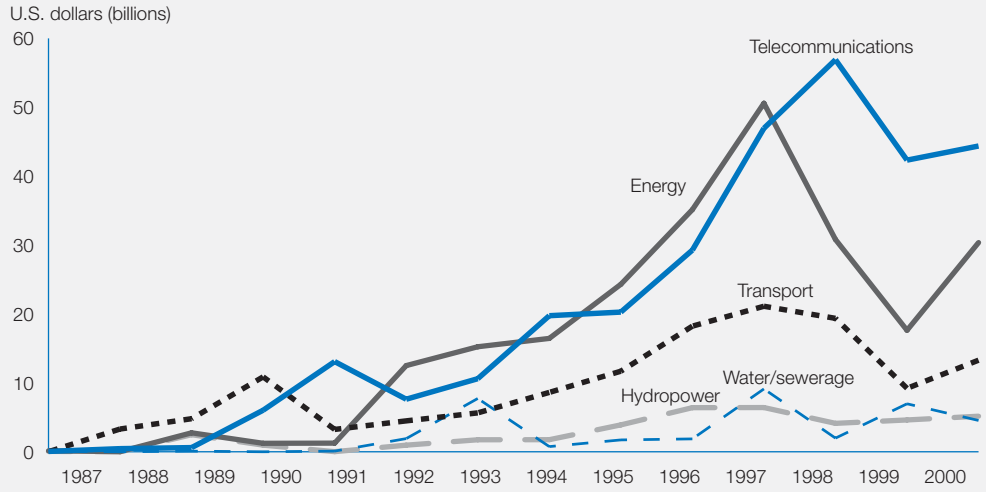
Numerous assessments have documented the huge financing needs for water-related infrastructure in developing countries. The World Commission on Water estimates that investment needs to increase from the current level of about $70 billion a year ($17 billion for hydropower, $28 billion for water and sanitation and $25 billion for irrigation[8]) to $180 billion a year to ensure water security by 2025.[9] There is now broad consensus among developing countries that while public funds have been and will remain indispensable, the required infrastructure cannot be built with public funds alone and that the private sector has an important complementary role to play in financing water resources infrastructure. The Monterrey Conference on Financing for Development, for example, highlights "a need for the relevant international and regional institutions to increase their support for private foreign investment in infrastructure…."[10]

There is now broad consensus among developing countries that the required infrastructure cannot be built with public funds alone and that the private sector has an important complementary role to play

Over the past decade there has been a major change in the role of the private sector in financing infrastructure, including water-related infrastructure, in developing countries.[11] Starting from a very low base in 1990, the private sector has invested about $700 billion in infrastructure in developing countries over the past decade (figure 3.2).

A closer look at the data shows that there are significant challenges to be faced if the private

f3.2 **Private investment in infrastructure, 1987–2000**



Source: World Bank Private Participation in Infrastructure database.

Over the past decade there has been a major change in the role of the private sector in financing infrastructure, including water-related infrastructure, in developing countries

sector is to play a major role in financing water infrastructure. First, while private investment in infrastructure rose dramatically during the 1990s, it had declined considerably by the end of the decade. In the current financial market environment of markedly reduced appetite for risk in emerging markets the late 1990's level of financing is unlikely to be reached again soon. Second, only a small proportion of private investment in infrastructure went into water-related infrastructure—about 5 percent into water and sanitation and another 5 percent into hydropower. Third, these investments were heavily concentrated in relatively low-risk economies in East Asia and Latin America.

Even within these favored environments, the outlook is sobering. A detailed assessment in Latin America, for example, shows that private investment (at 1998 levels) is sufficient to cover only 5 percent of water and sanitation and 20 percent of energy (including hydropower) investment needs. Worldwide, only about 5 percent of water services are currently provided through the private sector.

Private international financing is particularly important for small countries that do not have the capacity to raise funds from domestic public or private sources. To stimulate private investment there is a need for a more collaborative public-private partnership, an approach in which the World Bank has a role to play. This approach will necessarily include:

- *Options assessment and project identification.* Private (and public) investments in dams and major conveyance infrastructure can only take place if the public sector has done the necessary upstream hydrologic, economic, environmental and social assessment of options.
- *Investing in public goods.* Multipurpose projects produce both private benefits (such as hydropower), which can be either privately or publicly financed, and public benefits (such as flood protection), which must be publicly financed. Engagement of the private sector in such projects requires partial public financing.
- *Assigning and managing risks through public-private partnerships.* Managing risk will involve assistance to the private sector in managing foreign exchange risk when long-term fixed rate local currency financing is not available and short-term financing does not match the economic life of the assets. And it will involve blending public and private sector funding to lower the overall cost of capital.
- *Legal and regulatory frameworks.* Only the public sector can develop a stable

enabling environment with effective and predictable rules and institutions for balancing the interactions of investors, government, and users and other affected people. For water projects this institutional capacity is needed at both the national and local government levels and is necessary for both private and autonomous public service providers.

- *Output-based aid.* Greater use should be made of output-based aid, with funds disbursed on the basis of actual services delivered.[12] This approach is now being implemented for wastewater treatment in Brazil, for example, by both public and private service providers.[13]

In stimulating these additional sources of financing, there are complementary roles to be played by all members of the World Bank Group in many of the World Bank's borrowing countries: for MIGA to provide political risk insurance, for IFC to participate as an investor in priority infrastructure and for IBRD and IDA to provide a combination of investments, guarantees and assistance in developing legal, regulatory and institutional arrangements for sound water management. While cooperation among World Bank Group members has improved substantially in recent years, there is still more to be done. Because water reforms are never one-shot transactions, there is a particular need for the transaction-oriented IFC and the development-oriented Bank to fully cooperate on critical reform efforts. The involvement of IFC is particularly critical in low-income countries, where domestic and international commercial financing is often not available.

The second reason the private sector is important for water resources management is more subtle but no less relevant. Improved water resources management only happens when there are incentives for empowered actors to make things change. The Operations Evaluation Department review and the World Bank's consultations show that the insertion of the private sector (as operator of an urban water supply or a hydropower plant) provides a powerful incentive to change.[14] The case of the water concession contracts in Manila provides a graphic illustration. Private operators have become a potent source of pressure to modernize the system of allocation and management of water rights, so that transfers can take place voluntarily and with compensation.[15] Also, the concession holders have pushed for and invested in improved watershed management, recognizing that their investments depended on the quality of their bulk water.[16] In a similar vein the World Commission for Dams report shows that most good practices in licensing and benefit sharing are associated with commercially operated infrastructure.[17]

In this regard, the World Bank Group is at a crossroads. While the World Bank Group has played a role in highlighting the benefits of private involvement, when it comes to controversial infrastructure, the World Bank is now often perceived (by both the private and public sector) as a costly and risk-averse partner.

In summary, the "gloomy arithmetic" of water is matched by the "gloomy financing" of water. The financial requirements of meeting the growing needs of growing populations are very large and far outstrip current levels of investment. It is essential to make the best use of every public and private dollar, to manage demand more effectively, and to develop bankable public and private projects that can attract additional financing.

In summary, the "gloomy arithmetic" of water is matched by the "gloomy financing" of water

Dealing with risk and developing a more effective business model

Risk lies at the heart of the development challenge. "Developing countries" is almost synonymous with "high risk"—for the people who live there and for those who might invest. A core raison d'etre for the World Bank is to help reduce these risks, for local people and for investors. Consultations on drafts of this Strategy showed that there are widely differing views of how risk should affect what the World Bank does and how it does it.

Some believe that the engagement with risk must be defensive, governed by the precautionary principle (when an activity might harm human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically, so that

the proponent of an activity, rather than the public, bears the burden of proof).[18] There is broad agreement that an essential part of good development practice is the assessment of risks, to different groups of people, and from both action and inaction. Most practitioners, however, believe that the application of the precautionary principle would be a recipe for paralysis, and that few development projects would ever be undertaken if such an approach to risk were taken.

The issue of affirmative engagement with risk has emerged as a major challenge for the World Bank in water, forestry, mineral resources and other areas. Consultations for this and other strategies have shown that there are strong concerns from governments, the private sector and many Bank staff that when development risks are high, and Bank engagement is particularly valuable and important, the Bank must ensure that it is a risk mitigator, not a risk multiplier. There is also a concern that the Bank has focused largely on errors of commission (risks of engagement) and paid less attention to the vital errors of omission (risks to people of nonengagement by the Bank).

An important part of the work done for this Strategy was to articulate a vision for how the World Bank might actively engage with high-reward–high-risk investments

Accordingly, an important part of the work done for this Strategy was the convening of a high-level World Bank Group-wide panel to articulate a vision for how the World Bank might actively engage with high-reward–high-risk investments. The task for the panel was explicitly not to dilute the World Bank's commitments to sound economic, social and environmental practice but to sketch a new business approach to ensure that the objectives of social and environmental safeguards would be met; that better quality projects would be the result; that decisions would be made in a clear, predictable and timely manner; and that risk aversion among staff would be reduced by providing more assurance of support from senior management. This section draws heavily and often directly on the report of the panel.

Before describing some of the elements of the proposed new business model, it is important to emphasize that this focus is motivated by the fact that re-positioning the World Bank relative to controversial infrastructure is a vital, but complex and contentious task. The detailed treatment of this issue in this Strategy does not imply that such infrastructure is more important than other vital (but less contested) management issues or that major infrastructure should comprise more than a modest proportion of overall World Bank lending for water.

A first observation is that to date discussion of risk in the World Bank has been too narrowly and internally focused. The definition of risk for people in developing countries must start with the development risks of World Bank engagement or nonengagement.

It is possible to discern different patterns with middle-income and low-income countries. Middle-income countries express frustration at what they perceive as a rigid, rule-bound, risk-averse approach from the World Bank. They increasingly see the World Bank as the least-preferred source of funding (after domestic sources, private capital and other international financing institutions) because of the monetary, transaction and delay costs that are a part of dealing with the World Bank. But they often still express a strong desire to have the World Bank engaged in cutting edge, high-reward–high-risk water infrastructure because they believe that the World Bank has a unique comparative advantage in helping them deal appropriately with the range of economic, institutional, social and environmental challenges posed by such projects. Despite this wish to engage with the Bank, countries with choices are less and less engaged with the Bank in these areas.

Low-income countries have many of the same concerns as middle-income countries, but these poor countries do not have access to the other sources of financing that are available to middle-income countries and thus see no alternative to the World Bank, both as a direct source of financing and as the catalyst for resources from the private sector. They remain engaged with the Bank because they seldom can proceed without Bank engagement.

World Bank projects that include major water infrastructure can be classified by whether the World Bank was involved early or late and whether the borrower's and the developer's capacity was strong or weak. An

examination of a cohort of projects comes to the following conclusions:

- That the best possible situation is when the World Bank is engaged from the early planning stages, and the project has a strong borrower and a strong developer.
- That such ideal conditions are, almost by definition, rarely encountered in the World Bank's borrowing countries.
- That, other things being equal, the distance between the ideal and the actual is least for the World Bank's better developed borrowers (who also have choices and are less and less engaged with the World Bank on these issues) and greatest for the poorest borrowers.
- That practice (the World Bank's and the borrowers') has improved consistently and markedly in recent decades.
- That early engagement means that the World Bank can have a major influence on critical issues such as options assessment and environmental offsets.
- That late engagement means that the World Bank's focus is necessarily primarily on safeguards (with strong evidence that there can be a lot of added value from the World Bank's engagement even at that stage).
- That the World Bank needs to deal much more transparently and proactively with known and unknown risks.
- That third party oversight can be useful in specific cases.
- That a proactive cost-effective communications strategy with all stakeholders is essential.
- That disengagement by the World Bank is the result of a set of disincentives embedded in the World Bank's business practices.

An examination of the incentives that operate within the World Bank reveals the following:

- There is evidence (as manifested in the recent report on *Doing Business in 2004: Understanding Regulation*[19]) that the World Bank's clients perceive the World Bank to be walking away from areas that are reputationally risky to it, and perceive such behavior to be driven by internal disincentives for managers and staff to deal with such projects.
- There is powerful internal evidence of the reluctance of many managers to get engaged with such projects. There appear to be four related phenomena driving this disengagement:
  - The costs of preparing and supervising such projects are typically many times those incurred in preparing and supervising a normal World Bank project. The logical behavior for country directors faced with a budget constraint is to shy away from these high-cost projects.
  - There is a palpable down-side for managers (from vice presidents to country directors to task managers) who get engaged in such projects, and little up-side.
  - The probability of such projects going to the Inspection Panel is rapidly approaching certainty.
  - Senior managers find that these controversial projects occupy a large proportion of their management time.
- The result of this set of disincentives is predictable—the World Bank is less and less involved in complex, high-reward–high-risk water infrastructure (and similarly controversial projects in other areas).

An improved approach for World Bank involvement in high-reward–high-risk activities (including water management) might involve a two-step set of rules of engagement.

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Step 1: How the World Bank should decide whether to be involved in a specific major water infrastructure project

The project should be relevant to the development objectives of the borrower and the World Bank:

- *Relevance to overall national development strategies as reflected in the Country Assistance Strategy.* This will always include poverty reduction, but it can and should also include broader strategic objectives. In the case of China, for example, this would include the evolution from a command to a market economy and from a rural to an urban society. And in the case of international water projects (such as the Nile Basin Initiative) the relevance to regional security and conflict prevention are of major importance.

- *Relevance to poverty reduction.* Water projects often contribute to poverty alleviation both directly (through resource management and services targeted to the poor) and indirectly (through better overall resource management and improved operation of service providers).
- *Relevance to development of the World Bank's comparative advantage.* Many best practices in the area of water infrastructure (such as for resettlement in China or for benefit sharing in Brazil) have been developed by the World Bank's more developed borrowers. If the World Bank is to be a credible knowledge partner it must be engaged not only with the borrowers who have no other options but with its middle-income borrowers.

High-reward–high-risk projects will be treated as "corporate projects"

The risk profile must be assessed:

- *The development consequences of World Bank nonengagement,* which must include:
  - The possibility that the project, and its net development and poverty reduction benefits, will not be undertaken if the World Bank is not engaged.
  - The possibility that the project will be done anyway, but with lower net benefits without World Bank involvement.

  In both cases, standard methods for assessing the magnitude and distribution of costs and benefits (including economic, environmental and institutional) will be coupled with probabilistic assessments of likely outcomes to evaluate the "no-Bank-engagement" development outcome.
- *The risks to the World Bank* from engagement or nonengagement:
  - From the perspective of the borrower.
  - From the perspective of civil society in the borrowing country.
  - From the perspective of private developers.
  - From the perspective of public perception in Part I countries and the related perceptions from NGOs.
- *The risk implications must be assessed (by impact and likelihood),* as must the implications for managing them, monitoring and responding.
- *These risk implications must be considered* by regional and World Bankwide management, which views them in the context of other risky projects and the regional and World Bankwide appetite for risk.

Step 2: How the World Bank should manage major water infrastructure projects

These high-reward–high-risk projects are a special class of operations, with spillovers that go well beyond the country and the region:

- Perceptions (of borrowers, the private sector and NGOs) are global. For example, the World Bank's performance on a hydropower project in Lao PDR has a major impact on its ability to attract private partners for similar projects in Uganda. The performance of an interbasin transfer in East Asia has implications for World Bank engagement with borrowers in the Middle East and North Africa who have similar needs. And the repercussions of the World Bank's performance on a dam in Argentina have an impact on the availability of IDA funding for Bangladesh.
- The projects involve dealing with common sets of environmental and social issues.
- The projects involve dealing with common sets of stakeholders, including civil society and NGOs.

Accordingly, these high-reward–high-risk projects will be treated as "corporate projects."The key elements of such an approach are:

- *Accountability.* Regional vice presidents and country directors will be accountable for these projects. From an early stage these projects will be brought to the attention of senior management, who in support of the regions, will participate in decisions on whether the World Bank will engage and how risks will be managed.
- *Improved implementation of safeguards.* Good preparation, including adequate attention to safeguards, involves higher short-term costs, but lower long-run costs. For these projects there will be an agreed-on corporate strategy for ensuring that the objectives of the safeguard and other operational policies are respected, while focusing attention and

resources on safeguards that are material in particular circumstances.

- *Communication.* An essential element will be the development of a unified communication strategy for addressing head-on in an open manner the concerns of different stakeholders, including critics.
- *Resources.* While there will not be an automatic provision of special corporate resources to such projects, management will continue to use a common-sense approach to such projects, providing additional resources on a case-by-case basis as the need arises during preparation and implementation.
- *Incentives for front-line staff.* Central to this approach is the necessity to reduce transactions costs and to change the incentives facing front-line staff. Task managers leading risky projects will not be left on their own, but will have consistent support from regional and corporate management and will get recognition for this difficult work.

How the World Bank is organized and staffed for water resources management

Water resources management is not a sector but a set of cross-cutting legal, regulatory and operational activities. For this reason it does not fit—in countries or in the World Bank—easily into established ministries or sectors. This Strategy does not propose any fundamental organizational change in the World Bank, but rather a fine-tuning of existing institutional arrangements to ensure accountability and resources for making the necessary connections.

In the regions

There have been many ways in which the Regions have adjusted their accountability and staffing arrangements to deal with the growing challenge of water resources management. Two years ago there were regional water resources advisers (or their equivalents) in just three regions; today there are designated advisers in all regions.

The formal nomination of these regional advisers, and their appointment to represent the region on the Water Resources Management Group, has been a major step forward in improving the coordination of the Bank's work on water resources across the Bank and in the regions. Appropriately, given the widely varying challenges in the regions, accountability and organizational responses have varied substantially by region:

- In Africa the regional vice president and the Regional Management Team have given the regional water resources adviser to mandate to stimulate and direct the region's work on water resources and have assigned substantial regional resources for this work. The regional adviser and team (most of whom continue to work in their host departments) have a strong presence both at headquarters and on the ground in Africa, where the World Bank's leadership is widely acknowledged and respected. The growing portfolio of water resources lending in Africa is a direct response to this investment by the Africa Region.
- In the Middle East and North Africa the sector manager for water and environment in the rural department has functioned as the region's water adviser. This arrangement has worked well, providing high-level visibility for the Bank's water resources work in the region. The Regional Management Team sees the next step as working to integrate the Bank's water assistance to countries. An important mechanism for achieving this integration is the Country Water Resources Assistance Strategy. These strategies will build on the normative strategic work done in the region and develop more operational strategies that take into account the political economy of the country and result in sequenced, prioritized engagement by the Bank.
- In Latin America and the Caribbean too, the regional water adviser is a sector manager, this time responsible for the urban and water portfolio in the Private Sector and Infrastructure Department. The regional appointment has been mirrored in joint appointments with Environmentally and Socially Sustainable Development in key countries (notably Brazil). These changes have made a large difference in the coherence of the Bank's

This Strategy does not propose any fundamental organizational change, but rather a fine-tuning of institutional arrangements to ensure accountability and resources

work in water resources in the region and have contributed to rapid growth in the regional portfolio of water resources investments.

- In South Asia the regional adviser was recruited with a mandate to provide leadership on water resources in the region. The adviser reports to the director of the Regional Environment Department. There is no formal structure for coordinating the Bank's work on water resources and no joint accountability for work on water resources in other departments. The Regional Management Team has recognized the importance of strategic investment in sector staff capacity that is not driven by short-term budget priorities and has decided to allocate resources to the regional water adviser for strategic work not directly related to country or regional operational tasks.
- The East Asia Region has been operating under a more informal approach to water resources management than other regions. Two years ago the region appointed the first regional water advise. Although the informal approach has been effective, regional management is designing a more defined approach, including the establishment of a virtual water team coordinated by the regional water adviser that will have responsibility for preparing and implementing cross-sectoral activities, such as regional and country water resources strategies; enhancing quality through reviews of project concept, appraisal and other related documents and analytic work; and improving coordination of water-related activities generally throughout the region.
- In Europe and Central Asia responsibility for coordinating the Bank's work on water resources is shared by a manager with responsibility for natural resources and a water professional with extensive operational responsibilities. Information sharing and coordination of the modest but gradually expanding water portfolio are done informally but effectively.

As a result of the discussions that were part of this Strategy, modest additional resources are being made available to the regional water advisers in some regions to facilitate the necessary strategic leadership and coordination within their regions. These resources must necessarily come out of regional budgets and be assigned after considering this and other priorities.

Modest additional resources are being made available to the regional water advisers to facilitate the necessary strategic leadership and coordination within their regions

In the anchors

Seven years ago, in response to the World Bank's 1993 Water Resources Management Policy Paper, a Global Water Unit was set up to help the Bank become a better partner in implementing the principles of integrated water resources management articulated in the Policy Paper. A core task was to improve coordination among the disparate parts of the World Bank Group (the regions, IFC, the parts of Private Sector and Infrastructure and Environmentally and Socially Sustainable Development) that worked on water resources, to ensure greater coherence. The manager of the unit (the senior water adviser), reported to the vice president of Environmentally and Socially Sustainable Development.

In 2000 the president of the World Bank Group announced a ramping up of organizational arrangements for water resources in response to the growing consensus that water resources was emerging as a critical development issue and with the understanding that greater coordination across units working on water was vital. The vice presidents of Environmentally and Socially Sustainable Development and Private Sector and Infrastructure announced the creation of the Water Resources Management Group with some of the functions of a Sector Board, namely enhancing the quality of lending and analytic work, human resources, corporate positions and outreach, and knowledge management.

Members of the Water Resources Management Group are the regional water adviser, as well as the leaders of the anchor units on water supply and sanitation, irrigation, hydropower and environment and key staff working on water-related issues in the IFC, MIGA, the Legal Department and the World Bank Institute. The group is chaired by the senior water adviser. By agreement between the vice presidents of Private Sector and Infrastructure and Environmentally and Socially Sustainable Development, the Water

Resources Management Group and the anchor unit (the former Global Water Unit) are housed in and financed by Environmentally and Socially Sustainable Development.

In some respects the Water Resources Management Group has worked reasonably well. It has managed major policy tasks (including the response to the report of the World Commission on Dams and this Strategy); it has managed the major water partnerships (including the $14 million World Bank–Netherlands Water Partnership Program, the Global Water Partnership, the World Water Council) and the World Bank's engagement in major events (such as the World Water Forums and the World Summit on Sustainable Development); it has developed a Human Resources Plan for Water Resources in the World Bank and effective collaborative arrangement on substance with all relevant Sector Boards and on water resource-related human development issues with the Water Supply and Sanitation and Rural Development Boards (which most staff working on water resources are mapped).

But to provide the necessary leadership and coordination in this vital and growing area, two modest changes will take place in the operation of the Water Resources Management Group. The chair of the group (the senior water adviser) will formally report to the vice presidents of both Private Sector and Infrastructure and Environmentally and Socially Sustainable Development and both units will contribute to the budget for the Water Resources Management Group and the anchor unit.

Human resources

As part of its mandate, the Water Resources Management Group has done an extensive survey of staff working on water resources, and developed a draft Human Resources Strategy for water resources.

Some 230 staff in the World Bank deal with water resources on a full- or part-time basis—about half from Environmentally and Socially Sustainable Development and half from Private Sector and Infrastructure. About 80 percent would consider having water resources as a family affiliation were the option available. Renewal of experienced staff is a major challenge, with half of staff (the most experienced half) due for retirement in the next 10 years. About 15 percent of the 169 survey respondents spend up to 100 percent of their time on water resources management activities, and half spend up to 25 percent. This implies that water resources management training and knowledge management need to be made available to a wide variety of staff, not only those who work full time on water resources management issues.

Survey results and experience from the annual World Bank Water Week and water resources seminars reveal that the overwhelming majority of staff are interested in training in both water resources management and knowledge management. Needs are greatest for legal, institutional (river basin management, international waters) and financial and economic expertise, in addition to drought, flood, coastal zone and groundwater management and water and environment issues.

Water resources management training and knowledge management need to be made available to a wide variety of staff, not only those who work full time on water resources management issues

The objective of the water resources management Human Resources Strategy, as approved by the Water Resources Management Group, is to ensure that the right number of staff have the right skills and motivation to respond to the mounting challenges in client needs and demands in water resources management. The Human Resources Strategy consists of four building blocks:

- The World Bank needs to maintain and renew a well-trained, experienced *core group of water resources professionals* who can prepare and supervise projects and maintain a high-level policy dialogue, including strategy and economic and sector work. They should have a background in at least one area related to water resources management that provides a multidisciplinary vision as the basis for becoming integrators of cross-cutting issues between water sectors and dealing with the highly varying content of current and future water resources projects. Sector staff (water supply, energy, agriculture) continue to specialize in their sector, but need to improve their knowledge about the linkages to other water sectors

in order to make good policy and investment decisions.

- A specific *career stream* needs to be spelled out for core water resources management staff in order for the World Bank to be able to attract, maintain and develop the needed talent and skills.
- A *training program* is being developed, in a partnership between the Water Resources Management Group and the World Bank Institute,[20] for core water resources staff. It will include drill-downs in water resources legislation and institutions with practical applications; water resources economics; groundwater, drought and flood management; water and environment issues; and a base course to provide staff working mainly in water-related sectors with a more integrated water resources management perspective.
- *Knowledge management* activities, especially of a cross-regional nature, will be further developed by the Water Resources Thematic Group, the knowledge management arm of the Water Resources Management Group. Again the severe resource limitations of the Water Resources Management Group have meant that progress has been slow.

Bank re-engagement with high-reward–high-risk hydraulic infrastructure implies a re-aligned profile of professional staff

Bank re-engagement with high-reward–high-risk hydraulic infrastructure implies a re-aligned profile of professional staff. Specifically, after a decade of focusing on recruitment of social and environmental staff, that requires a new emphasis on recruiting experienced technical staff. As with most other staffing decisions in the Bank, this will not take place through a center-driven process, but in response to changing demands from the regions.

The fact that water resources is a cross-cutting issue and not a sector in the Bank poses special challenges in recruiting and retaining specialized staff. The Sector Boards (especially the Water and Sanitation, Rural, and Environment Sector Boards) have responsibility for recruitment and human resource actions for staff who work on water resources. The Water Resources Management Group recognizes that primary responsibility is with the Sector Boards, and so the group offers to play a quality enhancement role. This has worked well with the Water and Sanitation Board for some time, and is now working well with the Rural Board, too.

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4. What the Strategy might mean for World Bank engagement: Some examples from the regions

In any given country setting the World Bank's activities in water resources management are the result of three principal drivers: the nature of the challenges in the country and society's approach to them; the Country Assistance Strategy, in which the government and the World Bank agree on priorities and approaches; and the strategic thrusts of the 1993 Water Resources Management Policy Paper and, now, this Strategy. The following sections give some sense of how the strategic directions highlighted in this Strategy are likely to influence the World Bank's activities in water resources management in one country in each of the World Bank's regions, with a particular emphasis on the following issues:

- *Management:* How can the general principles of the 1993 Policy Paper be applied to widely varying local contexts, with an emphasis on sequencing, patience and attention to the political economy of reform?
- *Infrastructure:* What is the likely engagement of the World Bank in hydraulic infrastructure of varying scales, including large high-reward–high-risk infrastructure?

The examples show that the challenges facing different countries and regions vary widely and that appropriate support from the World Bank similarly varies widely. This diversity notwithstanding, it is clear that in most settings Bank engagement will involve a mix of knowledge and investment services, which include both management and development components.

Illustration 1: What the new sector Strategy might mean in Brazil

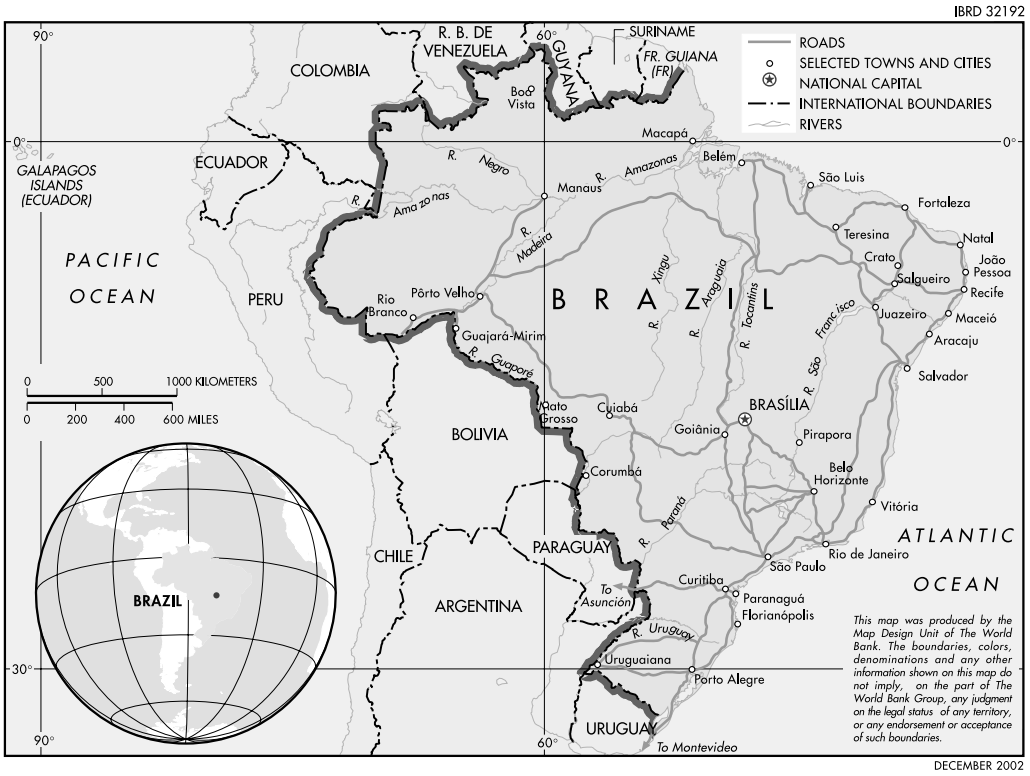
Brazil is the eighth largest economy in the world (map 4.1), and a country with strong domestic capacity in water service and water resources management.[1] During the last decade, the country has adopted unprecedented reforms of the legal and institutional framework for water resources management at the federal and at the state levels. These reforms, based on the Dublin Principles, were passed by Congress after a broad consultation process with civil society and political representatives. The World Bank has been a key partner of the government in advancing the reform agenda and has a Country Assistance Strategy that builds on its comparative advantage and value added.

The World Bank has a long history of engagement with water management in Brazil

The World Bank has a long history of engagement with water management in Brazil. In the early years World Bank cooperation focused on building the infrastructure necessary to meet the water supply, irrigation and energy demands of a rapidly growing and urbanizing economy. As this first wave of primary demands was met, the focus shifted to second-generation challenges:

- *In the urban sector.* Development of financially viable urban water and sanitation utilities and, recently, stimulation of private sector participation and formal approaches to regulation; development of technologies and social approaches for increasing network coverage (especially of poor people) with affordable sewerage services; and addressing the increasing challenges of the urban environmental agenda (water source protection, wastewater management and treatment and urban drainage) in large and medium-size metropolitan areas.
- *In the energy sector.* Liberalization and development of an appropriate regulatory structure (which includes many water

m4.1 Brazil



rights issues since hydropower accounts for 90 percent of electricity supply in Brazil).

- *In the rural sector.* Devising innovative technical and institutional models to deal with water and soil management on small watersheds, expanding water and sanitation services in small localities based on community-driven models and private sector participation, stimulating new forms of irrigation user organizations and transforming the focus of irrigation from rural welfare to commercially oriented growth enhancing employment generating agriculture.
- *On water resources management.* Stimulating innovative approaches to participatory resource management at the state and federal level, including the development of appropriate financial, legal, regulatory and institutional approaches; and supporting infrastructure and management arrangements for sustainable water services in the dry and poor areas of Northeast Brazil.

Over the past decade the World Bank has been engaged directly in the political economy of water reform. A first key element was the engagement of leading political figures in understanding the stakes, in seeing (through continuous policy dialogue, seminars, sector work, study tours and other mechanisms) the means for making changes and in supporting legislative and institutional reforms at the federal level. Over the past five years this process was facilitated by the World Bank's decentralization policy. The World Bank's resident country director has been immersed in the political reality of the country, and field-based staff were easily accessible to all stakeholders and perceived as full-time partners.

A second key element has been focusing concentrated advisory and investment resources in "reforming states," which have shown the way now being followed by many other states. A third element has been a move toward demand-driven projects with clearly established eligibility and ranking criteria. This has meant opening programs to

municipalities (in the case of urban utilities) and states (in the case of water resources management in the Northeast) that commit to making fundamental reforms. These changes in business practices, important in themselves, have also had demonstration effects. For example, in a water resources project in the Northeast the World Bank introduced a screening tool designed to ensure that all infrastructure was financially and environmentally sustainable. The government has adopted the process and made it mandatory for all federally funded projects. The new National Water Agency (ANA) has taken the logical next step (consistent with the paying for results, or output-based aid approach now being piloted as part of the World Bank's new Private Sector Development Strategy) of using pollution control resources not to build treatment plants but to pay for results (in this case, treated effluent). Fourth and finally, the World Bank's engagement has been the result of a strategy that stressed selectivity based on poverty impact, comparative advantage and value added.

The country stakeholders' generally positive perception of World Bank engagement has been affected, however, by one widespread concern about the evolution of the relationship with the World Bank in recent years. Country officials have been concerned about the direction in which the World Bank's business practices are evolving, which they see as increasingly focusing on minimizing reputational risks, sometimes at the expense of urgent development impact. The general view is summed up by one of the most admired political reformers in Brazil: "When I have to build, at the request of local people, a small dam in the semi-arid interior, the World Bank makes me go through due diligence processes that are the same as if I were building Itaipu [the world's largest hydroelectric dam]."

Leading political and professional figures in Brazil stress that the value of the World Bank is not in dealing with the routine. What they want is World Bank engagement (sometimes by providing advice, sometimes through lending too) in the difficult issues that are now at the fore in Brazil. These include major hydraulic infrastructure projects, such as the proposed interbasin transfer out of the Rio São Francisco in the Northeast; the "water highway" up the Paraná River, which is vital for the export of agricultural produce from the interior; or the further development of hydroelectric power in the Amazon Basin. This, in the eyes of many leading Brazilian thinkers, is where the World Bank is really needed—for its ability to link the macroeconomic, financial, environmental and social aspects with the technical issues and to mobilize knowledge from global experience.

The World Bank and the government are currently in the process of refining their cooperation strategy in a Country Water Resources Assistance Strategy in light of the main messages emerging from this Water Resources Sector Strategy. While the process is not yet complete, the main lines are clear:

- Continued support through investment and advisory services to cutting-edge water resources management programs in states that undertake water reforms. This will concentrate on the Northeast, which is both dry and poor. Support will continue to be made available to reformers on a demand-driven basis. Particular emphasis will be placed on the definition of rights and licences and their management at the state and federal level.
- Continued support through dialogue, sector work and lending to complete reforms in the legal and regulatory framework of water supply and sanitation services delivery to improve the efficiency of utilities, expand coverage to poor people and reduce alarming levels of water pollution in selected urban river basins.
- Major support for developing effective institutional arrangements and financing priority investments in a few stressed river basins. This is likely to mean a focus on the multistate Paraíba do Sul River in the Southeast (where pollution control and protection of drinking water quality are the main challenges) and on the multistate São Francisco River in the Northeast (where the challenges are primarily quantity management, management of the cascade of dams down the river and interbasin transfers out of the

Leading political and professional figures in Brazil stress that the value of the World Bank is not in dealing with the routine but in the difficult issues that are now at the fore such as major hydraulic infrastructure projects

river). Major issues include the role of the federal and state governments, participation in the basin agencies and allocation and management of consumptive and nonconsumptive water rights.

- Support to the new National Water Agency (ANA) in a number of ways, including:
  - Linking support to ANA with support to reforming states as part of a "parallel track strategy" of federal and state initiatives.
  - Supporting ANA in identifying roles for states and the federal government in water rights and administration.
  - Supporting ANA and the states in developing the information and human resources required for more effective water resources management in priority basins.
  - Helping pilot the output-based aid model for pollution control. This will include collaboration in monitoring experience and improving business practices in this innovative program by identifying business risks and devising strategies for mitigating them.
  - Support for ANA in the development of its strategic planning and business management approaches.

As with the other focus country studies the experience of the World Bank in Brazil had a substantial impact on the main messages of this sector Strategy, highlighting the importance of:

- Developing sequenced, prioritized approaches to dealing with the daunting set of water-related service and resource management challenges.
- Giving priority to acting where there is a strong demand for change, and supporting political reformers willing to implement that change.
- Starting with the low-hanging fruit and then, with credibility and experience, moving on to bigger challenges.

Finally, Brazil brings to the fore the issues of development and reputational risk and the imperative that the World Bank stay engaged, even in middle-income countries, in the twin challenges of management *and* development.

In Europe and Central Asia a key challenge is rehabilitation of irrigation infrastructure

Illustration 2: What the new sector Strategy might mean in Central Asia

The countries of Central Asia are water scarce (map 4.2).[2] The Amu Darya and Syr Darya Rivers are the principal water sources, especially for the downstream countries of Uzbekistan, Turkmenistan and southern Kazakhstan, which have largely desert climates. Irrigation has been practiced in Central Asia for millennia, but irrigated area almost doubled between 1950 and 1980, leading to large-scale diversions of water from the rivers and an 80 percent reduction of the water flow into the Aral Sea. About 35 million people depend in one way or another on irrigated agriculture. The shrinking of the Aral Sea, whose surface area has declined by half over the last 40 years, has meant economic losses for the 3.5 million people living near the sea—from declining fisheries and loss of wetlands to health impacts from blowing salt and highly saline shallow groundwater.

Irrigation has played a central role in the economic development and environmental decline of Central Asia. The former Soviet Union invested massively in surface irrigation systems in the downstream states, primarily for the production of cotton. Some 8 million hectares are under irrigation. In Uzbekistan, for example, irrigated agriculture is the backbone of the economy, contributing 35 percent of GDP, 60 percent of foreign exchange earnings and 45 percent of employment. Irrigation in Central Asia faces a host of converging, major challenges—of sustaining as much economic productivity and employment as possible, of generating greater livelihoods from less water (70 percent of which is currently lost through leakage), of developing new forms of organization to replace those of the Soviet era and of reducing adverse environmental impacts.

As in other parts of Europe and Central Asia and in other regions, the World Bank has promoted the role of water user associations, with some success especially in Kyrgyz Republic. But effective irrigation is impossible without functioning infrastructure. A key challenge, accordingly, is rehabilitation of irrigation infrastructure. Infrastructure has

m4.2 Central Asia

deteriorated over the last 10 years as institutions have weakened, systems for funding operation and maintenance have collapsed and adequate alternatives have not yet been put in place.

Particularly important for irrigation management in arid lands is removal of drainage water. The excessive application of water to irrigated lands has led to waterlogging and salination. Some 6 percent of the irrigated area now has highly saline soils, and water tables are now within 2 meters of the surface for about 35 percent of the area. Salinity levels and unreliable water delivery are especially severe problems at the tail-end of the irrigation system, in the deltas of the Amu Darya and Syr Darya Rivers. The World Bank is working with borrowers and partners in Central Asia to develop a drainage and salinity management strategy and to fund priority drainage works.

Hydropower plays a major role in the region, accounting for 35 percent of electricity generation in the Aral Sea Basin countries. Before 1990 water in the basin was managed as a single, integrated irrigation system, with water stored in the winter and released during the growing season to downstream areas. The lower riparian areas, rich in thermal energy sources, provided coal, oil and gas to the upstream areas for winter heat.

Since the 1990 breakup of the Soviet Union and moves toward market pricing for thermal energy, the management system has changed. The upstream countries, with very low per capita incomes and few natural resources apart from hydropower, have increasingly released water from reservoirs in winter to generate cheap electricity for heating and to save the foreign exchange costs of imported fossil fuels. But these winter releases of water for electricity are incompatibile with the summer demands of the downstream countries for irrigation. Whereas the tradeoffs between water and energy were previously internalized in the command and control system of the Soviet economy, they are now much more visible and need to be managed more explicitly. The countries do have coop-

Whereas the tradeoffs between water and energy were previously internalized in the command and control system of the Soviet economy, they are now much more visible and need to be managed more explicitly

erative and barter arrangements, but these do not always work well. And countries have differing views on what is a "fair" price for electricity.

Solutions include development of more equitable, mutually agreeable financial or trading arrangements, construction of increased water storage and hydroelectric generating capacity in Kyrgyz Republic and Tajikistan (possibly jointly financed with the downstream countries) and construction of increased water storage for irrigation in Kazakhstan.

The countries of Central Asia face a unique set of challenges: for the most part, the problem is that there is more infrastructure than can be maintained

As in many other developing regions water and sanitation utilities in Central Asia are having to make a transition toward financially autonomous, accountable utilities that recover their costs from the charges paid by users. The World Bank has been, and will remain, involved in working with its borrowers in making these transitions. To date this has been difficult, especially in the poorer countries, because of low incomes, perceived social risks of increasing water tariffs, and an unfavorable investment climate for the private sector. The World Bank has had more success in developing community-based approaches to water supply and sanitation in rural areas, and has projects in several countries.

Water supply and sanitation utilities in the industrialized parts of the region face a particular resource problem as a result of pollution of surface water with toxic chemicals from industrial discharges and from leachates from abandoned mine tailings. World Bank engagement in water supply for the new Kazakh capital of Astana illustrates what good economic and environmental advice can contribute. Faced with high levels of mercury in the nearby river, the government was planning to construct a long-distance interbasin transfer. A National Environmental Action Plan and World Bank-supported sector work showed, however, that cleaning up the mercury was far more cost effective (with a cost of bulk water of about US$0.08 per cubic meter instead of the US$0.80 for the interbasin transfer).

The countries of Central Asia face a unique set of challenges in developing and maintaining an appropriate stock of water infrastructure. For the most part, the problem is that there is more infrastructure than can be maintained. In irrigated areas the World Bank has worked with borrowers in applying immediate band aids to critical infrastructure, but also on medium-term strategies for determining which infrastructure (both supply and drainage) should be maintained and which abandoned. Recent analytical work has indicated that system rehabilitation, combined with demand management, can reduce crop water requirements by more than 30 percent. This work also shows that the majority of serviced area can economically be irrigated, even if users pay the operation and maintenance costs for water and drainage infrastructure. But water prices can be increased only when water delivery is reliable and when farmers receive a fair market price for what they produce. Agriculture is now effectively taxed by price and trade restrictions on several key commodities. The key, then, is seeing water pricing reforms as a component of an overall package of institutional reforms and infrastructure investments, with attention given to prioritization and mechanisms for effecting transitions.

Urban water and sanitation utilities in the former Soviet Union also have a peculiar set of infrastructure challenges. First, domestic water supplies were heavily subsidized, and per capita use was extraordinarily high (typically around 400 liters per capita per day) and wasteful. This meant that both water supply and wastewater treatment plants were often overbuilt. As water use (and sewage production) has fallen to about 100 liters per capita per day, there is often large overcapacity in terms of treatment and a need to retire major pieces of infrastructure.

With regard to dams, the primary challenge is to maintain existing stock in a serviceable and safe manner. The World Bank continues to be involved in working with countries to ensure dam safety, including Lake Sarez in Tajikistan, formed after an earthquake, and currently the highest dam in the world. Another challenge is monitoring and disseminating data on river flows, precipitation and temperature. With the decline in public funding in the past decade hydrometeorological equipment has become outmoded, and data systems are no longer reliable.

Existing data series indicate that Central Asia will be affected by climate change, with temperatures, precipitation and net evapotranspiration rising, and extreme weather events becoming more frequent.

In summary, the challenges of water resources management and development in Central Asia are daunting. Solutions do not lie within the water sector alone. Rather, progress (which will continue to be slow and difficult) requires concerted and integrated action in a wide variety of sectors (including the usual water-related sectors, but also macroeconomic, fiscal, governance and social). For the World Bank to be an effective partner, it has to use both analytic and investment tools. It must also foster internal and external partnerships, so that there is consistency in the actions of multiple partners. The World Bank's work in Central Asia accordingly includes the following elements:

- Work on a regional water strategy that will build on this sector Strategy and regional experience.
- Analytic and advisory work in Central Asia analyzing the economic, social and environmental feasibility of irrigation rehabilitation, the energy-water nexus, water and salt strategies, and water and wastewater strategies in industrialized areas.
- Gradually increased lending for irrigation and drainage rehabilitation, within countries' macroeconomic and borrowing constraints.
- Support to wetland, grassland and fisheries restoration in delta areas.
- Continuing work on mitigating the effect of the Aral Sea environmental catastrophe by improving living conditions and reducing poverty for the millions living near the sea.
- Support to water user associations for managing on-farm irrigation and drainage infrastructure and for strengthening transparent financial management of water delivery institutions.
- Lending for improved soil and water conservation and watershed protection in rainfed agricultural areas, rangelands and forested areas.
- Continued assistance to address the legacy of water pollution from mining and industrial waste.
- Assistance with restructuring water utilities in major urban areas, to improve service levels and move toward financial viability.
- The use of both advisory and investment tools for facilitating benefit sharing on international rivers.

The World Bank's ongoing and planned work in Central Asia both supports and feeds into the main themes of this Water Resources Sector Strategy. The challenge is the use of both management *and* infrastructure instruments, with infrastructure instruments largely confined to the development and implementation of a strategy for maintaining an appropriate stock of infrastructure. It is also apparent that the task is identifying a prioritized set of policies and actions that can help manage this very difficult transition. As elsewhere, management of the political economy of change at all levels—the farm, the city, the country and among riparians—is the overriding challenge, and one that the World Bank is addressing with the full range of its analytic and investment tools.

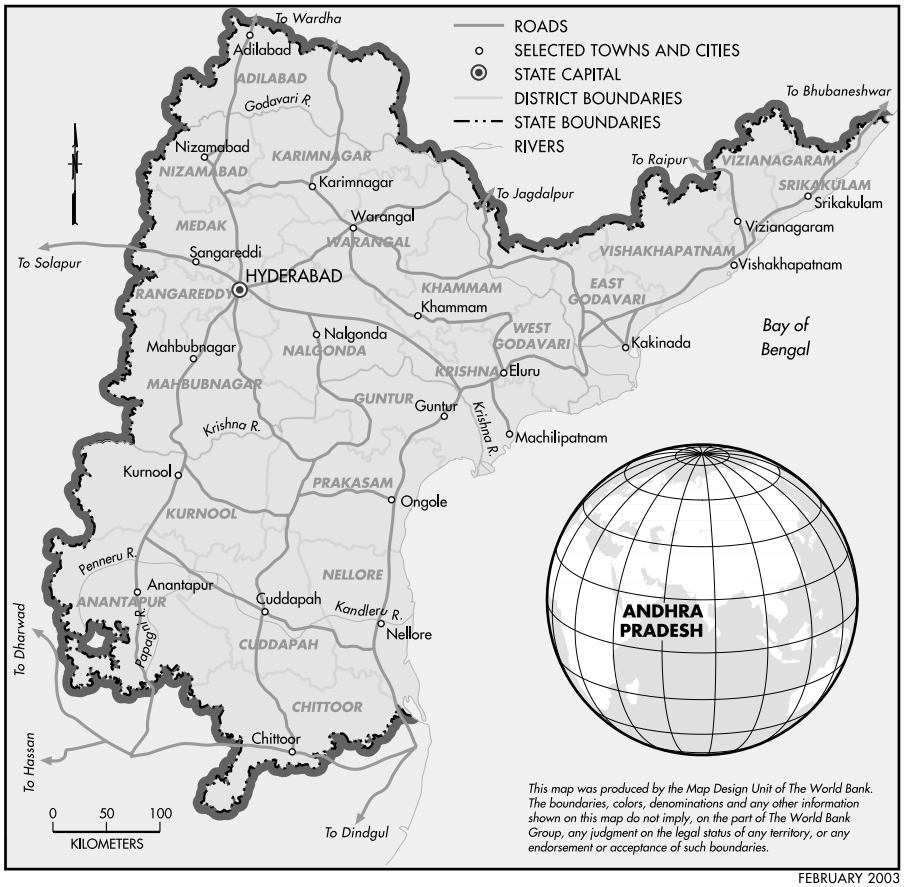
The World Bank has been a key partner for India in water development over the decades

Illustration 3: What the new sector strategy might mean in India, in particular in the state of Andhra Pradesh

Water resources management and development has played a major role in development, food security and poverty reduction in India.[3] These investments have led to an enormous increase in the production of food and food grains, with major positive impacts for the many poor people who are net food purchasers, large declines in poverty (with poverty rates in unirrigated districts almost three times the level in irrigated districts) and large multiplier effects (on the order of two) in terms of secondary and tertiary economic impacts.

The World Bank has been a key partner for India in water development over the decades. In addition to assisting in the achievements mentioned above, the World Bank has played a major role in negotiating the historic Indus Water Treaty with Pakistan and in providing the investments in water

m4.3 Andhra Pradesh



The World Bank can be most effective when it identifies reforming political leaders and provides them with backing for their reform programs in India

development projects that underpinned the treaty.

Over the past decade and more, however, water development and management challenges in India have changed. While important opportunities remain for the development of water resources (for hydropower in the mountainous states, for example), the major challenge has shifted to getting the greatest productivity from existing resources, paying greater attention to the environment and managing scarce resources in an efficient and accountable manner. In too many cases the result has been stagnation or standoff. Stagnation in the sense that failed institutional models have not been reformed and standoffs between proponents of water projects (who point to their economic benefits) and opponents (who tend to emphasize the economic and social costs). During this period the World Bank struggled to find a role more suited to the challenges facing the country and more broadly accepted by all parties. Efforts to promote reform, however, often had little result.

In recent years the World Bank has taken a radically different position to overall engagement in India. The pillars of this reform strategy, as laid out in recent Country Assistance Strategies:

- The central issue is not vision, but how to move from here to there, or the political economy of reform.
- The World Bank is able to exert little leverage through conditionality.
- The World Bank can be most effective when it identifies reforming political leaders and provides them with backing for their reform programs.

What has this change meant, and what might it (in conjunction with this Strategy) mean for future World Bank work in water management in India?

Irrigation is the largest water-using sector and the key to improved water resources management in India. As in many other countries public irrigation agencies, so important to food security, rural development and poverty reduction, have become inflexible and ineffective in providing the services that users demand. The World Bank has recognized for some time the importance of reforming the way public irrigation services are provided, but has struggled in finding a way to translate ideas into actions.

A critical turning point came in the late 1990s, with the World Bank's focus on reforming states. The first and strongest reformer was the government of Andhra Pradesh (map 4.3). Drawing on international best practice, the World Bank provided strong support for the introduction of water user associations as a first step in this reform process. With strong political and bureaucratic leadership from the state, water user associations were formed in all of the state's public irrigation systems. This ambitious experiment has proved to be successful. Last year, for example, during a severe drought, water distribution and overall productivity improved. The success is attributable to two factors: the intelligence and ingenuity of farmers, and the extraordinary political and bureaucratic leadership. (To cite just one example, every few weeks the chief minister has a videoconference with senior administrators in each of the 20-odd districts. Central and district administrators are called on to account for their performance in managing irrigation systems. Equally remarkable, the press, both in the capital and the districts, is invited.)

The Andhra water user association revolution has set a standard for other states to follow. As a group of Haryana farmers who went on a study tour of Andhra Pradesh noted: "Andhra farmers are poorer, but they pay much more for water than us…. they are happy, because they get better service…and better cooperation between Agriculture and Irrigation Departments….we would pay more if we got better service…. this will not change if there are political changes, because the Andhra farmers say they will not allow a new government to give them free water."

Global experience shows that water user associations are a necessary but not sufficient condition for improving irrigation performance. Equally important (and generally much more difficult) is reforming the way in which managers of the infrastructure (the irrigation departments in India) perform. The state government of Andhra Pradesh realizes that this is the next challenge. Discussions with the World Bank center on the assessment of options for developing service providers that operate on modern institutional principles, including competition and accountability to users and for management and maintenance of assets.

Discussions with the World Bank center on options for developing service providers in Andhra Pradesh that operate on modern institutional principles, including competition and accountability to users

On the water resources side the challenge in Andhra Pradesh is to assist the state in its efforts to be a facilitator. For example, the state (which is an emerging global software center) has made substantial advances in the collection of data, but interpretation and use of those data for decisionmaking lag far behind. The challenge includes developing a legal, regulatory and institutional basis for making water reallocation more flexible and voluntary, with careful attention to the highly sensitive issue of the water rights of users and to ecological requirements (for example, releases into estuaries for the sustenance of mangrove swamps and fisheries). These are key elements of an integrated river basin approach to water management, a central principle in the Indian National Water Policy and in the water policy of most Indian states. It fits well with the government of Andhra Pradesh's SMART (Simple, Moral, Accountable, Responsive, Transparent) philosophy. But it is a task that will take decades of persistence to complete, as well as a sequenced, prioritized program of actions tailored to the political realities as they evolve. The World Bank is, and is likely to remain, a central partner for both advice and investments in advancing this ambitious and vital agenda.

While supporting "the focus states with integrated packages of fiscal, civil service and sector reforms" remains the foundation of

the World Bank's India Country Assistance Strategy, there is also room to support standalone innovations in "nonfocus states" that will both directly address poverty and have a high likelihood of a demonstration effect because of commitment to reform or good sector performance. Thus, for example, the World Bank has supported a series of successful watershed management projects in the Himalayan foothills and a project for the reclamation of sodic lands in the Gangetic plains. In both cases the beneficiaries are poor farmers and the environment. The recently approved Water Sector Restructuring Projects in the states of Uttar Pradesh and Rajasthan are the first of a new generation of projects that reflect the required paradigm shift in World Bank-financed water resources projects.

The World Bank has decided to discontinue financing urban utilities unless they are associated with major institutional reforms

In the urban water sector, the World Bank has (as in irrigation) a long history of country activity within the existing institutional framework, but with mixed results. Accordingly, the World Bank has decided to discontinue financing urban utilities unless they are associated with major institutional reforms. The World Bank is now focusing its analytical and advisory services on states that have shown commitment to fiscal and institutional reforms.

In hydropower the World Bank's strategy is much the same. India has substantial undeveloped hydropower potential. But the electricity sector still has major institutional and financial problems. The World Bank has declined to finance the development of new generation capacity (including hydropower) and would only consider re-engaging if there are fundamental energy sector reforms. If this happens, and if new hydropower generating capacity is an appropriate option, World Bank involvement is likely to be primarily in the form of guarantees for private sector participation.

Most of the infrastructure challenges in India relate to the more effective use of existing infrastructure and to the environmental and financial sustainability of that infrastructure. That said, there are still challenges relating to the development of new hydropower resources, as illustrated in Andhra Pradesh. The waters of one major river in the state, the Krishna, are fully developed, but there is considerable potential in the other major river, the Godavari. The problem is an elevation separation of about 300 meters from the place where the water is available to the place where there is land and a major demand for water (with entitlement issues going back to the pre-independence days of the Nizam and with water scarcity contributing to security issues). A simple economic analysis shows that developing these water resources for hydropower is not the best use of limited financial resources. But the political and security imperatives are great. While the state has decided not to build major dams (because of forest submersion and resettlement issues), it is likely to proceed with some form of lift irrigation. The World Bank can and probably should play a productive role by working with the state on exploring options (new technologies, staged development, pilot schemes) that will meet the real political and security needs while maximizing the likelihood of sustainability and limiting fiscal damage to the state.

The World Bank is actively engaged in Andhra Pradesh in the provision of knowledge and advisory services: on the water components of the state's "2020 Vision" document, on benchmarking and irrigation reform options, on utility reform, on groundwater management and on water rights administration and ecological flows. While further World Bank investment support for Andhra Pradesh is yet to be discussed, a next-generation package might include:

- A sectoral adjustment-type approach in which the World Bank finances a part of the government's program of reforms and investments.
- Strong emphasis on a carefully sequenced and prioritized program of institutional reforms, efficiency enhancements and resource management measures both within the principal sectors (water utilities, irrigation) and for overall water resources management.
- A component of high-priority, well (but not narrowly) justified investments that would include modernization of major irrigation systems and some new investments, including possibly a phased, piloted Godavari lift scheme.

The World Bank's experience in India is a powerful illustration of the central messages of this sector Strategy. First, water resources infrastructure can be the basis for sustainable economic growth and poverty reduction and can even help to improve relations among riparian countries. Second, development must be accompanied by management reforms. Third, reforms are difficult, and can only be made when there is demonstrated local political leadership. Fourth, when there is such leadership, the World Bank can play a vital role in bringing new ideas to the table and investing in ways to make reforms durable. Fifth and finally, reforms cannot be achieved in a day. The art of reform is defining a sequenced, prioritized set of reform actions, of picking the low-hanging fruit first, of not making the best the enemy of the good, and ensuring an appropriate incentive system for political leaders who take these risks.

Illustration 4: What the new Sector Strategy might mean in Nigeria

In many respects the Nigeria–World Bank relationship is atypical, given the World Bank's disengagement during the years of military rule in the 1990s.[4] With the return of democracy, however, the World Bank has reengaged, opening a daunting set of challenges for the World Bank in which the two-way link between water and politics (present everywhere) is particularly evident (map 4.4). In the water sector the most immediate and visible problem is urban water and drainage services, with Lagos particularly prominent.

The recent performance of the water institutions—agencies for managing urban and rural water supply and sanitation, irrigation, and the domestic and international rivers—has been extremely poor. With a soaring and urbanizing population the challenges in the coming decades are immense. In response to this challenge, the World Bank has developed a multitrack engagement strategy that, in many respects, can be considered a "best practice" application of the main strands of this Strategy. The first track involves assisting Nigeria to rapidly address the most politically visible issues in innovative ways. The performance of public utilities has come to symbolize the poorest aspects of governance in Nigeria. Lagos is a test case. The publicly run Lagos State Water Supply Corporation has been described, in a recent consultant's report, as "in a dramatic state of neglect, close to collapse," and holds the dubious distinction of having the highest recorded level of unaccounted-for water in the world. Only 4 percent of water production capacity goes toward the creation of revenue.

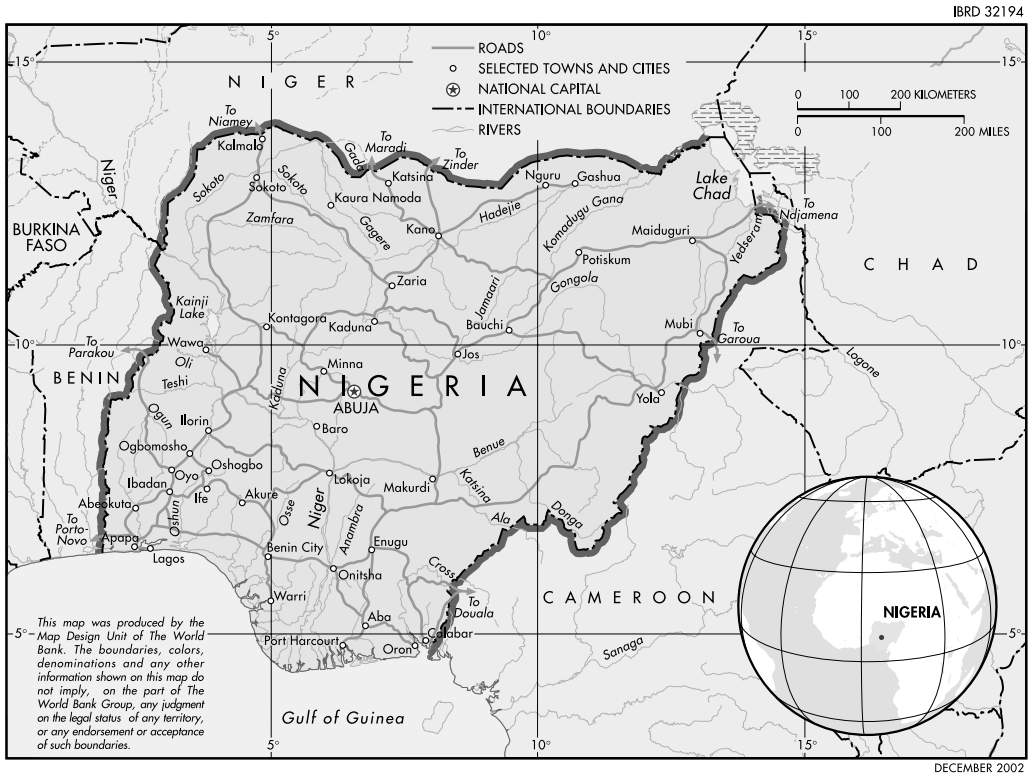
The World Bank (including IFC and the World Bank Institute) has been heavily involved in supporting the state and federal governments in exploring options, and modest gains have already been made. Lagos will be split into two zones. The first zone (Lekki and the Islands) is being prepared for private management through a concession contract, to be awarded by competitive bidding. The remainder of the city will be served by a less ambitious management contract, currently under preparation. Closely associated is the issue of drainage and sanitation in Lagos, an issue the World Bank is addressing through lending and advisory services.

The situation in many other Nigerian cities is not much different. Even in Kaduna, the greatest beneficiary of World Bank loans (for 20 years), the water utility still does not cover all of its operation and maintenance costs. The World Bank will support Kaduna, and as many as five other states where the political will exists, to undertake reforms similar to those in Lagos. In small towns, which have among the lowest service levels in Africa, the government, with World Bank support through a Learning and Innovation Loan, is piloting the innovative, demand-driven Small Towns Project, which includes community contributions to the construction costs of the facilities while contracting out the operation and maintenance to the private sector.

The second track of the World Bank's strategy for water management in Nigeria involves addressing a series of important, though politically less explosive, water service challenges. These include developing a sustainable strategy for addressing the formidable urban sanitation and rural water

For Nigeria, the World Bank has developed a multitrack engagement strategy that can be considered a "best practice" application of the main strands of this Strategy

m4.4 Nigeria



and sanitation problems and following up on the World Bank's successful family-based groundwater irrigation project. The World Bank might also address the large public sector irrigation projects run by the river basin development authorities, where less than 10 percent of the command area of 400,000 hectares actually gets regular supplies of irrigation water. Here the test for the World Bank is to bring best practice both to the user level (drawing on the growing body of experience with user associations in other countries) and the utility level (applying the ideas of benchmarking, competition, private sector participation and service agency accountability for reform.

The third track involves laying the groundwork for the longer term water management challenges in Nigeria. This includes working with the federal government to facilitate institutional rationalization, legislative reform and development of capacities for strategic water resources management planning. At the river basin level, it means supporting the development of modern stakeholder-based institutions for river basin management. As in other countries, this will require starting where there is a strong demand for reform. One place might be the conjuncture of irrigation, urban water supply and ecological flows for floodplain agriculture in the Hadeija Jamaare Basin. A second important area is micro watershed management, on which the World Bank recently initiated an innovative first project with a strong poverty focus. And finally there is a set of important international water issues relating to management of the Niger and Benue Rivers and the Lake Chad Basin, where the World Bank is already playing an important facilitating role (with the assistance of Global Environment Facility funding). The focus in these endeavors has appropriately been on raising awareness and building capacity.

The experience of the World Bank in Nigeria, and the views of a variety of stakeholders on this experience, were important elements in defining the main strategic lines

for this Water Resources Sector Strategy. It is not surprising, therefore, that the World Bank's strategy in Nigeria is broadly consistent with the main themes of this Strategy.

The political reality of Nigeria poses a major challenge in designing and implementing World Bank activities, especially those involving infrastructure investment. Reputational risks are high because of complex environmental, social and governance issues. If the World Bank engages in such activities and cuts corners, there will inevitably be mistakes and blots on its reputation (especially in a country with many institutional limitations and a history of corruption). On the other hand, if the World Bank chose to require full comfort before engaging, progress on the ground would be slow, and the opportunity cost in terms of development benefits for the people of Nigeria would be great. In this case, the World Bank would be unable to make a contribution in the critical areas where the effectiveness of civilian rule will be judged and might therefore miss the window of opportunity which now exists.

In the past few years the World Bank has dealt with these challenges in imaginative and courageous ways. To a large degree the World Bank's strategy for engagement with Nigeria is best practice under extremely challenging circumstances. This is so because the World Bank:

- Has developed a prioritized, sequenced and multitrack approach.
- Has built, where possible, on formidable grassroots capacities (for example, in the fadama irrigation project and the watershed management project).
- Has realized that without fundamental building blocks—sound institutions at the service level—there can be no progress on the more difficult resource management issues.
- Has realized that the best must not be the enemy of the good, and has thus proceeded with some radical changes (for example, through the concession contract for Lagos), aware of the significant room for improvement in governance and regulatory conditions and ready to support the government in identifying and managing the risks that will materialize in executing the contract.
- Has proceeded on parallel tracks in building the knowledge and institutional base for dealing with the longer run resource management challenges within Nigeria and in the international basins of which Nigeria is a part.

Illustration 5: What the new Strategy might mean in the Philippines

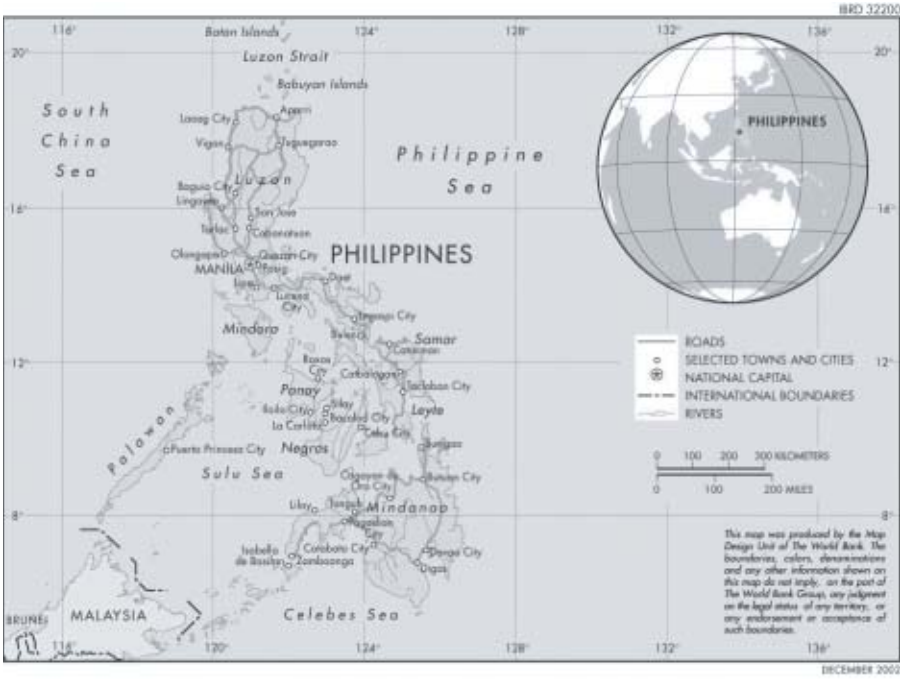
The recent experience with water management in the Philippines is a graphic illustration of one of the central themes emerging from the Operations Evaluation Department review of the experience in implementing the World Bank's 1993 Water Resources Management Policy Paper (map 4.5).[5] In particular, it is a striking example of how, in the words of that report, "Progress takes place more through 'unbalanced' development than comprehensive planning approaches and….institutional development efforts should abandon comprehensiveness of scope and schedule and a partial, cumulative, and highly focused approach [should be] pursued…."[6]

Despite initial leadership by the president, first-rate technical assistance and the existence of an apex national water resources management agency, water resources reform was not successful

The first part of the Philippines story is the fate of a high-level effort in the 1990s to introduce comprehensive, integrated water resources management. Despite initial leadership by President Fidel V. Ramos, despite first-rate technical assistance from an external financing agency and despite the existence of an apex national water resources management agency, water resources reform was not successful.

The second part of the story relates to the direct and ripple effects of the decision to issue two concession contracts for water and sewerage services in Manila. President Ramos took this decision after the striking success with the introduction of private sector electricity suppliers. The World Bank was an enthusiastic partner, since the publicly operated water utility had become a textbook case for the failure of donor-supported incremental reform. (After 30 years of World Bank loans, unaccounted-for water had increased from 45 percent to 65

m4.5 The Philippines



percent.) The IFC advisory service played a major role as an effective partner to the government in the concession process, which has become a model (documented in an excellent book by the civil servant who led the process[7]) of transparent governance. While the focus was on getting better services to the people of Manila, the concessions also initiated a series of unforeseen but important ripple effects in water services and resource management.

In urban water services, the World Bank, in partnership with public sector banks, is trying to build on the momentum of Manila and to respond creatively to the new reality of fiscal decentralization in the Philippines. The World Bank's urban water group is developing an imaginative portfolio aimed at consolidating the concessions in Manila (with special attention to regulatory issues and participatory performance audits), bringing lease contracts to small towns and focusing on difficult sewerage issues. An implicit element of this strategy is developing competition for the Local Water Utilities Administration, the national urban water supply agency that is now under heavy pressure to reform.

In resource management, the ripple effects from Manila are transforming the way water resources are managed in the Philippines. These transformations began with the Angat Dam, the main source of bulk water for Manila and for about 30,000 hectares of irrigation facilities. First, although water distribution has been privatized, the Metropolitan Waterworks and Sewerage System, the old public agency, still has the bulk water rights and is under contract to supply water to the two concessionaires. The concessionaires have helped raise awareness of the need for fair and transparent rules for addressing competing uses between urban and agricultural users and are helping develop a robust solution to the allocation issue. The hidden issues of allocation rules, water rights and fairness were thus brought to the surface by private sector participation in Manila. The World Bank has been active as a knowledge partner on water rights issues and is helping define transparent mechanisms for water reallocation under a transferable water rights framework with equitable compensation.

Second, the private operators of the concessions (international consortiums, led by

Philippine companies) also understood that their raw water assets were threatened by erosion in the catchment and initiated vigorous programs for stimulating better land and water conservation practices in the catchment.

Given the illustrious history of water user associations in the Philippines (dating back to the 1970s), which have been an inspiration to much of the participatory irrigation movement around the world), there has been surprisingly little progress in modernizing irrigation management in the Philippines. World Bank staff have long seen that reform of the National Irrigation Agency is necessary. However, as in so many other cases, the World Bank engaged in the gradual and difficult task of incremental reform. The unintended effect may have been to prop up an agency that has not been effective and accountable to users, in part because about 80 percent of its capital budget and a large part of its operating revenue come from donor funding.

The World Bank is re-thinking its approach to irrigation reform in the Philippines. The starting point is the idea that while user associations are key, reform of the service agency is central. And, again, the World Bank has much to bring to the table in terms of tools for assessing institutional options, for benchmarking and for stimulating competition among service providers. While there are encouraging signs of donor convergence on this issue, the essential ingredient will be political and civil service leaders willing to address the thorny issues of agency reform.

In water resources management, it is clear that effective action requires both working from the top (enabling legislation and support for local efforts) and from the bottom, where there is a real demand for solutions. There are water resources hot-spots in the areas around Manila and Cebu, with a third area of scarcity emerging in the Cagayan Valley in Northern Luzon. In Manila, privatization has helped catalyze reforms. In Cebu, local civil society has been the leader in pushing for solutions to the acute local water resources problems. In the past the World Bank has tended to engage in top-down river basin planning exercises in areas without strong demand for reform. In the future it will need to seek opportunities, going where there are immediate needs for reform and actors who want to make the changes happen.

At the request of the Philippine government, the World Bank is providing technical assistance to the National Economic Development Authority for the upcoming Third National Water Summit. Support is being provided on water resources management, institutional reform, raw water pricing, demand management, river basin management, irrigation reform and tradable water rights. While the focus is on overall policy reform, recommendations are being formulated to address actual cases such as Angat that can provide a tangible example to foster reform nationwide while addressing critical problems.

As with the other focus country studies, the experience of the Philippines had a substantial impact on the main messages of this sector Strategy. The Philippines experience indicates, in the words of one participant in the Manila consultation, that "the politics of reform is the politics of tension." It has been the introduction of a new "creative tension" in the form of the concession contracts for Manila that has given rise to a host of new (also creative) tensions to resolve in the service and resource arenas.

The Philippines experience indicates, in the words of one participant, that "the politics of reform is the politics of tension"

For the World Bank there are powerful lessons from the Philippines experience. These include:

- Acting where there are strong forces demanding solutions, and not in response to an idealized notion of how a sector should be managed.
- Understanding that the reform process is dialectic and never final—each success gives rise to a new, higher form of challenge.
- Providing reforming politicians and civil servants with access to international best practice, and with timely advisory services.
- Building on political momentum in one arena to stimulate reforms where new tensions are created.
- Backing away when it is clear that incremental reforms are perpetuating the status quo.

- Fostering the synergies that can be created when members of different parts of the World Bank Group and members of different World Bank families (in this case, rural and infrastructure) work together on water issues.

Illustration 6: What the new sector Strategy might mean in Yemen

Yemen faces one of the most dramatic water management challenges in the world: there is no way people can live where they do unless water is managed more sustainably

Yemen faces one of the most dramatic water management challenges in the world (map 4.6).[8] Most of the population lives in highland areas and depends almost entirely on groundwater for domestic, agricultural and industrial supplies. Over the last 20 years a groundwater revolution has taken place, with the widespread adoption of tubewell technology. While bringing prosperity to rural areas, this revolution is not sustainable. Groundwater is being pumped at a rate approximately four times that of natural recharge. This situation has dramatic short-term results, with some previously productive valleys already abandoned, with pumping depths already great and increasing constantly and with a sharp rise in conflict between users competing for disappearing resources. But in the long term the situation is even more daunting, for there is simply no way people can live where they do unless water is managed more sustainably.

Compelling as the demographic and hydrological imbalance is, the odds are heavily stacked against effective action. Groundwater management is a classic open access resource management problem, which poses major difficulties even in the best of environments. In arid parts of developed countries, for example, where there is excellent hydrogeological information, where decision support systems are available, where property rights are clearly defined and enforced and where there are strong local organizations, it still often requires the heavy hand of the courts to force actions that will lead to sustainable groundwater management. In Yemen none of these conditions are in place. The notion of national management and national legislation is unrealistic in a country with severe capacity constraints in all sectors. This means that groundwater management necessarily has to be done at the local level, aquifer by aquifer. Hydrogeology is a complex and frequently misunderstood subject. Clear, accurate and practical information on the hydrogeological consequences of different actions is available in only a few select settings in Yemen. And even where some information is available, the situation presents formidable challenges, including inequitable use of resources (with a handful of large landowners typically responsible for most of the abstractions), an absence of formal property rights and a lack of local institutional structures for managing the new type of conflicts that the tubewell has created.

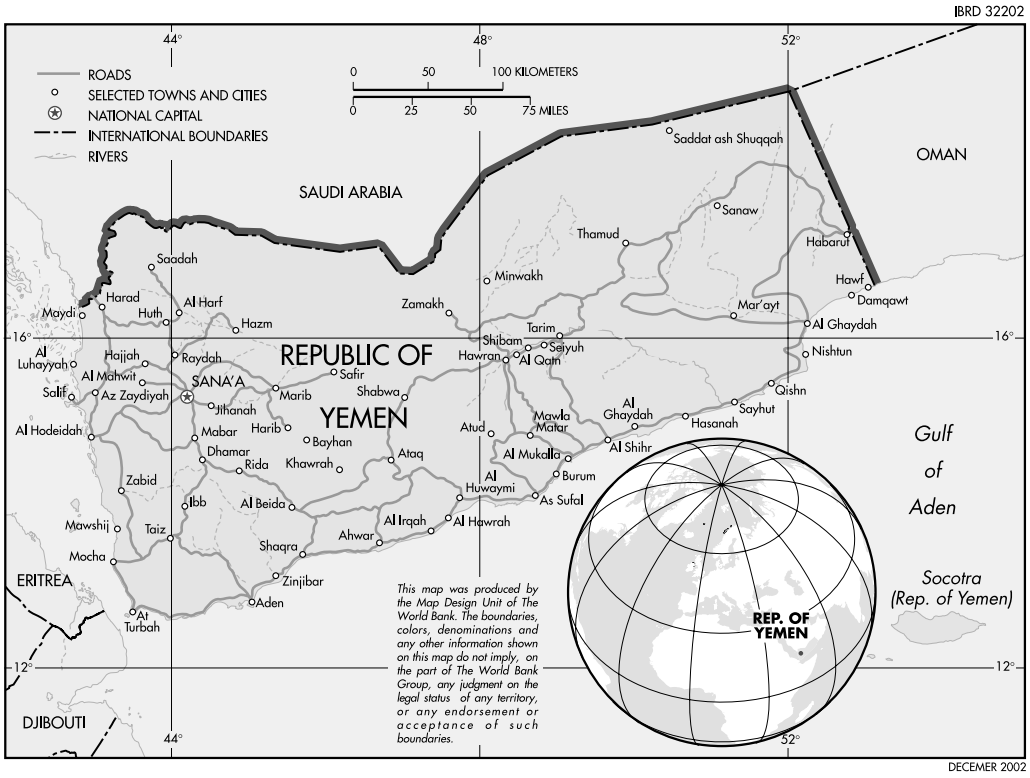
Over the past decade the World Bank, together with other donors, has come to play an important role in the massive task that lies ahead of Yemen. The starting point for the World Bank, following the 1993 Water Resources Management Policy Paper, was the formulation of a regionwide water sector strategy for the Middle East and North Africa Region, a task that was completed in 1995. This exercise, involving extensive consultations with clients and partners, was the first of its kind in the World Bank. Building on the regional strategy, the region took the next logical step of developing country strategies. The country water strategy for Yemen (1997) was in many ways also a pathbreaker, this time for the country water resources assistance strategies advocated as part of this new sector Strategy.

The hydrological, political, economic and social complexity of water management in Yemen made this strategic view particularly important. The water strategy also succeeded in highlighting the water issues in the government's development plans and, consequently, in the World Bank's Country Assistance Strategy.

Coincident with the formulation of the Yemen water sector strategy, the World Bank supported a set of pilot activities on key issues, intended as first steps in a long process of learning and adjustment. These first-generation pilot projects included efforts to:

- Improve the efficiency of water use in agriculture, focusing particularly on reducing real losses (water lost through

m4.6 Yemen



evapotranspiration) rather than paper losses (water that percolates down into the aquifer).

- Reinforce strong, traditional, community-based management systems for managing flash flood flows in the coastal rivers.
- Improve the efficiency of urban water supply.
- Start to address the enormous task of sustainable management of selected aquifers.

As emphasized in this sector Strategy, a universal lesson of water reform is that it takes patience and persistence, with only partial successes over the course of decades (witness the experience of developed countries). When effective management instruments are few (as in Yemen), even greater modesty, patience and persistence are required. This is always difficult advice to convey, especially given the enormity and immediacy of the problem in Yemen.

Most important, the Yemen experience has meant doing and learning and thinking and adjusting simultaneously. There has been vigorous debate within the World Bank on what can and cannot be learned from the first generation of World Bank-financed water projects, and from the efforts of others. This is an intrinsically difficult process, especially for an institution with high aims and global standards, since it means acknowledging situations that are less than desirable and formulating options that may not be optimum but correspond to the harsh realities of the country.

The second generation of World Bank-financed water projects is now coming on line in Yemen. These are reflected in the Sana'a Basin Water Resources Management Project and Groundwater Management and Conservation Project, both under preparation. Building on the experiences of the first generation activities, they address better integrated management of land and water (through watershed management components), further attention to maximum return per unit of evapotranspiration, development of local capacity for resource management

efforts to improve the legal and institutional framework and efforts to selectively improve the capacity of the national water management agency, especially in information and decision-support systems. Again, the approach will have to be step by step, learning and adjusting as lessons accumulate. But if even partial success can be achieved in the Sana'a Basin, which includes the national capital, this could have a big multiplier effect on the rest of the country.

The water resources challenges of Yemen are an extreme case and shed unusually clear light on some of the central strategic water management questions facing the World Bank. There are few issues relating to major water infrastructure, but many on minor infrastructure, especially on the political economy of water resources management.

The learning-by-doing approach adopted in Yemen by the World Bank reflects the formidable challenges, realizable accomplishments and need to look for solutions beyond the usual blueprints

Perhaps the greatest challenge for the World Bank is to be realistic about the nature of the challenge and about what change is possible in what time frame. Water management reform ideally derives from underlying factors such as participation and a market economy. While Yemen has made progress in recent years, it still ranks near the bottom of world tables for these indicators. It is therefore very unlikely in the foreseeable future that the water sector in Yemen will look anything like an ideal Dublin Principles water sector.

In such a context how does the World Bank formulate approaches that correspond to reality and not idealized forms of social and political structure? How does the World Bank work with the borrower to formulate achievable (but far from perfect) targets for the next 5, 10 or 20 years? How does the World Bank help staff who are struggling with this massive task, in particular to ensure that the focus is on what is possible and realistic, so that the best does not become the enemy of the good? And how does the World Bank help borrowers pick the low-hanging fruit, an approach that is essential for building confidence and capacity, but that is easy to characterize as inadequate given the magnitude of the challenge?

The Sana'a Basin Water Resources Management Project suggests that the World Bank is approaching these dilemmas seriously and sensibly. The project has been designated as a corporate project, signaling that integrated water resources management approaches in the context of scarce resources and competing claims for the resource can pose serious challenges to governments and to those, like the World Bank, that support them. The learning-by-doing approach adopted in the interventions in Yemen supported by the World Bank reflects the formidable challenges, realizable accomplishments and need to look for solutions beyond the usual blueprints.

Illustration 7: What the new sector Strategy might mean for the World Bank's work on international waters: The Nile Basin Initiative

Since 1996 the Africa Water Resources Management Initiative has sought to improve national water resources management through institutional and legal review and reform efforts, with an emphasis on ownership and stakeholder participation, environmental sustainability, demand management and cost-efficiency. Often, the point of entry for these reform discussions has been a client's request for major infrastructure investments. Where the scale of perceived investment needs is vast, a review of current practices and options is generally called for. In Africa the need for major water infrastructure investments is great: access to potable water is lower than in any other region, and rainfall variability is roughly three times that in temperate regions but water storage per capita in reservoirs is often well below that in developed countries. Water resources management capacity and infrastructure investment levels are low; both must be addressed for either to be truly effective.

An additional complication is that Africa has more international rivers (shared by three or more countries) than any other continent. The World Bank is increasingly asked to facilitate and support cooperative management of international water resources. These requests reflect the World Bank's capacity as a knowledge bank offering global experience in water resources management and its capacity as an investment bank underwriting the

m4.7 Nile River Basin

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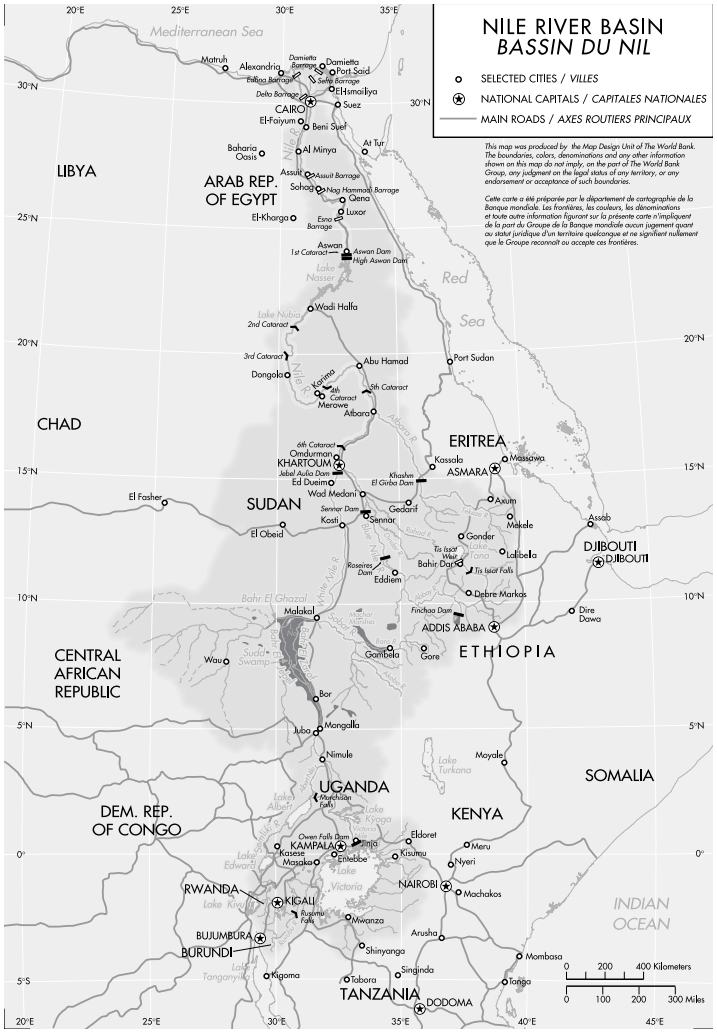

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investments that will deliver the development benefits of international cooperation.

Tensions over the control of Nile waters are longstanding obstacles to growth and development in the region. Conflict prevention and cooperative water resources management in the Nile Basin are therefore central development challenges for the 10 countries that share the Nile River. A clear example of the importance of this Strategy for operations in the Africa and Middle East and North Africa Regions is the Nile Basin Initiative. The initiative is a cross-regional international water resources program supported by the Africa and Middle East and North Africa Regions of the World Bank. The initiative is led by the Council of Ministers of Water Affairs of the Nile Basin States (Nile-COM), supported by a small secretariat in Entebbe. The Nile Basin Initiative's Strategic Action Program is guided by a shared vision "to achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources." The action program includes a basinwide SharedVision Program of technical assistance-style projects designed to lay the foundation for cooperative action, and two subbasin investment programs that

will promote poverty alleviation, growth and improved environmental management.

At the request of Nile-COM, the World Bank is facilitating discussions among the riparians, backstopping the Nile Basin Initiative's technical work and coordinating international support for the initiative and the investments it identifies. The World Bank has a comparative advantage in this role because of its strong national-level working relationships with many of the riparian countries, its development focus, its technical capacity, its political neutrality and, importantly, its capacity to finance cooperative investment programs.

When the World Bank commits to long-term, high-reward–high-risk undertakings like the Nile Basin Initiative, it is essential that it have a clear institutional mandate to fulfill the range of functions required

While the overarching goals of the Nile Basin Initiative are conflict prevention, poverty alleviation and environmental management—not simply the construction of major water infrastructure—its mutually agreed projects will deliver the most apparent and immediate development impacts. Should it be difficult for the World Bank to provide this support, for example due to the reputational risks of financing major infrastructure in the Nile Basin, this could undermine the Nile Basin Initiative process. World Bank disengagement from investment could erode riparian confidence that efforts will lead to real development gains, and donor confidence that the Nile Basin Initiative investments are sound. Some projects might find financing without significant donor involvement. It is unlikely, however, that all countries would be able to access funding. Such asymmetric access to finance could increase tensions in the region. Moreover, best practice environmental and social safeguards are more likely to be ensured with the involvement of donor partners.

When the World Bank commits to long-term, high-reward–high-risk undertakings like the Nile Basin Initiative, it is essential that it have a clear institutional mandate to fulfill the range of functions—in both policy and investment support—required by such a commitment.

This sector Strategy maintains an emphasis on the World Bank's knowledge-based support to water resources management and reform, while reconfirming its commitment to support sound, environmentally sustainable and cost-effective investments in water infrastructure. Implementation of the Strategy will strengthen the effectiveness of the World Bank's support to water resources management in the Africa Region—in both its efforts to provide management and institutional support and advice and its efforts to finance infrastructure investments. In practice, institutional support and investment finance are often interlinked in project design and client relations.

Implementing the sector Strategy in the World Bank's operations: What these examples show

The World Bank's activities in water resources in any particular country are the product of three factors: the water resources challenges in the country and the government's approach to them, the overall framework governing the relationship between the country and the World Bank (as embodied in the Country Assistance Strategy) and this sector Strategy. Accordingly, the implications of the Strategy for the World Bank's work in a particular country can only emerge over time, in response to demand from borrowers and as part of a larger relationship.

That said, the examples serve to illustrate how the broad themes of this Strategy are likely to play out in differing contexts. They show:

- On water resources management, the importance of paying explicit attention to:
  - The wide variation in the underlying challenges, from a natural, economic, political and social perspective, and the wide variety of starting points for the appropriate ambition and pace of reform.
  - The need to move away from slogans based on principles and to focus directly on issues of political economy. This means close attention to prioritizing and sequencing reform actions, taking advantage of windows of opportunity thrown open by exogenous economic and political reforms, understanding that the best should not become the enemy of the good and operating with patience and persistence.

- The need to see water resources reforms through an expansive lens, going well beyond hydrology to the political, social and cultural underpinnings.
- The need to use the World Bank's comparative advantage, by linking water reforms to broader reforms in governance, civil service reform and financing.

- On the development of water infrastructure:
  - That most developing countries need to invest substantially in water infrastructure.
  - That the appropriate image is not the old one of development first and management later, nor the equally unbalanced management first and development later, but that what is required is a mix of investments in management and development.
  - That the World Bank must find more effective ways of becoming engaged if we are to have a seat at the table and serve as a full-service advisory and investment partner to developing countries.

As described above, this Strategy is the third in a trilogy of World Bank statements on water resources management. The first, the 1993 Water Resources Management Policy Paper, outlines the principles governing the World Bank's work in water resources. The second, the 2001 Operations Evaluation Department assessment of experience with implementation of the Policy Paper, concludes that the Policy Paper remains valid and germane, but that the ambition and the pace of implementation must be tailored to the wide variety of circumstances found in the countries that borrow from the World Bank.[9] This Strategy, the third part of the trilogy, builds on the principles of the 1993 Policy Paper and the lessons of the Operations Evaluations Department study and focuses on how to translate principles into action.

These examples from Brazil, Central Asia, India, Nigeria, the Philippines, Yemen and the Nile Basin underscore the main messages of this Strategy. First, in most developing countries it is necessary to simultaneously improve the management of water resources and invest in developing water resources. Second, even under the best of circumstances, improvement in resource management is a task that is only partially accomplished. It requires patience, persistence, realism and greater attention to the prioritization and sequencing of reforms and their linkage to broader political and economic reform efforts. Third, the World Bank needs to re-engage as a partner in developing high-reward–high-risk water infrastructure through a new approach that focuses primarily on the development risks of not being involved and that leads to more predictable, crisper decisions, without compromising social and environmental standards. Fourth and most important, the examples illustrate graphically that improved water resources management and development are essential for environmentally and socially sustainable growth and for the reduction of poverty.

The World Bank's activities in water resources are the product of the water resources challenges in the country and the government's approach to them, the overall framework governing the relationship between the country and the World Bank and this sector Strategy

Notes

1. This assessment is based in part on consultations held with stakeholders in Brasilia in February 2000. The presentations, panel discussions and reports from that meeting are available on www.worldbank.org/water. These consultations were complemented by a discussion in Fortaleza in March of 2001 with senior political, civil service, professional and civil society leaders on the report of the World Commission on Dams.
2. For all other regions, these assessments of what the Strategy might mean are based in part on consultations held with stakeholders in preparation for this Strategy. Due to budget constraints, no consultation was held in Europe and Central Asia.
3. This assessment is based in part on consultations held with stakeholders in New Delhi in May 2000. The presentations, panel discussions and reports from that meeting are available on www.worldbank.org/water.
4. This assessment is based in part on consultations held with stakeholders in Abuja in September 2000. The presentations, panel discussions and reports from that meeting are available on www.worldbank.org/water.
5. This assessment is based in part on consultations held with stakeholders in Manila in February 2000. The presentations, panel discussions and reports from that meeting are available on www.worldbank.org/water.
6. World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters:*

Assessing the World Bank Water Resources Strategy. Washington D.C.
7. Dumol, Mark. 2000. "The Manila Water Concession: A Key Government Official's Diary of the World's Largest Water Privatization." Directions in Development Series, World Bank, Washington D.C.
8. This assessment is based in part on consultations held with stakeholders in Sana'a in September 2000. The presentations, panel discussions and reports from that meeting are available on www.worldbank.org/water.
9. World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy*. Washington D.C.

Abbreviations

CAS	Country Assistance Strategy
CGIAR	Consultative Group for International Agricultural Research
GDP	gross domestic product
IDA	International Development Association
IFC	International Finance Corporation
MIGA	Multilateral Investment Guarantee Agency
NGO	nongovernmental organization
OECD	Organisation for Economic Co-operation and Development
PAD	Project Appraisal Document
PRSP	Poverty Reduction Strategy Paper
UNEP	United Nations Environment Programme
WCD	World Commission on Dams

Annex 1: The World Bank position on the Report of the World Commission on Dams

December 13, 2001

The World Bank shares the World Commission on Dams core values and concurs with the need to promote the seven strategic priorities

Dams are important contributors to the development of many countries. They improve and expand power generation, irrigation, and domestic and industrial water supplies, and provide security against droughts and protection from floods. At the same time, they often submerge substantial areas and change the pattern of river flows downstream, causing, in some cases, significant adverse impacts on the environment and local communities.

The World Commission on Dams (WCD) has produced a carefully prepared and well-written Report which has stimulated a wide-ranging and productive discussion of many of the most difficult issues facing developing countries and agencies that work with these countries. The process used by the WCD in preparation of the Report facilitated an unprecedented dialogue between all parties. The Report makes a substantial contribution to addressing the wide-ranging issues surrounding large dams. It presents innovative ideas for dams to contribute more dependably to sustainable development. The World Bank has disseminated the WCD Report widely among its shareholders, and continues to participate in and benefit from the ongoing discussion.

The Report of the WCD advocates:

- Five core values—equity, efficiency, participation, sustainability and accountability—for future decision-making on dams.
- A rights and risks approach for identifying stakeholders in negotiating development choices and agreements.
- Seven strategic priorities—gaining public acceptance, assessing options, addressing existing dams, sustaining rivers and livelihoods, recognizing entitlements and sharing benefits, ensuring compliance, and sharing rivers for peace, development and security.
- A set of criteria for assessing compliance and 26 guidelines for review and approval of projects at five stages of decision-making.

World Bank staff have reviewed the Report thoroughly, and have consulted widely with its Executive Directors, with governments themselves, with nongovernmental organizations, with other international financing institutions and with private financiers and developers. In common with virtually all those consulted, the World Bank shares the WCD core values and concurs with the need to promote the seven strategic priorities.

The focus of much controversy regarding the WCD Report has centered on the 26 "guidelines," which have been interpreted by some proponents and critics of the Report as a proposed new set of binding standards. The World Bank's conclusion on the guidelines is best summarized by the Chair of the WCD, who has explained that "our guidelines offer guidance—not a regulatory framework. They are not laws to be obeyed rigidly…. They are guidelines with a small 'g'." Individual governments and private sector developers may wish to test the application of some of the WCD guidelines in the context of specific projects. In such cases, the World Bank will work with the government and developer on applying the relevant guidelines in a practical, efficient and timely manner.

Support for strategic planning, and a dams planning and management action plan

The World Bank supports its many borrowers that want to continue to learn and improve practice—planning, technical, economic, environmental, and social—in construction and operation of dams. Consistent with the WCD recommendations, the World Bank will support strategic planning processes conducted by borrowers to enhance the evaluation of options and alternatives for energy and water management. The World Bank will also support borrowers in financing sound priority investments emerging from such processes, and will continue to apply its existing policies to these and other projects.

As part of this process, the World Bank has initiated a "Dams Planning and Management Action Plan" to strengthen its work in the water and energy sectors and to improve the evaluation, implementation, and operation of dams when they are the appropriate development option. The Action Plan comprises activities in six complementary areas:

- Working with borrowers to move "upstream," so that all energy, water supply and flood and drought protection options are assessed.
- Continuing to emphasize institutional reform for more efficient use of water and energy.
- Effectively implementing the World Bank's existing safeguard policies.
- Continuing to support borrowers in improving the performance of existing dams.
- Practicing a proactive and development-oriented approach to international waters.
- Continuing to support innovative approaches and capacity building for dealing with complex dam-related management and technical issues.

World Bank policies

In reviewing the WCD Report, the World Bank has paid particular attention to the sections that are relevant to World Bank operational policies. In broad outline: there are no major differences regarding the World Bank's operational policies on environmental assessment, natural habitats, safety of dams or cultural property; there are limited issues regarding projects on international waterways; there are some issues related to involuntary resettlement and indigenous peoples; and the WCD Report proposes a different framework for project preparation. The following sections outline the differences between the recommendations of the WCD and current World Bank operational policies, and the position of the World Bank regarding the recommendations.

On the project preparation and consultation process

The WCD Report recommends a multi-stage process including the following steps: the location, scope and design of the project is determined based on an agreement by all stakeholders; a stakeholder forum assesses alternatives for the detailed layout of the dam; cumulative and interactive aspects of existing infrastructure on the river are addressed in the design of the dam through an agreement reached with the stakeholders and operators; final design includes provisions for emergency preparedness and decommissioning; mitigation, resettlement, monitoring and development plans are agreed with affected groups and signed as "contracts" with them; performance bonds are secured, trust funds established and integrity pacts signed before project implementation starts; and licensing to construct and operate the dam is conditional on satisfactory implementation of agreed mitigation and development plans.

The World Bank remains committed to implementation of its operational policies to ensure that: key stakeholders are systematically identified and involved in project planning and implementation; meaningful upstream consultations are held with affected groups to guide project decision-making, and their views and preferences are reflected in the plans developed as an integral part of the project. The implementation of mitigation and development plans is funded as an integral part of the project budget and regularly monitored, both by the Borrower and the World Bank. The World

The World Bank has initiated a "Dams Planning and Management Action Plan" to strengthen its work in the water and energy sectors and to improve the evaluation, implementation, and operation of dams when they are the appropriate development option

Bank notes that in both developed and developing countries the state has the right to make decisions that it regards as being in the best interest of the community as a whole, and to determine the use of natural resources based on national priorities.

On involuntary resettlement

The WCD Report recommends that: all adversely affected people negotiate formal and legally enforceable mitigation plans (in cases where negotiations stall, an independent dispute resolution process is required); any outstanding resettlement issues associated with existing large dams on the same river be identified and remedied before new infrastructure is built; adversely affected people be recognized as first among the beneficiaries of the project, and mutually agreed and legally protected benefit sharing mechanisms negotiated to ensure implementation; a clear agreement with the affected people be reached on the sequence and stages of resettlement before construction on any project preparatory works begins; compliance plans be enforced through independent review; and the license to construct and operate the dam include conditions related to successful completion of resettlement, mitigation and development plans.

The World Bank's resettlement policy is built on the principle of informed participation of affected people in resettlement planning and implementation, but does not require the negotiation of development and mitigation plans

The World Bank's resettlement policy is built on the principle of informed participation of affected people in resettlement planning and implementation, but does not require the negotiation of development and mitigation plans. This approach ensures that affected people are assisted in their efforts to improve, or at least restore, their standards of living, in a manner that is consistent with their cultural preferences, while retaining the rights of the state to exercise eminent domain for the larger public interest as appropriate in the circumstances. The World Bank has been and remains committed to seeing that thorough baseline studies are conducted to identify affected people and the extent of impacts. Its operational policies require that affected people are provided opportunities to participate in resettlement planning and implementation, and draft plans are disclosed in the project area to obtain the views of affected people before they are finalized. Implementation of the agreed mitigation and development plans is reflected in the legal agreements between the World Bank and the Borrower.

Resettlement implementation is monitored by the Borrower and the World Bank, and "independent panels" are increasingly engaged in projects with major resettlement impacts. The recently approved World Bank operational policy on involuntary resettlement also requires an early review of resettlement implementation to use the lessons learned for subsequent implementation. World Bank-financed projects are not considered complete until agreed plans are fully implemented, and follow-up surveys are conducted at project completion to document the extent to which the incomes and standards of living of affected people have been restored. The findings of these surveys form the basis of discussion on follow-up measures, as necessary, with the Borrower. A chapter of the forthcoming World Bank resettlement sourcebook will describe good-practice elements of reservoir resettlement, drawing on, among other sources, the extensive knowledge base compiled by the WCD.

In the past the World Bank has, when requested by the Borrower, supported actions to resolve outstanding resettlement (and other social and environmental) issues from past projects. The World Bank is also willing to assist Borrowers in developing their national, regional or sectoral social and environmental policies and legal frameworks.

On indigenous peoples

The WCD Report proposes that indigenous and tribal peoples should give their free, prior and informed consent to the project.

The World Bank requires that free and meaningful consultations with directly affected indigenous groups be undertaken prior to the initiation of detailed project preparation, and the draft operational policy on indigenous peoples requires that the World Bank and the Borrower take into account the results of such consultations in deciding whether to proceed with the project. Where the World Bank decides to proceed

with project processing, mechanisms are established to ensure the informed participation of indigenous peoples in project preparation and implementation. If indigenous peoples are likely to be adversely affected by the project, the Borrower is required to conduct a social assessment to help assess the scope and extent of adverse impacts, and to discuss proposals to avoid, or minimize and mitigate them.

Indigenous Peoples Development Plans are prepared to help mitigate adverse impacts and to promote tailoring of benefits based on the preferences of the people concerned. Such plans are reflected in the legal agreements between the Borrower and the World Bank. The World Bank is thus dedicated to ensuring that the views of the affected people are carefully documented and taken into account by project decision-makers, without infringing on the right of the state to make decisions which it judges to be the best solution for the community as a whole.

On projects on international waterways

The WCD recommends that where a government agency plans or facilitates the construction of a dam on a shared river in contravention of the principle of good faith negotiations between riparians, external financing bodies withdraw their support for projects and programs promoted by that agency.

The scope of the World Bank's policy for projects on international waterways is not as broad as the recommendation of the WCD in this regard. Except in specified circumstances, the World Bank policy does not allow financing of a project on an international waterway until all the riparians are notified of the project and have voiced no objection. If there is an objection from one of the riparians, then World Bank staff assess and confirm that the project will not cause appreciable harm to the interests of the other riparians. The World Bank may in appropriate cases appoint one or more independent experts to examine the project details and submit a technical opinion thereon. However, the World Bank considers a blanket prohibition on work with an agency that has built a dam in contravention of good faith negotiations to be too broad and to foreclose many opportunities for productive collaboration. The World Bank has been and remains committed, in accordance with the main objective of its operational policy on projects on international waterways, to taking a proactive role in supporting riparians to make appropriate agreements or arrangements for sharing and managing the entire waterway or any part thereof.

Summary

The World Bank considers the WCD Report to be a major contribution in defining the issues associated with large infrastructure in developing countries, and in engaging a wide variety of stakeholders in the debate. The World Bank is committed to continued support for its borrowers in developing and managing priority hydraulic infrastructure in an environmentally and socially sustainable manner, and views the WCD Report as a significant point of reference in this process. The World Bank intends to continue to work with its borrowers in effective implementation of current World Bank operational policies, which the WCD describes as "…the most sophisticated set of policies, operational procedures and guidelines amongst the international donor community."

The World Bank is dedicated to ensuring that the views of indigenous people are taken into account by project decision-makers, without infringing on the right of the state to make decisions in the best interests of the community as a whole

Water Resources Sector Strategy

Strategic Directions for World Bank Engagement

Annex 2
The Business Plan

Contents for Business Plan

EXECUTIVE SUMMARY

This Business Strategy a complements the Water Resources Sector Strategy, which builds on the 1993 Water Resources Management Policy Paper, defines principles that govern the Bank's work on water-using sectors (such as water and sanitation and irrigation and drainage), with particular attention to cross-cutting water resources development and management; focuses on the challenges of implementation, not on normative principles; covers only cursorily the many areas of water resources management where there is no contention and where progress is being made; and concentrates on a few, critical issues that have to be addressed at the senior management and Board levels if the Bank is to be a more effective partner to developing countries in managing water resources—and the water service sectors—in an effective, integrated manner. The main messages of the Strategy are:

- Water resources management and development are central to sustainable growth and poverty reduction and therefore to the mission of the Bank.
- Most developing countries need to be active in both management and development of water resources infrastructure.
- The main management challenge is not a vision of integrated water resources management but a pragmatic but principled approach to making improvements.
- The Bank needs to assist countries in developing and maintaining appropriate stocks of well-performing hydraulic infrastructure and in mobilizing public and private financing, while meeting environmental and social standards.
- The Bank must re-engage with high-reward–high-risk hydraulic infrastructure, using a more effective business model.
- The Bank is perceived by many to have a major comparative advantage in the water sectors, and there is accordingly a strong demand for Bank services and a strong demand that the Bank engage.
- The Bank's water assistance must be tailored to country circumstances and be consistent with the overarching Country Assistance Strategies and Poverty Reduction Strategy Papers.

Bank management and the Board agreed that this Business Plan would report on the evolution of past and current Bank lending for water resources management and draw conclusions on the validity of the main messages of the Strategy in each region and Bankwide and on accountability, staffing and instruments for carrying the main messages of the Strategy into action in Bank country programs.

Bank management and the Board agreed that this Business Plan would report on the evolution of Bank lending for water resources and draw conclusions on the validity of the main messages in each region and Bankwide

There are several main findings from a review of the portfolio and pipeline.

- *There is a strong and growing demand for Bank engagement with water.* Projects that deal with water constitute 16 percent of Bank lending, projects that include substantial water resources management components constitute 9 percent of Bank lending and components of projects specifically dedicated to water resources development and management constitute 4 percent of Bank lending. The proportion of Bank lending for water resources projects and components is projected to increase by 50 percent over the next three years.
- *The challenges of water resources development and management vary greatly from region to region,* from country to country and often within different areas of countries.

Accordingly, there are wide differences in the level and content of Bank involvement with water resources management and development across regions and in the ways in which the regions organize to address these challenges.

- *The water resources portfolios of the Bank are diversifying and maturing,* with particularly large increases in lending for watershed management, wastewater, urban drainage and multipurpose projects.
- *There are wide regional variations in engagement with analytic and advisory work.* Overall there have been very limited Bank resources devoted to such work for water resources, a feature that is now starting to be reversed.

Implementation of the Strategy faces three major categories of risk related to the management message, the development message and internal organizational and budget processes

All regions have made substantial improvements in recent years in developing mechanisms for strategic leadership and coordination across sectors on water resources issues. The Bank Group-wide quasi Sector Board, the Water Resources Management Group, has made a substantial contribution to improving the quality of the Bank's internal and external work on water resources. Given the growing importance of water resources as a development challenge and in the Bank's lending portfolio, the group's budget and institutional accountability will be strengthened. The Bank faces major challenges in developing a staff complement appropriate for the growing volume and complexity of this business.

Implementation of the Strategy faces three major categories of risk. The first risk relates to the **management message** of the Strategy, which calls for attention to political economy, to sequencing and prioritizing, to not making the best the enemy of the good and to realism about what can be done—and at what pace. The risk is that idealism and optimism will often prevail over clear-headed realism.

The second risk relates to the **development message** of the Strategy; it is that the Bank will continue its de facto withdrawal from engagement with high-reward–high-risk projects. The specific risk is that managers and staff will still perceive high-reward–high-risk projects as too complicated and costly to design and implement and fraught with contentious problems. The "new business model" advocated in the Strategy is designed to make business practices more transparent, realistic and predictable. But this is going to happen only if managers at all levels in the Bank provide leadership, commitment and resources.

The third, smaller, set of risks relates to **internal organizational and budget processes.** The positive experience to date with the Water Resources Management Group and the regional water advisers suggests that this light structure is right and that—with modest additional resources in some cases—there can be further improvements across the Bank.

PREAMBLE

Four separate documents define the new Bank Water Resources Sector Strategy. They are:

- The Water Resources Sector Strategy itself (an advanced draft of which was discussed by the Board's Committee on Development Effectiveness, or CODE, on January 30, 2002 and posted on the web in April, and on which there has been extensive external consultation).
- A report on the results of the external consultations on the draft Strategy.
- The Business Plan (this document and internal Bank management document).
- An Appendix to the Business Plan (available electronically and here as appendix 4), describing the regional portfolios, pipelines and the relevance of the themes of the sector Strategy in each region.

The purpose of this Business Plan is to discuss the institutional implications of applying the main recommendations of the Strategic Directions paper to the water resources activities of the Bank. The level of detail at which such implications can be fleshed out is limited, however, by the nature of water resources activities. There is no water resources management sector as such in the Bank. Rather, there are water resources components in activities managed by a number of Sector Boards (including Rural, Water and Sanitation, Energy, and Environment). This Strategy was, accordingly, and as understood with CODE,[1] designed primarily to set broad directions and to be a "chapeau" for activities related to water resources that would take place primarily as part of activities overseen by the Sector Boards.

Second, it is expected that the Strategy will change the nature of the dialogue the Bank has with its clients on water matters. It will do so by opening a broader range of opportunities for action, and thus, eventually, will also change the set of lending and nonlending Bank-financed water activities at the regional and country level. But this will materialize only over time, only in context of specific country conditions and the overall Bank-country discussions at the country level and strictly on the basis of clear borrowing country demand. At this stage it is possible to identify some instruments for conducting this dialogue, but it is not possible to specify precisely what the outcome may be in any particular country.

In consultation with CODE, therefore, it was understood that the Business Plan would report on the evolution of Bank lending for water resources management, draw general conclusions about the validity of the main messages of the Strategy in each region and Bankwide and suggest implications for accountability, staffing and instruments in carrying the main messages of the Strategy into actions in Bank country programs.

This Strategy was designed primarily to set broad directions and to be a "chapeau" for activities related to water resources that would be overseen by the Sector Boards

Note

1. A memorandum to CODE (included in CODE2002-0019, dated March 28, 2002) outlined the form that the Business Plan would take.

1. Defining water resources infrastructure and management

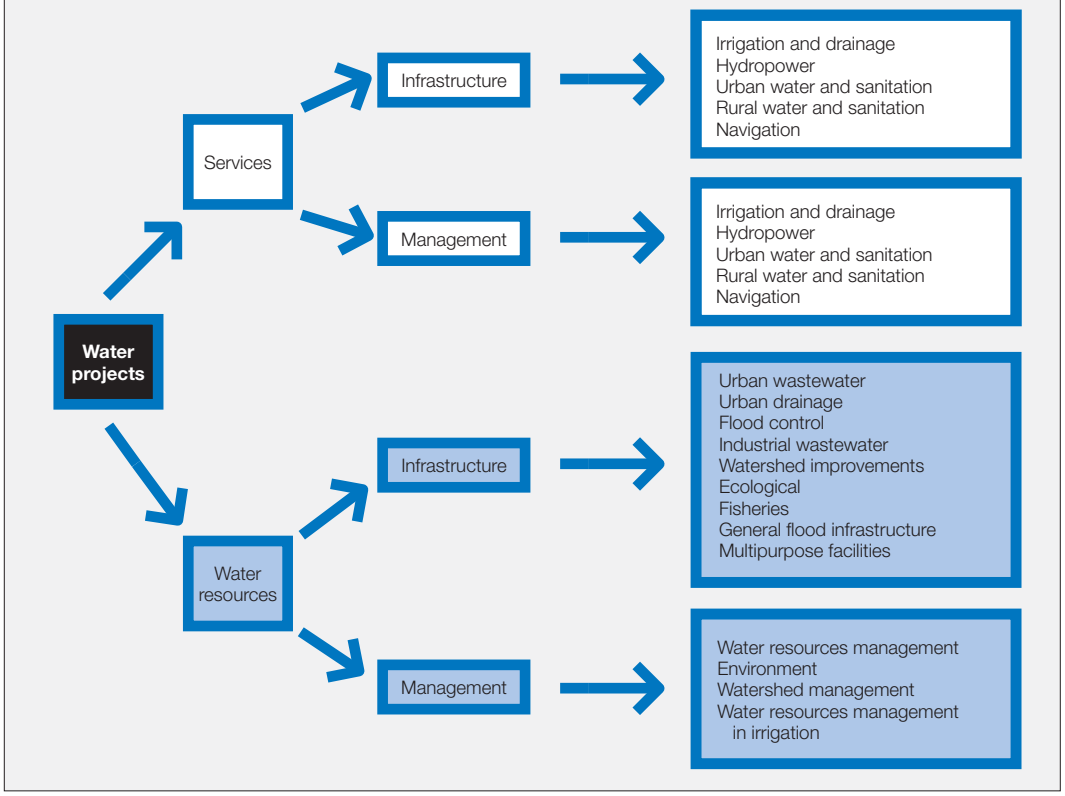
The Water Resources Management Group, working with the Operations Evaluation Department, designed a classification system for defining the water resources components of projects

The focus of the sector Strategy is on the management of water resources, not on water-related services. And since water resources is not formally a sector in the Bank, the project coding system contains no code for "water resources management."[1] Accordingly, the Water Resources Management Group (WRMG), working with the Operations Evaluation Department (OED), designed a classification system for defining the water resources components of projects as illustrated in figure 1.1.[2] (Appendix 2 describes the principles followed in compiling the database.)

Notes

1. The 2002 coding system is a significant improvement. Although "water resources management" is not treated as a sector it is treated as a theme, which task managers can use to help identify projects with water resources components.
2. Assignment of costs to different components is necessarily a judgment call, and one on which reasonable people can disagree. This analysis followed the assignment methodology developed jointly by the Operations Evaluations Department and the Global Water Unit in reviewing the portfolio of Bank investments over the last decade.

f1.1 **Water services and water resources**



2. Regional portfolios and the relation to the main messages of the Water Resources Sector Strategy

Water resources management is seldom a stand-alone activity, and thus there are seldom pure water resources projects. Rather, water resources development and management activities are an organic part of water supply, sanitation and hydropower projects. Accordingly, the Project Appraisal Documents (PAD) for all projects with water components approved between 1993 and 2002 were identified. For these projects, the overall Bank financing for specific items in figure 1.1 were identified. All analyses of the existing portfolio were based on these data.

For the next three fiscal years (2003–05) each region has a pipeline of projects identified. Under the supervision of the regional water advisers, all projects under preparation with water resources components were identified. In each case, the task manager for the project filled out a form on the water resources management and infrastructure components that would be funded, how much would be spent on these components, and how the major themes of this sector Strategy were reflected in the project. These data were compared with a similar analysis of projects approved in fiscal 1993–2002 and now completed or under implementation. Although program substitutions and readjustments are possible and future estimates will likely evolve, the trends identified through this exercise can be a good indication of the direction of lending in this area.

Discussions with the regions

Detailed interregional analyses were conducted on the basis of these data, and tailored version of these analyses was developed for each region as the basis of discussions with Regional Management Teams (RMTs). The format for these discussions (chaired by the regional vice presidents in most cases) followed a three-part agenda:

- A presentation on the main messages of the Sector Strategy, as described in the Executive Summary.
- A discussion of the results of the external consultations on the draft Strategy.
- A presentation of the analyses of the regional portfolio (1993–2002) and pipeline (2003–05) of water resources lending was used as a basis for discussing the following issues:
  - *Issue 1:* How many projects in the regional pipeline have water resources components, and where are these projects?
  - *Issue 2:* How important are these projects as a proportion of the total regional pipeline, and how does this compare with the current portfolio?
  - *Issue 3:* How important are water resources issues in these projects?
  - *Issue 4:* What are the major water resources management issues in the pipeline of regional projects?
  - *Issue 5:* What are the major areas of proposed investment in water resources infrastructure, and how does this compare with the existing regional portfolio?
  - *Issue 6:* What is the likely role of the private sector, and of the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA), in financing water resources infrastructure in Bank-financed projects in the region?
  - *Issue 7:* What share of regional projects with water resources components

Data for projects identified for fiscal 2003–05 were compared with data for projects in 1993–2002 to give an indication of the direction of lending for water resources

might be reputationally risky for the Bank?

The following sections sketch the main challenges and responses by region (appendix 4 presents more detail on each region) and the main conclusions on the portfolio and pipeline.

Issue 1: The level and composition of water resource-related lending Bankwide and in the regions

Lending for projects that have substantial water resources management components accounted for about 9 percent of Bank lending, and lending for water resources components accounted for about 4 percent

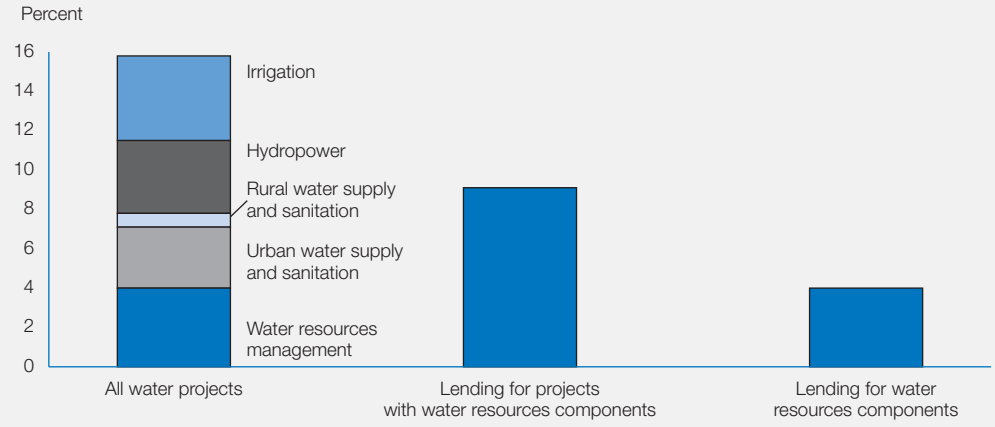
All Bank-financed water projects in the past decade were reviewed and costs allocated to the specific items shown in figure 1.1. The anticipated lending for projects with water resources components, and for the components themselves,[1] were estimated for projects in the lending pipeline for 2003–05. In brief, the results are:

- Lending for water accounted for about 16 percent of Bank lending over the decade (figures 2.1 and 2.2).
- The major water services components (irrigation, hydropower, and water supply and sanitation) each accounted for about 4 percent of Bank lending over the period (figures 2.1 and 2.2).
- Lending for projects that have substantial water resources management components accounted for about 9 percent of Bank lending (figures 2.1 and 2.3).
- Lending for water resources components accounted for about 4 percent of Bank lending (figures 2.1 and 2.3).

There are wide regional variations in the current and anticipated levels and patterns of lending for water-related projects (figure 2.2), for projects with water resources components (figure 2.3) and for water resources components themselves (figure 2.4). In broad outline (see appendix 4 for more details on each region):

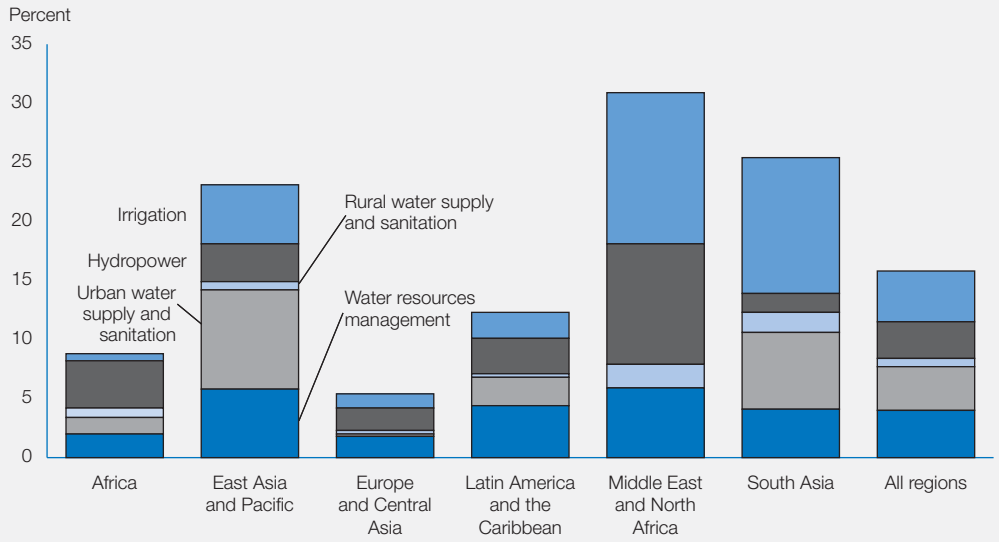
- Africa
  - Lending for water-related projects accounts for only 8 percent of all Bank lending in the Africa Region (AFR) over the last decade, compared with 16 percent Bankwide. Most of this lending was for urban water supply and sanitation projects (figure 2.2).
  - Lending for projects with substantial water resources components is projected to rise rapidly, from 5 percent over the last decade to 11 percent in 2003–05, in considerable part due to the large investments AFR has made in analytic and advisory work on water. (figure 2.3)
  - Lending for water resources components will rise from 2 percent in the

f2.1 Composition of the World Bank's water portfolio as share of Bank lending, fiscal 1993–2002



Source: World Bank staff estimates.

f2.2 Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002



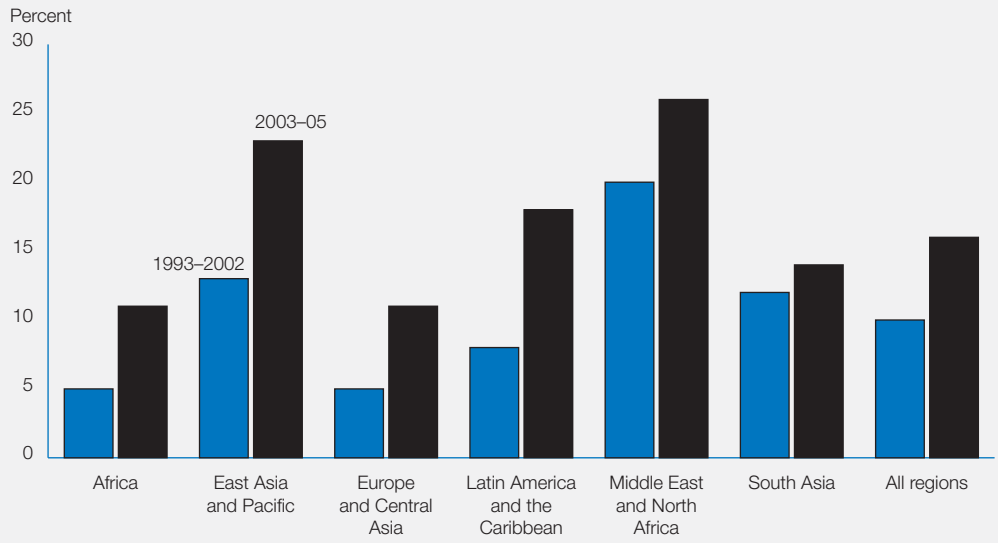
Source: World Bank staff estimates.

portfolio to 3.5 percent in the pipeline (figure 2.4).

- **East Asia and Pacific**
  - Lending for water-related projects accounts for 22 percent of Bank lending to the East Asia and Pacific Region (EAP), compared with 16 percent Bankwide, over the last decade. The region has had the largest hydropower program, sizeable irrigation and water resources programs and modest lending for urban water supply (figure 2.2).
  - Lending for projects with substantial water resources components is projected to rise rapidly, from 13 percent over the last decade to 23 percent in 2003–05 (figure 2.3).
  - Lending for water resources components will rise from 6 percent to 7 percent of regional lending (figure 2.4).
- **Europe and Central Asia**
  - The Europe and Central Asia Region (ECA) has the smallest portfolio (relative to overall regional lending) of water-related lending (figure 2.2). Lending for water-related projects accounts for only 5 percent of Bank lending in the region over the last decade, compared with 16 percent Bankwide.
  - Lending for projects with substantial water resources components is projected to rise rapidly, from 4 percent over the last decade to 11 percent in 2003–05 (figure 2.3).
  - Lending for water resources components will stay about constant, at a low 2 percent (figure 2.4).
- **Latin America and the Caribbean**
  - Lending for water-related projects accounts for about 12 percent of Bank lending in the Latin America and the Caribbean Region (LCR) over the last decade, compared with 16 percent Bankwide. LCR has a balanced portfolio of water resources, hydropower, urban water supply and irrigation lending (figure 2.2).
  - Lending for projects with substantial water resources components is projected to rise rapidly, from 8 percent over the last decade to 18 percent in 2003–05) (figure 2.3).
  - Lending for water resources components is projected to rise from 4 percent in the portfolio to over 11 percent in the pipeline, giving LCR the highest share of lending for water resources components among the regions (figure 2.4).

There are important caveats and few easy generalizations about the interregional and intertemporal patterns in so varied a set of activities in such widely varying circumstances

f2.3 **Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05**



Source: World Bank staff estimates.

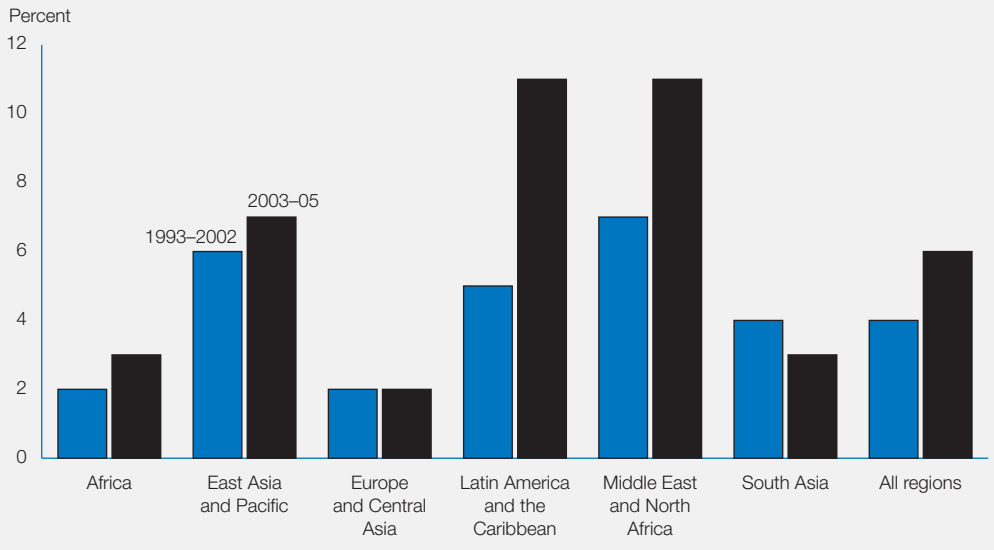
Bank investments provide only a partial picture of the Bank's engagement in a region, with nonlending activities often very important

- **Middle East and North Africa**
  - The Middle East and North Africa Region (MNA) has the largest (as a proportion of regional lending) water portfolio in the Bank. Lending for water-related projects accounts for 31 percent of Bank lending in the Middle East and North Africa Region over the last decade, compared with 16 percent Bankwide, the highest of all the regions (figure 2.2). MNA, the driest region of the world, has substantial portfolios in irrigation, urban water supply and water resources lending.
  - Lending for projects with substantial water resources components) is projected to rise still further, from 17 percent over the last decade to 26 percent in 2003–05 (figure 2.3).
  - Lending for water resources components will rise from 6 percent in the portfolio to 11 percent in the pipeline (figure 2.4).
- **South Asia**
  - Lending for water-related projects accounts for 25 percent of Bank lending in the South Asia Region (SAR) over the last decade, compared with 16 percent Bankwide. The SAR portfolio is dominated by large irrigation and hydropower portfolios (figure 2.2).
  - Lending for projects with substantial water resources components is projected to rise slightly, from 12 percent to 14 percent, over the next three years (figure 2.3), while lending for water resources components is projected to decline, from 4.1 percent to 2.8 percent of regional lending (figure 2.4).

There are important caveats and few easy generalizations about the interregional and intertemporal patterns in so varied a set of activities in such widely varying circumstances. The main caveats are that Bank investments provide only a partial picture of the Bank's engagement in a region, with nonlending activities often very important, and that in some instances it is appropriate for the Bank to reduce its investments and focus on enabling legal, policy and institutional issues. With these caveats, the following are some observations on the evolution of Bank lending for water resources:

- The widely varying patterns of historic and projected lending for water resources across the regions are, to a large degree, explained by the widely varying water resources challenges outlined earlier.
- Water-related lending is a major area of investment for the Bank, accounting for

f2.4 **Lending for water resource components, as share of total regional lending, fiscal 1993–2002 and 2003–05**



Source: World Bank staff estimates.

16 percent of Bank lending in the past decade. The proportion of regional lending over the past decade dedicated to water varies widely, from 6 percent in ECA to 31 percent in MNA.

- The proportion of lending dedicated to projects with water resources components and to water resources components themselves is projected to rise rapidly—by about 50 percent—over the next three years. In particular, very large increases are projected in the proportion of regional lending going to water resources in MNA and LCR. Starting from a low base, there are also large projected increases in AFR. Lending for water resources is expected to increase only slightly in EAP and ECA, and to decline in SAR.

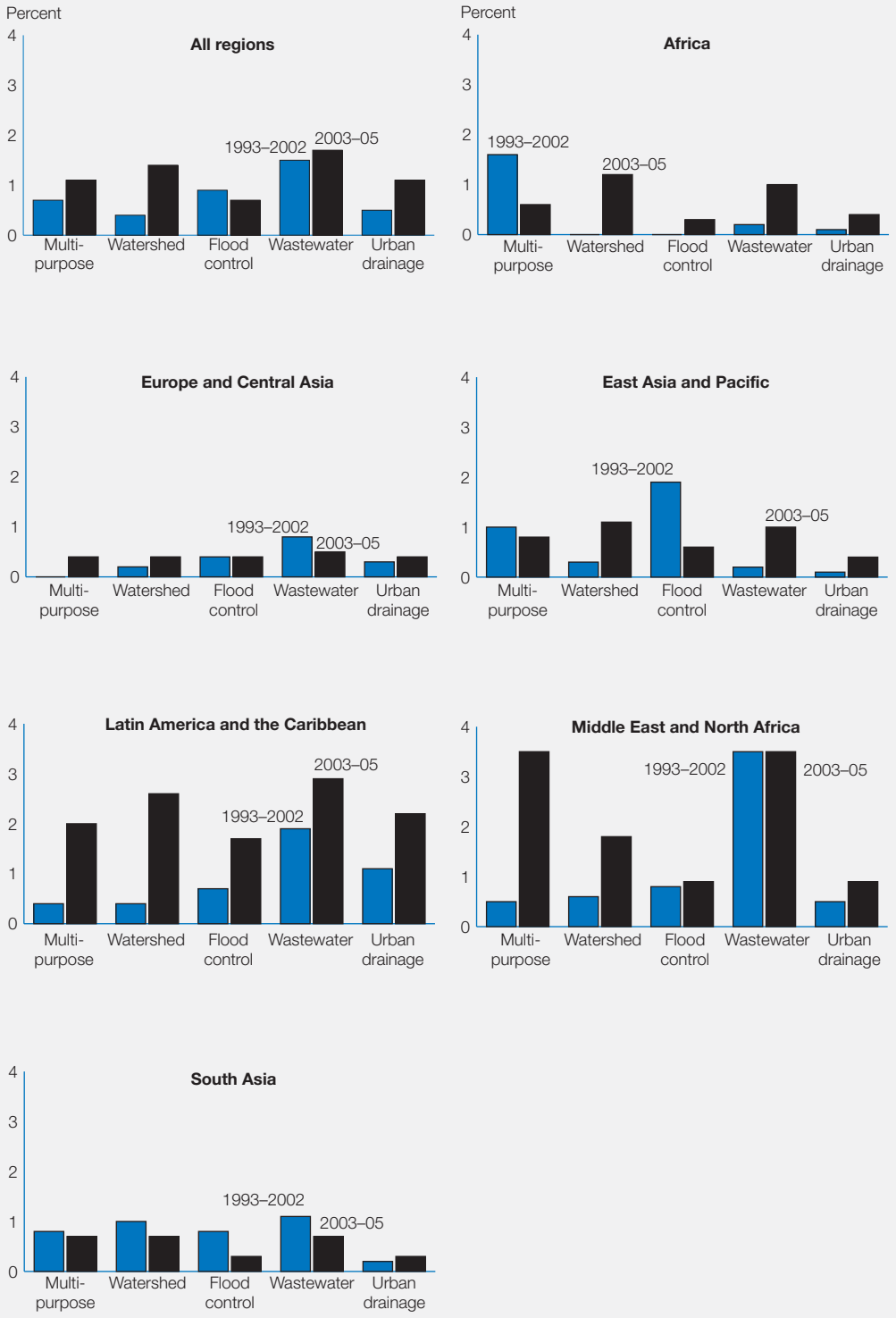
Issues 2–5: The changing composition of lending for water resources infrastructure in the regions

Figure 2.5 shows the composition of water resources lending in the portfolio and the pipeline, for the Bank and for each region. The patterns are quite diverse, mostly for reasons relating to the different challenges in each region. Some noteworthy trends in these data include the following:

- There are large increases Bankwide in Bank financing for water resources components of projects, particularly for watershed management and urban drainage.
- LCR and MNA, with by far the highest investment shares in water resources management, invest heavily in wastewater treatment. The huge proportional increases in LCR and MNA are driven by large increases in multipurpose watershed and urban drainage components of projects.
- AFR is also expanding rapidly from a low base and moving toward a diverse portfolio of water resources activities.
- Water resources activities in ECA remain very low but are gradually expanding. Lending constraints in the region are tight, and in the first years of transition the Bank's emphasis has been on economic reform and social protection rather than on investments in infrastructure. Extensive sector work is ongoing.
- Although SAR has a large portfolio of water-related projects (figures 2.2 and 2.3), the share of lending for water resources components in SAR is low and

The composition of water resources lending in the portfolio and the pipeline, for the Bank and for each region, is quite diverse, mostly for reasons relating to the different challenges in each region

f2.5 Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

projected to decline. In light of the major water resources challenges facing the region, this decline is a source of concern to regional management, which has started to re-invest heavily in water staff and in initiating strategic and sector work aimed at increasing the Bank's involvement.

Issue 6: The anticipated role of the private sector and IFC and MIGA in projects with water resources components

Over the past decade, the private sector has come to play an important role in the provision of water-related infrastructure in some developing countries. Private investment has primarily been in LCR and EAP and almost exclusively in the bankable hydropower and (sometimes) urban water supply sectors.

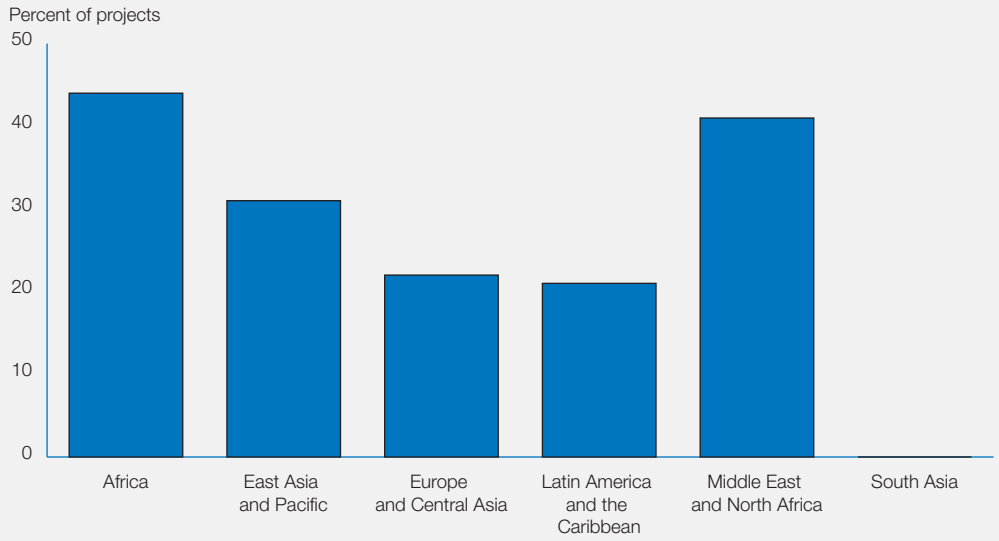
Figures 2.6 and 2.7 show how and where Bank staff expect the private sector and IFC and MIGA to be engaged in Bank-financed projects with water resources components. These figures highlight several points:

- In EAP and LCR there is expected to be substantial engagement of the private sector, often in forms such as build-operate-transfer and concessions that involve investment. Accordingly, IFC and MIGA are expected to play major roles.
- In ECA and MNA there is expected to be substantial involvement of the private sector, but primarily in "light" forms, such as management contracts, that do not involve private investment. There is accordingly little projected involvement by IFC or MIGA.
- In AFR there is expected to be a mix of types of private sector engagement, with IFC and MIGA projected to be involved in about a quarter of projects that include the private sector and about 10 percent of Bank-financed projects with water resources components.
- In SAR the Bank has, to a large degree, withdrawn from involvement in the financially troubled hydropower generation and urban water supply businesses. There is therefore no expectation of major private sector involvement over the next three years, but current efforts to promote greater private sector involvement in irrigation services, fisheries and small-scale hydropower, among others, will continue.

While detailed assessments of potential IFC and MIGA involvement in projects financed by IBRD and IDA is possible (and instructive),

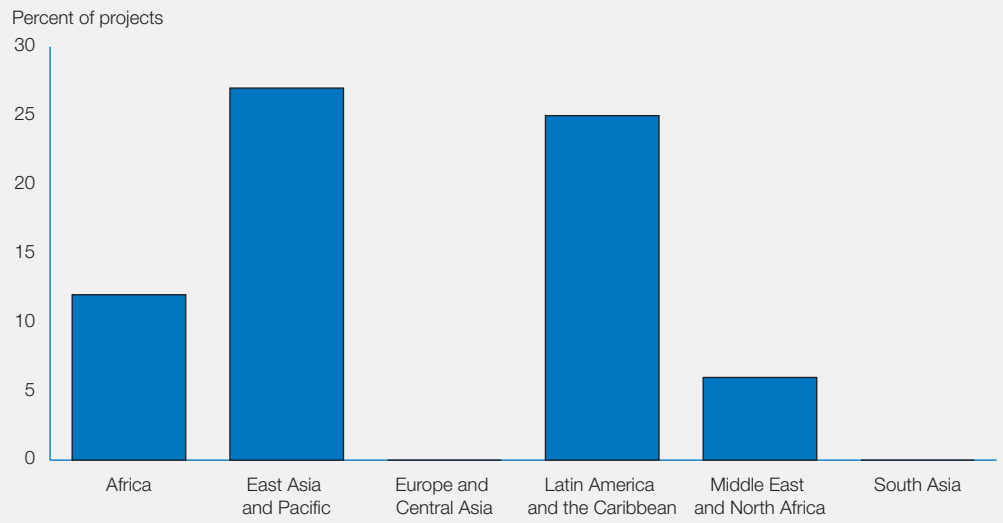
Over the past decade, the private sector has come to play an important role in the provision of water-related infrastructure in some developing countries, especially in LCR and EAP

f2.6 **Share of IBRD/IDA-financed water resources projects in which the private sector is anticipated to play a major role, fiscal 2003–05**



Source: World Bank staff estimates.

f2.7 **Share of IBRD/IDA-financed water infrastructure projects in which IFC and MIGA are likely to play a role, fiscal 2003–05**



Source: World Bank staff estimates.

The Water Resources Management Strategy argues that the Bank needs a "new business model"

both IFC and MIGA are often involved in projects where the IBRD and IDA play no direct financial role. This analysis, accordingly, provides only a limited picture of overall IFC and MIGA involvement. Unlike the case for IBRD and IDA, however, it is not possible to provide indicative figures for future IFC lending for water and sanitation and hydropower.

IFC's existing portfolio includes 6 investments (totaling about $500 million for IFC's own account and the account of participants) in water and sanitation, and 10 in hydropower (also totaling about $500 million for IFC and participants). IFC's projects include not only financing of greenfield BOTs and concessions, but also financing for holding companies which then invest in smaller projects in a given country. IFC is committed to pursuing opportunities in both water and sanitation and hydropower through greenfield projects, holding company structures or refinancing of existing concessions. The products offered include long-term debt, equity and quasi equity and, increasingly, local currency financing instruments such as partial guarantees of local currency loans or credit enhancements of local bond issues. In many cases IFC and MIGA investments take place after IBRD and IDA activities have played a critical role in creating an enabling environment conducive to private sector investment.

Issue 7: Projects in the pipeline likely to pose reputational risks to the Bank

The Water Resources Management Strategy argues that the Bank needs a "new business model," which comprises the following:

Step 1: How the World Bank should decide whether to be involved in a specific major water infrastructure project

The project should be relevant to the development objectives of the borrower and the World Bank:

- *Relevance to overall national development strategies as reflected in the Country Assistance Strategy.* This will always include poverty reduction, but it can and should also include broader strategic objectives. In the case of China, for example, this would include the evolution from a command to a market economy and from a rural to an urban society. And in the case

of international water projects (such as the Nile Basin Initiative) the relevance to regional security and conflict prevention are of major importance.

- *Relevance to poverty reduction.* Water projects often contribute to poverty alleviation both directly (through resource management and services targeted to the poor) and indirectly (through better overall resource management and improved operation of service providers).
- *Relevance to development of the World Bank's comparative advantage.* Many best practices in the area of water infrastructure (such as for resettlement in China or for benefit sharing in Brazil) have been developed by the World Bank's more developed borrowers. If the World Bank is to be a credible knowledge partner it must be engaged not only with the borrowers who have no other options but with its middle-income borrowers.

The risk profile must be assessed:

- *The development consequences of World Bank nonengagement,* which must include:
  - The possibility that the project, and its net development and poverty reduction benefits, will not be undertaken if the World Bank is not engaged.
  - The possibility that the project will be done anyway, but with lower net benefits without World Bank involvement.

  In both cases, standard methods for assessing the magnitude and distribution of costs and benefits (including economic, environmental and institutional) will be coupled with probabilistic assessments of likely outcomes to evaluate the "no-Bank-engagement" development outcome.
- *The risks to the World Bank* from engagement or nonengagement:
  - From the perspective of the borrower.
  - From the perspective of civil society in the borrowing country.
  - From the perspective of private developers.
  - From the perspective of public perception in Part I countries and the related perceptions from NGOs.
- *The risk implications must be assessed (by impact and likelihood),* as must the implications for managing them, monitoring and responding.
- *These risk implications must be considered* by regional and World Bankwide management, which views them in the context of other risky projects and the regional and World Bankwide appetite for risk.

Step 2: How the World Bank should manage major water infrastructure projects

It is proposed that the handful of projects that annually pass "the threshold test" outlined in Step 1 be assessed to determine whether they deserve special treatment as corporate projects from the outset. These high-reward–high-risk projects are a special class of operations, with spillovers that go well beyond the country and the region:

- Perceptions (of borrowers, the private sector and NGOs) are global. For example, the World Bank's performance on a hydropower project in Lao PDR has a major impact on its ability to attract private partners for similar projects in Uganda. The performance of an interbasin transfer in East Asia has implications for World Bank engagement with borrowers in the Middle East and North Africa who have similar needs. And the repercussions of the World Bank's performance on a dam in Argentina have an impact on the availability of IDA funding for Bangladesh.
- The projects involve dealing with common sets of environmental and social issues.
- The projects involve dealing with common sets of stakeholders, including civil society and NGOs.

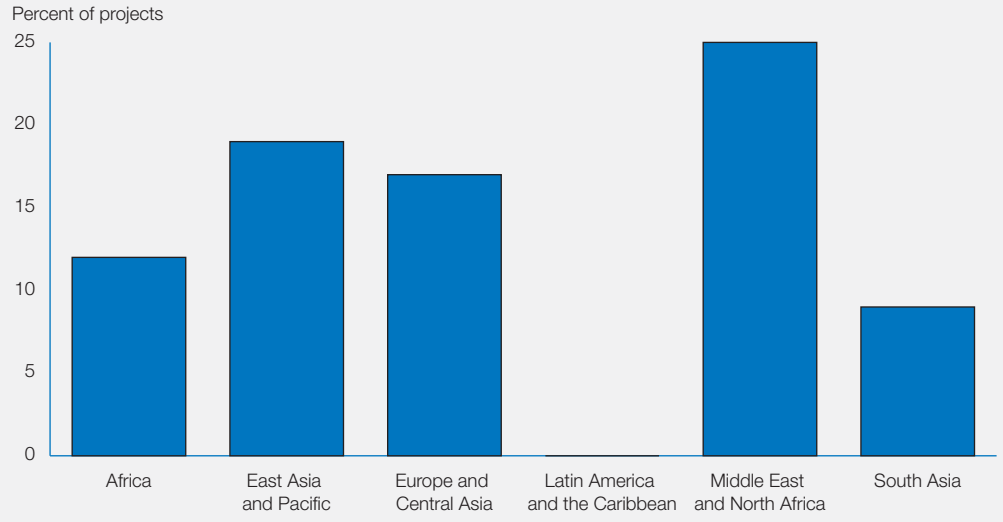
Given the large role of corporate externalities in such projects, there may be a need on a case-by-case basis to make adjustments to the normal decentralized arrangements within the Bank for approving, supporting and financing such projects.

For the pipeline of projects with water resources components, task managers were asked to identify those which, in their opinion, would be considered high-reward–high-risk projects (figure 2.8).

During the external consultations held for this Strategy, the Bank's borrowers expressed

The argument made by all borrowers was that the Bank has a unique comparative advantage in bringing together global best practice that includes perspectives as varied as financial, economic, technical, social and environmental

f2.8 **Share of water resources projects considered to be "reputationally risky" for the Bank, fiscal 2003–05**



Source: World Bank staff estimates.

Unless there is an institutional commitment to engage in high-reward–high-risk projects, the Bank may continue to withdraw, with serious consequences for low-income countries

two reasons for wanting the Bank to be engaged in high-reward–high-risk projects. First, the argument made by all borrowers (most forcefully by some of the Bank's most capable borrowers, such as Brazil and China, which have a variety of alternative financing sources for most of their development needs) was that the Bank has a unique comparative advantage in bringing together, even in sophisticated environments, global best practice that includes perspectives as varied as financial, economic, technical, social and environmental. Second was the argument that Bank assistance is "indispensable," typically made by countries that are poor, have limited capacity and have few alternatives in terms of financing of critical infrastructure.

The pattern that emerged from these discussions, reinforced by the data in figure 2.8, has several dimensions. First, the Bank is no longer engaging with high-reward–high-risk hydraulic infrastructure in countries "with choices." (LCR here is the outstanding example, with a remarkable zero risk profile in a region with many capable borrowers.) In part this is because Bank management has shown little enthusiasm for involvement with such projects in these countries, and in part because these countries find the Bank's current business practices to be unrealistic. Second, the Bank's principal engagement with high-rewards–high-risk projects is in countries with few choices, where Bank engagement is indispensable (such as Lao PDR and Uganda). But these countries, which have challenges of capacity, have difficulties meeting the Bank's demanding and multifaceted standards (often judged impractical by countries with more capacity). The result is long drawn-out processes, which often frustrate borrowers and discourage potential private investors (who are often indispensable).

The unintended consequence is a declining engagement with a critical source of relevant good practice (the experience of middle-income countries), making the Bank a less effective source of knowledge and support for the poorer countries.

This constitutes a critical challenge for the Bank. Unless there is an institutional commitment to engage in both middle- and low-income countries in high-reward–high-risk projects, the Bank may continue to withdraw, with particularly serious development consequences for low-income countries that often cannot proceed without Bank engagement.

The new business model advocated in the Strategy will lead to substantial demands at the corporate level for managerial input and support for such projects. Based on current projections (figure 2.8), the regions expect about one high-reward–high-risk water project a year. While there will be no provision of special corporate resources in advance to such projects, management will continue to use a common-sense approach to such projects, providing additional resources on a case-by-case basis as and when the need arises.

Progress and plans on Economic and Sector Work and Country Water Resources Assistance Strategies in the Regions

As documented by the Operations Evaluation Department (OED) review of the 1993 Policy Paper, there has been relatively little recent economic and sector work (ESW) on water resources issues. This deficiency is starting to be corrected, in different ways and at different paces in different regions and in the anchor. Consistent with the thrust of this Strategy, the hallmark of this new generation of ESW is that it focuses less on normative issues (such as why water should be priced or why water should be managed in an integrated way) and more on the political economy of change, with a particular emphasis on cutting edge issues such as water rights, watershed management and environmental flows, and on stimulating and learning from field experience. An important element of this increased focus on ESW has been the mobilization of trust funds to support such activities.

An important area for deepening the Bank's portfolio of country strategy work is the development of Country Water Resources Assistance Strategies (CWRASs), which are designed to provide a key strategic linkage upwards to the Country Assistance Strategies (CASs) and downwards to investments. As part of the process of preparing this Strategy, each region initiated a CWRAS for one priority country in the region. The idea of the CWRAS builds on the finding by the Quality Assurance Group (QAG) that there should be greater emphasis on short, quick-response approaches to ESW. These CWRASs are not envisioned as "heavy" mandatory exercises, required for lending in each country . While the appropriate form will necessarily be region- and country-specific, CWRASs will generally be short, action-oriented papers that build on existing analytic work. A major product of the CWRAS will be the specification of priority lending and nonlending activities in the country. They are a promising mechanism for improving the strategic focus of water activities, for ensuring that these are consistent with the CAS and Poverty Reduction Strategy Paper (PRSP), for stimulating coordination across water-related sectors within the Bank and the country, for engaging regional and global water knowledge and for getting agreement with clients on how, when and where the Bank will engage. A central focus of the CWRAS will be the political economy of change in water resources management—identifying potential triggers and defining how to be selective and how to allocate Bank resources where there are windows of opportunity.

With seed funding from the Bank's fiscal 2002 Global Public Goods Fund, a first round of CWRASs was initiated in Azerbaijan, Brazil, China, Jordan, Nigeria and Pakistan. The experience, which appears to have been positive and promising, will be analyzed by the Water Resources Management Group (WRMG). Trust fund resources have been obtained to finance a second round of CWRASs, to be carried out in fiscal 2003, which will build on the lessons learned during the first round.

An important area for deepening the Bank's portfolio of country strategy work is the development of Country Water Resources Assistance Strategies

Note

1. Figure 1.1 defines what is meant by *water resources components.* A project is defined as having "substantial water resources components" when more than 30 percent of total project cost is allocated to water resources infrastructure and management components.

3. Partnerships—selectivity and focus on actions

A central theme of this Strategy is that the major challenges facing the Bank's borrowers are of implementation, not vision

As described by the Operations Evaluation Department (OED) review, "creating a shared vision among the World Bank, borrowers, and other development partners is the key to successful implementation of the World Bank's water strategy…. and the World Bank has some major accomplishments" at both the global and regional level. "A major concern is the inability to meet the cost of proliferating partnerships."[1]

With the exception of first-hand access to global best practice, the regional development banks share most of the World Bank's comparative advantages. Accordingly, an emerging and desirable pattern in some countries is for close cooperation in knowledge sharing and finance between the World Bank and the regional banks. Bilateral agencies typically do not have the same global mandate or sectoral spread.

A central theme of this Strategy is that the major challenges facing the Bank's borrowers (and the Bank itself) are of implementation, not vision. The logical corollary is that the Bank will give priority to action-oriented partnerships and largely disengage from partnerships that do not directly lead to action on the ground. Where the Bank does participate in advocacy partnerships, it will emphasize implementation and on-the-ground results.

Partnerships that make things happen on the ground are already under way, not least at the regional level. The Africa and Middle East and North Africa Regions, for example, have developed effective, operationally oriented regional water resources partnerships.

Of particular importance is the development of a new set of bilateral partnerships for stimulating cutting edge action in Bank water resources projects. The World Bank–Netherlands Water Partnership Program provides a promising model. Under this program, the Bank's Water Resources Management Group has identified a series of cutting-edge issues (including poverty and livelihoods in water projects, international waters, watershed management, irrigation reform, wastewater management, water rights, river basin management, groundwater, ecological flows and flood management). For each issue a team of experts with field experience is assembled. Bank operations have easy access to the services of these experts, who help incorporate these issues into Bank operations and help learn and disseminate lessons.

Note

1. World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy.* Washington D.C.

4. Implementing the Strategy: Internal institutional and resource realignment

In the regions

As documented in detail in appendix 4, the regions have adjusted their accountability and staffing arrangements in a variety of ways to deal with the growing challenge of water resources management. Two years ago there were regional water resources advisers (or their equivalents) in just three regions; today, there are designated advisers in all regions.

The formal nomination of regional advisers, which represent the region on the Water Resources Management Group (WRMG), has been a major step forward in improving coordination of the Bank's work on water resources across the Bank and in the regions. As is appropriate, given the widely varying challenges, accountability and organizational responses have varied substantially by region. On the WRMG the regional advisers play an active role in fulfilling their corporate functions, as do the leaders of the relevant sector units in the Water and Sanitation, Energy, Environment, and Rural Development Anchors.

- In the Africa Region (AFR) the regional vice president and the Regional Management Team (RMT) have given the regional water adviser a mandate to stimulate and direct the region's work on water resources and have assigned substantial resources to this work. The regional adviser and his team (most of whom continue to work in their host departments) have a strong presence both at headquarters and on the ground in Africa, where the Bank's leadership is widely acknowledged and respected. The growing portfolio of water resources lending in Africa (see figures 2.2, 2.3 and 2.4) are a direct response to this investment by AFR.
- In the Middle East and North Africa Region (MNA) the sector manager for water and environment in the Rural Department has functioned as the region's water adviser. This arrangement has worked well, providing high-level visibility for the Bank's water resources work in the region. In the view of the RMT, the next steps involve working to integrate the Bank's water assistance to countries. An important mechanism for achieving this integration is the Country Water Resources Assistance Strategy (CWRAS). The CWRAS will build on the normative strategic work done in the region and develop more operational strategies that take into account the political economy of the country, resulting in sequenced, prioritized engagement by the Bank.
- In the Latin America and the Caribbean Region (LCR) too, the regional water adviser is a sector manager, responsible for the urban and water portfolio in the Private Sector and Infrastructure (PSI) department. The regional appointment has been mirrored in joint PSI/Environmentally and Socially Sustainable Development (ESSD) appointments in key countries (notably Brazil). These changes have made a large difference in the coherence of the Bank's work in water resources in the region and have contributed to rapid growth in the portfolio of water resources investments in the region.
- In the South Asia Region (SAR) the regional adviser is an experienced and capable lead water adviser recruited with a mandate to provide leadership on water resources in the region. He reports to the director of the Regional Environment Department. There is no formal structure for coordinating the Bank's work on water resources and no joint accountability for

Two years ago there were regional water resources advisers in just three regions; today, there are designated advisers in all regions

work on water resources in other departments. The SAR adviser has heavy operational responsibilities but no discretionary resources for his work. In light of the major water resources challenges facing the region, the decline in Bank engagement with water resources issues is a source of major concern. Regional management recognizes this and has started to re-invest heavily in water staff, and in initiating strategic and sector work aimed at increasing the Bank's involvement.

- The East Asia and Pacific Region (EAP) has been operating under a more informal approach to water resources management than other regions. Two years ago EAP appointed its first regional water adviser. The adviser has done an excellent job with very few resources, and there are evident improvements in coordination of water resources management activities. Although the informal approach has been effective, EAP management has recognized the need and is designing a more defined approach, including the establishment of a virtual water team coordinated by the regional water adviser, which will have responsibility for preparing and implementing cross-sectoral activities, such as regional and country water resources strategies; providing quality enhancement in the form of reviews of project concept, appraisal and other related documents and analytic and advisory activities; and in general improving coordination of water-related activities throughout the region. The RMT will review the scope and resource requirements of this approach during this fiscal year within the context of a regionwide strategy for water resources.
- In the Europe and Central Asia Region (ECA), responsibility for coordinating the Bank's work on water resources is shared by a manager with responsibility for natural resources and a water professional with extensive operational responsibilities. Information sharing and coordination of the modest but gradually expanding water portfolio is informal but effective.

The appointment of regional water advisers was a major step forward in all regions and for the Bank. As appropriate, the regions have experimented with different models for adding value to their cross-cutting water resources operations and knowledge work. Experience to date suggests that there are three critical elements separating the more from the less effective arrangements—explicit and strong support from the regional vice president and the RMT, accountability to the RMT for results and access to some time and resources to perform this task.

This Business Plan proposes that in some regions modest additional resources be made available to the regional water advisers to facilitate the necessary strategic leadership and coordination within their regions

This Business Plan proposes that in some regions modest additional resources be made available to the regional water advisers to facilitate the necessary strategic leadership and coordination within their regions. These resources must necessarily come out of regional budgets and be assigned after considering this and other priorities. Current experience suggests that a budget of about $100,000 per region would be adequate—about 30 percent of the time of the regional water adviser (about $75,000 a year) plus a small amount of discretionary resources (about $25,000). Some regions (notably AFR and MNA) have made such investments in the past; others (including EAP and SAR) intend to increase the nonproject resources of the regional water advisorse in this way.

In the anchors

Seven years ago, in response to the Bank's 1993 Water Resources Management Policy Paper, a Global Water Unit was set up to help the Bank become a better partner in implementing the principles of integrated water resources management articulated in the Policy Paper. A core task was to improve coordination among the disparate parts of the Bank Group (the regions, IFC, PSI and ESSD) that worked on water resources, to ensure greater coherence of the Bank's work on water resources. The manager of the unit (the senior water adviser) reported to the vice president of ESSD.

In 2000 the president of the World Bank Group announced a ramping up of the organizational arrangements for water resources, in response to the growing consensus that water resources was emerging as a critical development issue requiring greater coordination across the various units

working on water. The vice presidents of ESSD and PSI announced the creation of the Water Resources Management Group (WRMG), with some of the functions of a sector board, such as enhancing quality of lending and analytic work, human resources, corporate positions and outreach, and knowledge management.

Members of the WRMG are the regional water advisers; leaders of the anchor units on water supply and sanitation, irrigation, hydropower and environment; and key staff working on water-related issues in IFC, MIGA, the Legal Department and the World Bank Institute. The WRMG is chaired by the senior water adviser. By agreement between the vice presidents of PSI and ESSD, the WRMG and the anchor unit (the former Global Water Unit) are housed in and financed by ESSD.

In some respects the WRMG has worked reasonably well. It has managed major policy tasks (including the response to the World Commission on Dams and this Strategy); it has managed the major water partnerships (including the World Bank–Netherlands Water Partnership Program, the Global Water Partnership and the World Water Council) and the Bank's engagement with major events (such as the World Water Forums and the World Summit on Sustainable Development); it has developed a human resources plan for water resources in the Bank; and it has developed effective collaborative arrangements with the Water Supply and Sanitation and Rural Development Boards on water resource-related human development issues. The key elements of the operational protocols between these sector boards and the WRMG is that the chairs of the sector boards are members of the WRMG, the chair of the WRMG is a member of the sector boards and accountability for human resources management remains with the sector boards but that the WRMG supports these boards and is consulted by them on human resources decisions (recruitment, promotions, rotation) for staff whose primary responsibility is water resources management.

To provide the necessary leadership and coordination in this vital and growing area, two modest changes in the operation of the WRMG are proposed: first, that the chair of the WRMG (the senior water adviser) will formally report to the vice presidents of both PSI and ESSD, and second, that both ESSD and PSI will contribute to the budget for the WRMG and the anchor unit. To be effective, it is estimated that the budget for the WRMG and anchor needs to increase from about $0.5 million to about $1.0 million annually (as shown in table 4.1). Again, as with the regions, the level of resources available to the WRMG will depend on normal Bankwide resource allocation and PSI and ESSD budget processes.

The proposed budget adjustments would enable the anchor unit to improve the tasks it has already been performing reasonably well (developing policy, enhancing the strategic content of the Bank's work on water resources, improving coordination across sectors and regions) while providing modest additional resources for strengthening the unit's work on monitoring, human resources management, liaison with the relevant sector boards and enhanced knowledge management. The modest budget estimate is a consequence of the fact that accountability for projects and for human resources management will continue to rest with the sector boards. The WRMG and the associated anchor would play a supporting role, demanding fewer resources than needed for the sector boards.

The proposed budget adjustments would enable the anchor unit to improve the tasks it has already been performing reasonably well while strengthening work on monitoring, human resources management, liaison with the relevant sector boards and enhanced knowledge management

The anchor and the WRMG are responsible for a very large trust fund, the $5 million a year World Bank–Netherlands Water Partnership Program. The trust fund provides the WRMG (which oversees the fund) with substantial resources (about 10 times the budget of the anchor unit) for strategic strengthening of operations, for knowledge generation and management and for development of Country Water Resources Assistance Strategies. This gives rise to two challenges. First, the complexity and importance of the trust fund (and the interest of other donors in developing similar arrangements) means that the anchor requires additional resources for substantive and fiduciary management of large amounts of resources and for evaluation of the performance of this trust fund. Second, if the trust fund were discontinued,

t4.1 Indicative budgets for the Water Resources Management Group and regional water advisers

	Item	Projected cost (thousands of dollars)
Staff costs	Senior water adviser and chair of the Water Resources Management Group (WRMG)	$250
	Sector specialist and secretary of the WRMG and manager of the water resources trust funds	$180
	Operations analyst	$100
	ACS staff	$80
	Travel and miscellaneous	$50
Anchor Budget		
Implementation of the Water Resources Sector Strategy	Global: Assessment, guidelines and monitoring and evaluation by the WRMG of the following core issues in the sector Strategy (an indicative list, to be decided by the WRMG): • Incorporating water resources in Poverty Reduction Strategy Papers: Assessment, guidelines and monitoring and evaluation • Country Water Resources Assistance Strategies: Assessment, guidelines and monitoring and evaluation • Options assessment for water resources infrastructure: Assessment, guidelines and monitoring and evaluation • Analytic and advisory activities in water resources: Assessment, guidelines and monitoring and evaluation • Implementation of the new business model: Assessment, guidelines and monitoring and evaluation • Operational Directive on International Waters—Review, guidelines and monitoring and evaluation • Regional and country programs: Quality enhancement reviews	$150
Learning and knowledge management activities	External learning opportunities for water staff	$50
	Support to water resources learning for staff Bankwide; three courses a year (for example, on applied water resources economics, integrated water resources management and drought management) developed in conjunction with the World Bank Institute and with partial funding from trust funds	$50
	Annual Water Forum (co-organized with relevant units in PSI and ESSD)	$80
	Water resources brownbag seminars (about 15 a year)	$10
Total ESSD+PSI		$1,000
Regions		
Support for regional strategy and coordination	Support to the six regional water advisers for: • Participation in the WRMG • Strategic leadership on water resources in the region • Coordination of water resources activities in the region Indicative amount of $100,000 per region, $75,000 for staff costs and $25,000 discretionary	$600

there would be a powerful case for major increases in the Bank resources available to the anchor and the WRMG.

Human resources

As part of its mandate, the WRMG has done an extensive survey of staff working on water resources and developed a draft Human Resources Strategy for water resources. There are about 230 staff in the Bank—about half from ESSD and half from PSI—who deal with water resources on a full- or part-time basis. About 80 percent would consider having water resources as a family affiliation were the option available. Renewal of experienced staff is a major challenge, with half of staff (the most experienced half) due for retirement in the next 10 years.

The objective of the Human Resources Strategy, as approved by the WRMG, is to ensure that the right number of staff have

the right skills and motivation to respond to the mounting challenges in client needs and demands regarding water resources management. The strategy consists of four building blocks:

- The Bank needs to maintain and renew a well-trained, experienced *core group of water resources professionals* who can prepare and supervise projects and maintain a high-level policy dialogue, including strategy and economic and sector work. They should have a background in at least one area related to water resources management that would provide them with the multidisciplinary vision needed to become integrators working on cross-cutting issues between water sectors and to deal with the highly varying content of water resources projects. Sector staff (water supply, energy, agriculture) continue to be specialized in their sector, but need to improve their knowledge of linkages to other water sectors in order to make good policy and investment decisions.
- A specific *career stream* needs to be spelled out for core water resources management staff so that the Bank can attract, maintain and develop the needed talent and skills.
- A *training program* is being developed, in a partnership between the WRMG and the World Bank Institute, for core water resources staff. It will include drill-downs in water resources legislation and institutions with practical applications, water resources economics, groundwater, drought and flood management, and water and environment issues, as well as a base course for staff who work mainly in water-related sectors, to provide them with a more integrated water resources management perspective.
- *Knowledge management* activities, especially of a cross-regional nature, will be further developed by the Water Resources Thematic Group, the knowledge management arm of the WRMG. Again, the severe resource limitations of the WRMG have meant that progress has been slow.

Bank re-engagement with high-reward–high-risk hydraulic infrastructure implies a re-aligned profile of professional staff. Specifically, after a decade in which the focus has been on recruitment of social and environmental staff, there needs to be an emphasis, again, on recruiting experienced technical staff. As with most other staffing decisions in the Bank, this will not take place through a center-driven process, but in response to changing demands from the regions.

The fact that water resources is a cross-cutting issue and not a sector in the Bank poses special challenges in recruiting and retaining specialized staff. The sector boards (especially the Water and Sanitation, Rural and Environment Sector Boards) have responsibility for recruitment and human resource actions for staff who work on water resources. The WRMG recognizes that primary responsibility is with the sector boards, and so the WRMG offers to play a quality enhancement role. This has worked well with the Water and Sanitation Board for some time and is now working well with the Rural Board.

Bank re-engagement with high-reward–high-risk hydraulic infrastructure implies a re-aligned profile of professional staff

Questions have been raised about how staff will be assigned, skills mixes adjusted and staff rotations managed in water resources. Again, primary responsibility for human resources rests with the sector boards. And, again, the growing demand for Bank lending and nonlending services related to water resources means that sector managers in different sectors are hiring staff and providing resources for upgrading the skills of current staff. Making sure that this "adds up" for cross-cutting issues like water resources will always be a challenge. But, again, the past couple of years have seen the emergence of highly cooperative arrangements with some of the principal sector boards (Water and Sanitation, Rural) that now routinely include the WRMG as principals in decisions on hiring, promotion and rotation.

Accountability for implementation of this Strategy

Table 4.2 shows the major operational responsibilities for implementing the Water Resources Sector Strategy.

Instruments

The conventional range of Bank instruments is appropriate for implementation of most

t4.2 Major operational responsibilities in implementing the Water Resources Sector Strategy

Position	Responsibilities
President and managing directors	• Promote the main messages of this Strategy, externally and internally. • Give clear signals to vice presidents on the importance of engagement with high-reward–high-risk water projects. • Provide leadership in putting the new business model into practice.
International Finance Corporation management	• Provide leadership in putting the new business model into practice. • Respond favorably to requests for advisory and investment services for water infrastructure.
Multilateral Investment Guarantee Agency management	• Respond favorably to requests for advisory and investment services for water infrastructure.
Regional vice presidents	• Promote the main messages of this Strategy, externally and internally. • Give clear signals to country directors, sector managers and staff on the importance of engagement with high-reward–high-risk water projects. • Provide leadership in putting the new business model into practice. • Provide additional resources to country directors who take on high-reward–high-risk projects. • Balance short-term budget priorities with the needs for long-term strategic investments in human resources for critical development issues, including water resources management. • Hold sector directors responsible for maintaining the degree of multisectoral collaboration required for strategy implementation. • Formalize role of regional water adviser, provide adviser with modest resources and hold adviser accountable for strategic leadership and coordination on water resources.
Environmentally and Socially Sustainable Development and Private Sector Infrastructure vice presidents	• Provide the resources and reporting relationships necessary for effective operation of the WRMG and associated anchor. • Ensure that relevant sector boards cooperate with the WRMG on all human resource issues related to water resources.
Development Economics	• Position water resources and services as a poverty issue, including in the *World Development Report*. • Help develop a framework for analyzing the counterfactual of "no project," an important challenge in the new business model.
External Affairs	• Develop and lead an outreach effort aimed at improving support for the Bank's engagement in high-reward–high-risk water and other projects. • Ensure that engagement with difficult issues becomes part of general public messages from the Bank. • Proactively manage relations with advocacy groups and the media.
Country directors	• Provide leadership in putting the new business model into practice. • Encourage an integrated approach to water resources in country portfolios.
Water Resources Management Group	• Provide overall leadership in implementing the Strategy. • Coordinate with the relevant sector boards. • Continue to monitor evolution and performance of projects with water resources components. • Monitor and report on progress in implementing this Strategy. • Implement the Human Resources Strategy for water resources. • Manage the major Bank water resources partnerships.
Senior water advisers	• Provide leadership on water resources, internally and externally. • Chair the WRMG. • Manage the anchor unit responsible for supporting the WRMG. • Manage the major global water resources trust funds held by the Bank. • Represent the WRMG on the Water and Sanitation, Rural, and Environment Sector Boards. • Monitor and report on progress in implementing this Strategy.
Regional water advisers	• Provide leadership on strategic and operational aspects of water resources management and links to water service sectors. • Ensure that those working on water resources and water services in the region are connected and work together. • Participate actively in the WRMG.

The conventional range of Bank instruments is appropriate for implementation of most aspects of this Strategy

aspects of this Strategy. The two innovations proposed are the new business model for dealing with high-reward–high-risk project and the development of CWRASs as a supplement to the CAS.

Monitoring and evaluation

In the preparation of the Business Plan there was extensive discussion on how to monitor implementation of this Strategy. The team

was urged to define targets and describe monitorable indicators of outcomes on the ground that can be monitored.

In principle at least, this is a reasonable and practical proposition in some parts of the water business. For water supply and sanitation, for example, it is possible (see, for example, the Millennium Development Goals) to define what "access to water supply" means, to measure current access and to set targets to be achieved over time. Monitoring these indicators forms part of the business plan for water supply and sanitation.

Recent monitoring efforts

For monitoring the state of water resources management and efforts to bring about changes, there have been at least three major efforts in recent years:

- By the UN system as part of efforts to report on Agenda 21 and to define the Millennium Development Goals.
- By the OECD in a major assessment of water management performance in OECD countries.
- Through a joint effort (with separate reports) of OED[1] and WRMG in assessing implementation of the 1993 Policy Paper.

Several conclusions can be drawn from a review of these three major efforts:

- The Dublin Principles (ecological, institutional and economic) provide a useful framework for assessing the state and progress of water resources management.
- For monitoring water services (water supply and sanitation services, and irrigation) there are two different realities:
  - *In data-rich environments* (such as the OECD) quantitative analyses dominate (of the quantity and quality of water supply, the levels of pathogens in drinking water, the levels of contaminants in urban and irrigation wastewater, the operational standards of utilities and similar efforts).
  - *In data-poor environments* (such as those covered in the UN World Summit on Sustainable Development and Millennium Development Goals processes):
    - Crude quantitative data (number of people with access to safe drinking water supply, number of people with access to acceptable sanitation) are useful for broad country comparisons and broad target setting.
    - Slow but important progress is being made in areas such as benchmarking of urban water utilities and is proposed for irrigation departments.
    - More refined quantitative data (on the technical and financial performance of utilities, and sometimes on the quality of services) are available for a small share of interventions (for example, those funded by the Bank) and can be used to guide policy (as in the OED review and the upcoming Water and Sanitation and Irrigation and Drainage Business Plans).
- For monitoring water resources there are also two different realities:
  - *In data-rich environments* (such as the OECD), monitoring and evaluation can draw on important quantitative data for some issues (bacteriological and chemical quality of water in streams and groundwater, extent of wetlands, biological quality of estuaries, level of protection in catchments, number of basins with functioning river basin agencies, levels of abstraction of water for different purposes, quality of wastewater discharged). But there are no quantitative data for a number of other critical issues (comprehensive water management, progress in integrating environmental policies, demand management policies, integration of surface and groundwater management, the quality of laws and institutions, quality of policy-relevant information, use of economic instruments). For these issues judgments are necessarily subjective and qualitative and therefore depend on participatory discussions and illustrative case studies. Because these are time consuming and expensive, they are done only at fairly long intervals (the evaluation of OECD performance on Agenda 21 was done six years after the Rio Conference).
  - *In data-poor environments* (such as pertain for most of the Bank's borrowers),

There have been at least three major efforts in recent years for monitoring the state of water resources management and efforts to bring about changes

monitoring and evaluation of water resources management and development is a formidable task. Quantitative data are highly variable in quality, if they are valuable at all. The United Nations Environment Programme (UNEP) Global Environmental Monitoring System tracks water quality data for 40 rivers in the developing world and 42 in the industrial world. UNEP notes that there are extraordinary anomalies in the data—fecal pollution, for example, is reported to be lower in Indian rivers than in European rivers. As summarized by UNEP "water quality programs are grossly inefficient, produce often unreliable data which are not generally useful for making management or investment decisions." The only relevant measure in the World Bank's *World Development Indicators* is annual withdrawal of freshwater resources as a proportion of total water resources, a number without normative content and for which targets would be meaningless. And, again, the uneven quality of the underlying data means, in the words of the *World Development Indicators,* that "caution is advised ... [because] of variations in collection and estimation methods." So, despite considerable emphasis on water resources in Agenda 21 and the World Summit on Sustainable Development, the Implementation Plan for the summit could devise no better indicator than "the existence of national water plans."

What is proposed is a two-part monitoring plan: part 1 consists of annual monitoring of quantitative measures and part 2 consists of regular, five-year exercises that would replicate the OED and WRMG evaluations of the implementation of the 1993 Policy Paper

What indicators, then, did the OED use in evaluating the water resources aspects of the 1993 Policy Paper? The evaluation of inputs—on the content and evolution of where and what the Bank has invested in and on how the Bank is organized and staffed—was straight forward and objective. The evaluation of impact was a different matter. To try to get at impact, the OED (and the Bank team from the WRMG) developed pseudo-quantitative data based on detailed assessments of documents and extensive discussions (in the field in selected countries with clients at all levels, with partners in the development community and with Bank staff). Even though reasonable people could (and did) disagree on virtually every piece of the emerging data, the resulting analyses (done independently by both OED and the WRMG) painted a broadly consistent picture of how the Bank's clients and the Bank itself was doing in terms of the Dublin Principles (ecological, institutional and economic) and in terms of the relevance, efficacy and efficiency of Bank actions. And although in-depth analysis was limited to five countries (in addition to desk analyses of all Bank activities), it took several years and millions of dollars to complete.

What, then, does this mean for a reasonable plan for monitoring the Bank's work on water resources management? First it is important to emphasize that the Bank's strategy comprises two complementary documents—the 1993 Water Resources Management Policy Paper, which remains appropriate and relevant, and the current Water Resources Sector Strategy, which focuses on a few key and contentious issues constraining Bank implementation of the 1993 Policy Paper. What is needed, then, is not a plan for monitoring the water strategy's impact, but for monitoring implementation of both the 1993 Policy Paper and the 2003 Strategy.

Proposed two-part monitoring plan

What is proposed is a two-part monitoring plan. In broad outline, part 1 consists of annual monitoring of available quantitative measures of what the Bank is doing in water resources and how it is doing it (table 4.3). Part 2 consists of regular, five-year exercises that would essentially replicate the OED and WRMG evaluations of the implementation of the 1993 Policy Paper, following, to a large degree, the same methods. Since no outcome-oriented data on water resources management are routinely collected in most developing countries, it is not possible (as is done in most industrialized countries) to aggregate these to regularly monitor outcomes. And while qualitative and pseudo-quantitative data can be collected, it is expensive and time-consuming to collect and analyze them meaningfully. Instead, a major assessment can be undertaken at about five-year intervals of the implementation of the 1993 Policy Paper and 2003

t4.3 Annual short-interval, routine plan for monitoring the Bank's work on water resources

Indicator	Baseline				Comments
Inputs and intermediate output indicators					
Lending					
• Number and volume of approvals with substantial water resources components (by region)	Figures 2.2 and 2.4 in this Business Plan				
• Volume of water resources components (by region)	Figure 2.3 in this Business Plan				
• Composition of lending for water resources components (by region)	Figure 2.6 in this Business Plan				
• High-reward–high-risk water infrastructure projects: numbers considered and approved	Figure 2.8 in this Business Plan for current pipeline				
• Three-year pipeline (number and amounts in projects with major water resources components, by region)	Figures 2.2 and 2.4 in this Business Plan				
Nonlending					
• Number and expenditures on ESW and AAA from Bank budget and trust funds (by region)	In part, OED 2002 report figure 2.1				Data in OED report do not match fully, since OED data provide a single analysis of water resources and water service sectors
Quality of outputs for projects with substantial water resources components					
Project performance (QAG)	*1999*	*2000*	*2001*	*2002*	
• Actual problem projects (%)	13	9	9	9	
• Projects at risk (%)	19	15	9	12	
• Realism of portfolio ratings (%)	68	65	94	77	
• Net disconnect (%)	11	19	0	29	
• Quality at entry (% satisfactory)	91				
• Quality of supervision (% satisfactory)	80				
Rating of completed projects (OED)	*1999*	*2000*	*2001*	*2002*	
• Outcome (% satisfactory)	67	63	85	71	
• Sustainability (% likely)	44	69	70	62	
• Institutional development impact (% substantial)	39	50	54	50	
Quality of nonlending					
• Quality of ESW (% satisfactory)	Baseline not developed.				
• Performance of major global WRMG-managed trust funds, including spending by region and activity type, andproportion of activities completed successfully	Annual report of BNWPP done in September 2002				
Links to CAS and PRSPs					
• Number of CWRASs completed	One in each region				
• Number of PRSPs using the PRSP guidelines for water resources management	Not applicable				Development of these guidelines is being initiated. They are expected to be available in fiscal 2004.
Process indicators					
In the regions					
• Coordination of water resources activities in the regions	This Strategy				Qualitative assessment by the WRMG
In the anchor					
• Budget for the WRMG and anchor staff	This Strategy				
Bankwide					
• Quality enhancement reviews	None				Initial target of one per region annually
• Performance of the WRMG relative to the regions	This Strategy				Qualitative assessment by the WRMG
• Performance of the WRMG relative to the relevant sector boards	This Strategy				Qualitative assessment by the WRMG
External partnerships					
• Report on their evolution[a]	This Strategy				Qualitative assessment by the WRMG
• Evaluations for major external partnerships (such as the World Bank–Netherlands Water Partnership Program)	None				Every three years an independent evaluation will be commissioned
Millennium Development Goal–related outcome indicators					
• Share of population without access to safe drinking water	2000 – 1.2 billion				Based on report from the Water and Sanitation Sector Board
• Share of population without access to adequate sanitation	2000 – 2.4 billion				Based on report from the Water and Sanitation Sector Board

a. This is the only element that is conducted every 3 years rather that every year.

t4.4 The long-interval, outcome-oriented plan for monitoring implementation of the 1993 Policy Paper and 2003 Strategy

Objectives

Assessing the impact of the Bank's work on water resources relative to the 1993 Policy Paper and 2003 Strategy

Outcome measures

Relative to the Dublin Principles (embodied in the 1993 Policy Paper):

- Ecological
- Instrument
- Economic

Relative to the main themes of the 2003 Strategy:

- Water and poverty
- Management and development
- Political economy of better management
- Application of the new business model for development

Criteria

The usual OED criteria of:

- Relevance
- Effectiveness
- Efficiency

Data and methods

- Quantitative data on trends in the levels, composition and quality of Bank lending
- Quantitative data on trends in the levels, composition and quality of Bank nonlending services
- Qualitative and pseudo-quantitative data developed from:
- In-depth, tailored analyses of project documents
- In-depth field assessments in one country in each of the Bank's operating regions
- Consultations with the Bank's development partners (including governments, the private sector, professional associations and nongovernmental organizations)
- Detailed consultations on the findings with:
- The Bank's regions on the focus country in their region and the regional portfolio
- Bankwide on the overall findings
- With external partners on the overall findings

Roles

- Development of instruments and data—joint OED and WRMG
- Analysis of data—separate efforts by OED and the WRMG

Budget and time

For OED and the WRMG

- Specific budgets of about $1 million each
- Two years to complete the evaluations.

To a substantial degree, resources are being allocated through regular processes to projects with water resources components and to water resources components themselves

Strategy (table 4.4). (An interim report will be produced in about three years.) The models for such assessments would be the work done by the 2002 OED evaluation of the 1993 Policy Paper and the associated stocktaking work done for this Strategy. Primary responsibility for such an evaluation would be with the WRMG.

Budgetary implications

Funding for the implementation of the Strategy will be provided through a number of mechanisms.

Most important will be actions at the regional level, as part of the normal priority-setting and budgetary processes. To a substantial degree, resources are being allocated through regular processes to projects with water resources components and to water resources components themselves. (Figures 2.3 and 2.4 show that there will be increases of approximately 50 percent in these areas in the next three years.)

The RMTs were, to varying degrees, involved in development of this Strategy. A key element of discussion with the RMTs was the mandate, accountability and role of the regional water adviser. Some regions had led the way in establishing these advisory positions, and in giving the regional water adviser a mandate, accountability, visibility and resources. During discussions on this Strategy management of "the leading regions" confirmed their continued and, in some

cases, enhanced support for the regional water advisers, and management of each of "the lagging regions" decided (as described earlier) to substantially strengthen the accountability, mandate and resources for the regional water advisers. In an important sense, this confirms the "organicness" of this Strategy, and the fact that RMTs are making reasonable and sensible adjustments to the growing demand for Bank services relating to water resources. In all cases, the Regions have made such allocations out of existing resource envelopes.

The one true additionality at the regional level will be the costs associated with a larger portfolio of high-reward–high-risk projects. Preliminary and necessarily tentative estimates suggest that most regions would typically have about one such water project each year. Management's guidance is that funds for such projects should normally come from regional budgets, as they now do for the regions (most notably, Africa) that have engaged most actively with high-reward–high-risk projects. The budget tradeoffs would be made at the regional level by regional and country management. The one exception to the "no corporate funds" rule would be selected high-reward–high-risk projects that would be treated as Corporate Projects and could be considered for corporate funding if the projects are subject to review by the Inspection Panel.

In terms of the anchor unit supporting the WRMG, this Strategy proposes an increase from the current level of about $0.5 million a year to about $1.0 million a year (as shown in table 4.1) so that both staffing and funds for knowledge management bear a closer relationship to the importance of the issue and the size of the Bank's lending portfolio. It is expected that these costs will be borne by both ESSD and PSI.

Finally, as at present, the WRMG plans to make effective use of external sources of funds, to be devoted (as with the World Bank–Netherlands Water Partnership Program) to providing "lines of credit" to operations for supporting innovation and for implementation-oriented ESW in critical areas defined by the WRMG. As described earlier, these trust funds are much larger than the Bank-allocated resources available to the WRMG and its anchor, enabling the WRMG to play a major role in stimulating innovation and implementing key elements of the 1993 WRMPP and this Strategy. The overheads for managing those funds would be covered by the anchor staff of the WRMG.

Risks in implementing the Strategy

The rapid rise in Bank-financed water resources activities (see figures 2.3 and 2.4) attests to the rising demand from borrowers for Bank assistance with water resources management. If anything, global awareness of the importance of water resources development and management is increasing (as evidenced, for example, in the Johannesburg World Summit on Sustainable Development, where both water infrastructure and water quality featured prominently). There is, thus, little risk that the demand for Bank engagement will do anything but increase. There is, however, a series of risks related to the nature and quality of the Bank's response to this rising demand.

The one true additionality at the regional level will be the costs associated with a larger portfolio of high-reward–high-risk projects

The first risk relates to the *management message* of the Strategy. As described in the Strategy, the main challenge in implementing integrated water resources management is to pay greater attention to political economy, to sequencing and prioritizing, to not making the best the enemy of the good and to realism about what can be done and at what pace. This often means facing difficult choices, not between first and second bests, but between 10th and 11th bests. The outcomes may not always be win-win situations, and often progress can be made only by working with less than desirable social realities at all levels. The work done in preparation for this Strategy showed that in too many cases Bank documents and processes have turned a blind eye to these often-unpleasant realities. This, however, does not make the realities go away, but simply means that unrealistic projects fail, and the modest progress that was possible does not materialize. This Strategy's proposal is, then, to pay far more explicit attention to these realities, and to deal with them head on. The risk would materialize if this recommended good practice is not followed.

The second risk relates to the *development message* of the Strategy, that clients and staff perceive the Bank to be unable to respond to legitimate demands—that we are, in the words of one borrower, "working with one hand tied behind [our] back." The new business model is designed specifically to establish a better connection between the emerging institutional commitment to high-reward–high-risk operations and business practices, behaviors and incentives. But there is still some degree of skepticism amongst clients, the private sector and many Bank staff that the Bank will actually be able to restructure its business processes so that decisions on high-reward–high-risk projects are, as advocated by the new business model, transparent, realistic and time-bound.

The new business model is designed specifically to establish a better connection between the emerging institutional commitment to high-reward–high-risk operations and business practices, behaviors and incentives

The third, much smaller set of risks relates to *internal organizational and budget processes.* The internal arrangements for improving the quality and coordination of Bank work on this growing, complex and cross-cutting set of issues have evolved well in recent years. What is proposed in this Strategy are modest adjustments, and modest allocations of additional resources for this purpose.

Note

1. World Bank Operations Evaluation Department. 2002. *Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy.* Washington D.C.

Appendix 1: Updated management action record on the OED report

On August 23, 2002 Bank management provided CODE with a response to the Summary Recommendations of the OED Report *Bridging Troubled Waters: Assessing the World Bank Water Resource Strategy.* The table below provides an updated version of the Management Action Record.

OED recommendation	Management response
1. Aim country dialogue and institutional development at integrating the social and environmental concerns withwater resources development and project implementation. This requires:	Overall, management agrees with this recommendation.
a) Greater attention to linking water projects with CAS and and poverty strategies, to better understanding local institutions and preferences, and to monitoring and evaluating project effects on poverty.	With regard to item "a," the Strategy focuses on the direct indirect poverty implications of water management and development. Guidelines have been developed for the incorporation of water and sanitation into PRSPs and, as described in the Strategy, a similar process has been initiated for water resources.
b) The use of strategic environmental and social assessments, including consultations, as part of the overall water resources planning process.	With regard to item "b," this is becoming standard Bank practice.
c) More attention to be given to developing economic instruments to manage conflict in integrated water systems, including groundwater, and to balance demands at the river basin level, and between urban and rural populations, while ensuring access of the poor to water.	With regard to item "c," the Bank has made these concerns a major focus of its innovative partnership work.
d) More attention to factoring in concerns about equitable allocation of water and water rights, in light of local cultural preferences and rural-urban needs.	With regard to item "d," again this is a major focus of the Bank's innovative partnership work, and of the Water Resources Strategy.
e) Increased emphasis on implementation of safeguard policies during project supervision by the Bank and borrower.	Item "e" is a generic concern that is the subject of specific attention by the Regions and QACU.
2. Deploy Bank resources and instruments more effectively to nurture commitment to the Strategy through shared objectives, realistic diagnostics and partnerships aimed at policy reform and capacity-building. Areas requiring particular attention include:	Overall, management agrees with this recommendation.
a) Updating the Bank's water policy in the context of the forthcoming Sector Strategy and supplementing it with a series of Bank procedures and good practice notes for each subsector.	With regard to item "a," the new Sector Strategy will complement but not replace the 1993 Policy Paper. Management does not plan to develop or issue new Bank procedures, but good practice notes on critical practical questions are being given high priority. Similar work is already under way in the "water using" sector units in ESSD and FPSI.
b) Making greater use of adaptable lending instruments and developing new, cost-effective, performance-based approaches to project selection, design, procurement and service delivery.	With regard to item "b," the Sector Strategy for Private Sector Development and the upcoming Business Plan for Water and Sanitation will address the issue of use of performance-based approaches and other innovative service delivery vehicles.
c) Strengthening ESW to allow for improved diagnosis, higher quality dialogue with stakeholders and closer linkages with Country and Poverty Assistance Strategies.	With regard to item "c," the Country Water Resources Assistance Strategies are designed to put this recommendation into practice.
d) Reorienting capacity-building in the water sector toward comprehensive water management through WBI programs and global and regional capacity-building partnerships.	With regard to item "d," management does not consider that a "reorientation" is needed. As described in the Strategy, the Bank is focusing on key partnerships that deliver operationally relevant results.

OED recommendation	Management response
3. Create and sustain more comprehensive water management alliances with like-minded partners in the private sector, civil society and the development community. This requires:	As indicated in the Sector Strategy, management assigns great importance to selective and effective engagement in partnerships. While engaging in partnerships can lead to improved burden-sharing and selectivity, it also imposes additional claims on the Bank's management resources.
a) Sustaining involvement in global water policy networks and partnerships, with priority to cross-border integrated river-basin planning, driven by stakeholder demand and to the resolution of international water disputes. More attention to in-country water partnerships is required to build dialogue and leverage local knowledge. b) Entering new partnerships only where the Bank has a clear comparative advantage in doing so, clearly specifying conditions for entry and exit.	Therefore, with respect to the global partnership aspects of items "a" and "b," in a resource-constrained environment, the Bank will focus on maintaining partnerships that can deliver results on the ground (including those on international rivers). This focus notwithstanding, the Bank water community can and does play a major role in global events such as the World Summit on Sustainable Development and the Kyoto World Water Forum. With respect to the country-specific aspects of "a" and "b," increased emphasis on communication and dialogue is a central element of both the Country Water Resource Assistance Strategies, and of the approach to dealing with high-risk–high-reward projects.
c) Driving the choice between private and public sector involvement by hard-nosed institutional analysis of what works and what does not in differing country contexts.	With respect to item "c," even-handed assessment of public and private options is an important message of this Strategy and of the forthcoming Business Plan for Water and Sanitation.
4. Strengthen internal management, monitoring and evaluation of water resources management activities through a streamlined organization, more cohesive sector and country strategies, enhanced core competencies, additional operational guidance and training and more rigorous quality assurance arrangements. Chief among the issues to address:	Management agrees with the thrust of this recommendation. Action is already under way on several fronts.
a) Clarifying the role of the central Water Resources Management Group and its relationship with sector boards, and regional staff, particularly in relation to institutional and financial aspects of the rural water portfolio, and considering the establishment of water resources management coordinating bodies in each region.	Each of the regions has now appointed a water resources adviser who has responsibility for quality enhancement and coordination. As described in the Strategy, the relationship between the WRMG and relevant sector boards has developed well.
b) Providing more vigilant and independent quality assurance for safeguard policies affecting water development.	QACU is addressing the generic issue on item "b."
c) Offering incentives and training to accelerate staff adoption of a comprehensive approach to water resources management.	As described in the Business Plan, the WRMG has developed a human resources development plan. An important element of the plan is better definition of training for staff in critical aspects of water resources management.
d) Reassessing staffing levels and skills mixes to implement the water strategy Bankwide. To ensure adequate staffing and continuity, reliance on ad hoc trust funds should be reduced and the Bank budget enhanced.	With regard to item "d," as described in the Strategy, the WRMG undertook a detailed human resource and skills assessment. Bank budget has not been enhanced (as suggested by OED), and the importance of trust funds has, if anything, increased. An innovation is the direction of a major trust fund (the World Bank–Netherlands Water Partnership Program) to stimulate and support innovative water resources activities in operations.

Appendix 2: The water projects database

This appendix describes the principles and procedures followed in analyzing the data on Bank investments in water resources management.

The water projects database includes all projects with major water-related components and is located in the ESSD Core Database on the World Bank Intranet (http://esd.worldbank.org/coredb/). Each project record contains basic information, such as the loan amount, approval date, and task manager, listed in the "Project Summary" table at the beginning of each project record. This information is updated automatically from the World Bank's Business Warehouse data center. The information is referenced by the project's identification number.

Project selection

The water projects database includes all projects with a major water-related component: irrigation and drainage projects, rural and urban water supply and sanitation projects, hydropower projects, flood management projects, watershed management projects, environmentally oriented projects and water resources management projects. The database does not include coastal zone management projects, seaports or other predominantly ocean-oriented projects. Although Bank sector codes are not always precise classifications and many loans have mixed sectoral components, the following Bank sector codes usually pertain to water sector projects and should be used as the other criterion to select and screen projects:

Agriculture
AF—Fisheries and aquaculture
AI—Irrigation and drainage

Electric power and other energy
PH—Hydro

Transportation
TP—Ports and waterways

Urban Development
US—Urban environment

Water supply and sanitation
WR—Rural water supply and sanitation
WS—Sewerage
WU—Urban water supply
WW—Water supply and sanitation adjustment
WW—Other water supply and sanitation

Environment
VI—Environmental institutions
VM—Natural resources management
VP—Pollution control/waste management
VR—Resettlement

Cost criteria to determine project inclusion in the database

Some projects may be a hodge-podge of components—especially urban environment or development projects, rural development projects, natural resource management projects and any type of disaster response project (flood, earthquake). For example, an urban development project may have several components, with some related to transport, housing, solid waste management and water supply and sanitation—how to decide if this is a water sector project?

Two criteria were applied to decide whether the project is a water sector project: if the project has more than 33 percent of its total costs devoted to water sector activities re-

Two criteria were applied to decide whether the project is a water sector project: if more than 33 percent of total costs are devoted to water sector activities and if more than $25 million is spent on water-related components

gardless of the total project cost, then the project should be included in the database; and if more than $25 million is spent on water-related components, regardless of the share of total project cost, then the project should be included in the database.

Disaggregating project costs and the cost component table

The most challenging task in maintaining the water project database is using the Project Appraisal Document (PAD) to assign project costs to specific categories in the Project Cost Component Category table. In many cases, project costs are very straightforward, especially for physical infrastructure components. In other cases, especially with some institutional expenditures, it is far more difficult to classify the costs and some judgment is necessary. The Project Cost Component Category table contains 23 possible categories for cost components, which are grouped into the following general sections: water infrastructure cost, water management institutional strengthening, water service institutional strengthening and other costs.

The most challenging task in maintaining the water project database is using the Project Appraisal Document to assign project costs to specific categories in the Project Cost Component Category table

Water infrastructure costs

Irrigation costs are mainly the physical costs of developing or rehabilitating irrigation systems, usually canals or water control structures. Irrigation may include the costs for dams, if the dam's water is used purely for irrigation supply purposes. Projects that create or rehabilitate drainage works related to irrigation systems should also be included in this category. The category does not include agro-processing or other agricultural infrastructure that may be included with these types of loans.

Hydropower includes the costs for turbine penstocks; any channels, after bays, re-regulating dams; or other hydraulic construction related to moving water to and from the powerhouse or turbines. It may also include the cost of the dam if the dam is employed solely for hydropower generation. The costs for the powerhouse, turbines and other generation equipment, as well as transmission equipment, which is often the most substantial portion of the hydropower project cost, are not included in the cost category.

Multipurpose bulk water includes conveyance facilities, dams and other infrastructure used to supply water for various purposes, such as municipal water supply, irrigation or hydropower generation. If a multipurpose dam is constructed, it should fall under this cost category.

Urban water supply refers to infrastructure associated with supplying, treating or distributing water (usually potable) in urban areas—from the intake at the raw water supply source to the tap, standpipe or connection in a home, neighborhood or business. It may also include water supply projects listed as "small towns projects," although some components within these projects may also appear to belong in the rural water supply and sanitation category. One factor that may help determine the appropriate category for small towns projects is the extent or complexity of associated treatment and distribution system—rural water supply projects generally have no treatment facilities and a very limited distribution network. Due to the technical demands, urban water supply usually has an accompanying professional management structure, whereas rural water supply systems are usually managed and maintained by the communities.

Urban wastewater refers to infrastructure associated with the collection, treatment and disposal of urban wastewater from any end-use. This does not include channels or other facilities to remove naturally occurring precipitation run-off, which should be included in the urban drainage/flood category. Urban wastewater project components are often found in urban environment or urban development projects.

Low-cost urban wastewater supply and sanitation refers to infrastructure to supply water or address wastewater problems in urban areas that are not part of large capital-intensive systems or distribution networks. This may include measures such as latrines or wells, which may be similar to some rural water supply strategies but are located in urban areas.

Urban drainage/flood refers to infrastructure to remove naturally occurring precipitation run-off from urban areas, such as drainage channels or storm sewers. It may also refer to physical infrastructure such as dikes to protect urban assets from floods.

Rural water supply refers to infrastructure and equipment costs in the provision of rural water supply. Most rural water supply projects are generally titled "rural water supply," so they are easy to classify.

Fisheries refer to infrastructure or equipment involved with development or management of the fishing industry, such as the construction of laboratories or breeding facilities. This does not include processing facilities or other market-related infrastructure costs. These costs should be included in the "other costs" category, corresponding to line 31 in the Project Cost Component Category table.

General flood infrastructure refers to infrastructure to prevent flooding. This may involve dikes, dams or other hydraulic structures to direct the flow of floodwaters. Infrastructure located within urban areas to drain away flood water is usually covered under the urban drainage/flood category.

Watershed protection refers to the costs of infrastructure or physical works designed to improve or maintain watersheds, with a key objective of the project to improve the quality or sustainability of water run-off. It may also include funding for infrastructure targeting water harvesting techniques in arid climates.

Navigation refers to hydraulic infrastructure or other riverine or lake works to alter a flow regime or channel to improve shipping. It includes ports or other projects that support aquatic transport, but do not affect the flow regime.

Ecological refers to the cost of infrastructure specifically to support the quality of ecosystem resources in an aquatic environment, including habitat preservation and biodiversity. While the project may benefit human needs, the project objectives should address ecological concerns.

Industrial water pollution control refers to infrastructure targeted specifically to address industrial pollution. It may include both treatment of effluent and support for upstream treatment or process changes to reduce pollution loading.

Water management institutional strengthening

The cost categories within "water management institutional strengthening" refer to expenditures to improve or augment agencies or organizations that have responsibility for or are involved in managing water resources. It is important to emphasize that the costs reflected in this category relate to the management of the resource itself, not the delivery of a specific service or end-use associated with water (these costs are covered in "water services institutional strengthening").

The cost categories within "water management institutional strengthening" refer to expenditures to improve or augment agencies or organizations that have responsibility for or are involved in managing water resources

Costs under this heading may involve capacity development such as training programs for local staff, staff exchanges or the cost of consultants to work with agencies to improve their effectiveness. Costs may also include the preparation of management plans, modeling, or software development to support management activities. Water management institutional strengthening costs may even include equipment purchases such as computers or vehicles to support activities carried out by the agencies.

Water resources management refers to costs associated with institutional strengthening for agencies or organizations involved strictly with managing the resource to improve or maintain the sustainability of water supply or improve water allocation in terms of equity and efficiency.

Environment refers to costs associated with institutional strengthening for agencies or organizations engaged in environmental activities, which may be related to preservation of biodiversity or water quality to improve habitat.

Watershed management refers to costs associated with institutional strengthening for agencies or organizations involved with land-based activities in the watershed designed to improve the quality or sustainability of water

run-off. Activities supported may be for monitoring, assessment, research or program implementation.

Irrigation Management refers to costs associated with institutional strengthening for agencies or organizations responsible for irrigation activities as it relates to the management of the resources, such as routing water from reservoirs for irrigation systems, not to improve farm efficiency or productivity (which fall under "water services institutional strengthening—irrigation"). It might also include efforts to improve the quality or flow of irrigation drainage water for downstream purposes.

Other refers to costs associated with institutional strengthening for agencies or organizations involved with all other activities related to management of water as a resource, not the service delivery of various end-uses for water.

The cost categories within "water management institutional strengthening" refers to expenditures used to improve or augment agencies or organizations that have responsibility for or are involved with the delivery of specific end-uses for water supply

Water services institutional strengthening

The cost categories within "water management institutional strengthening" refers to expenditures used to improve or augment agencies or organizations that have responsibility for or are involved with the delivery of specific end-uses for water supply. These activities focus on the provision of service.

Irrigation refers to costs associated with institutional strengthening for agencies or organizations involved with provision of irrigation services. This may include capacity for irrigation agency staff or development activities for farmers organizations (or water user associations) to take over system operations and maintenance from irrigation agency staff. Irrigation usually has a dedicated government agency, which makes it easier to identify these costs.

Urban water supply and sanitation refers to costs associated with institutional strengthening for agencies or organizations involved in provision of urban water supply. In many urban water supply and sanitation projects, an institutional objective is to restructure the agency either to separate functions of water delivery and bulk water supply or to pave the way for private sector investment to operate the system. Any costs for studies or staff development to support these types of activities would fall in this cost category. Such projects usually have a dedicated government agency, which makes it easier to identify these costs.

Rural water supply and sanitation refers to costs associated with institutional strengthening for agencies or organizations involved with provision of rural water supply. Many of these projects involve components to create local water user associations to manage the project, which may be facilitated through intermediaries (NGOs) or a government agency. All such costs would be included in this category. Rural water supply and sanitation services do not always have a dedicated agency, so it is important to focus on the activity to identify the costs.

Hydropower refers to costs associated with institutional strengthening for agencies or organizations involved with the water aspects of provision of hydropower. However, in most hydropower projects, institutional strengthening for service delivery involves reforms targeted at the electricity agency or utility that operates the facility, not water services. In cases where institutional strengthening addresses the provision of electricity, the costs should be listed under "other costs." If the institutional strengthening costs are targeted to the agency as it relates to hydropower, such as operation of the reservoir, then the costs fall within this category.

Appendix 3: Definitions of monitoring indicators

Portfolio management indicators

Actual problem projects are those rated as U ("unsatisfactory") or HU ("highly unsatisfactory") on either or both of the DO ("Development Objectives") and IP ("Implementation Problems") criteria, in the Project Status Report.

Projects at risk criteria are used as a primary measure of portfolio performance. Projects at risk include *actual and potential problem projects,* with potential problem projects identified as those having at least 3 (of a total of 12) characteristics ("flags") historically associated with unsatisfactory performance.

Realism index is the number of actual problem projects divided by the number of projects at risk.

Proactivity: The proportion of projects rated as problem projects 12 months earlier that have been upgraded, restructured, suspended or partially or fully cancelled.

QAG reviews on a sample of projects

Quality at entry is rated on nine dimensions, from R1 to R9. R1: project concept; objectives and approach; R2: technical and economic aspects; R3: environmental aspects; R4: poverty and social aspects; R5: financial management aspects; R6: institutional capacity analysis; R7: readiness for implementation; R8: risk assessment and sustainability; and R9: Bank inputs and processes.

Quality of supervision is rated on four dimensions, from R1 to R4. R1: focus on development impact; R2: supervision of fiduciary aspects; R3: adequacy of supervision inputs and processes; and R4: realism of project performance ratings.

Quality of ESW: A sample of ESW tasks completed in each fiscal year is assessed using four broad criteria: strategic relevance and timeliness, internal quality, clarity of presentation and likely impact.

OED indicators on closed projects

Satisfactory *outcome*—overall rating

Sustainability Likely

Substantial or high *institutional development impact*

Disconnect measures the difference between OED's project rating and the development rating reported in the final Project Status Report (PSR).

Appendix 4: Regional portfolios and pipelines and the themes of the Water Resources Sector Strategy

This appendix (also available on the Bankwide drive) provides more detail on the portfolios and pipelines of each region, and presents all information on each region in a consolidated section.

Preamble

This annex to the Business Plan for the Water Resources Sector Strategy is intended to:

- Provide easy access to the main findings and recommendations by region.
- Provide more detail on each region than is appropriate in the main Business Plan.

Four separate documents will be produced as part of the overall process of defining a new World Bank Water Resources Sector Strategy:

- The Water Resources Sector Strategy itself (a public document).
- A detailed report on the results of the external consultations on the draft sector Strategy (a public document).
- The Business Plan (an internal Bank document).
- An appendix to the Business Plan, describing the regional portfolios, pipelines and the relevance of the themes of the sector Strategy in the regions (this document).

The basis for the approach taken in this document is the agreement with CODE regarding the regional components of the Business Plan for the Water Resources Sector Strategy. Specifically, this document:

- Reports on the evolution of World Bank lending during the past decade and projected lending for the next three years for water resources management in each region.
- Draws general conclusions about the validity of the main messages of the Strategy in each region.
- Draws some conclusions, for internal purposes, on accountability, staffing and organizational issues relevant to implementation of the Strategy in each of the regions.

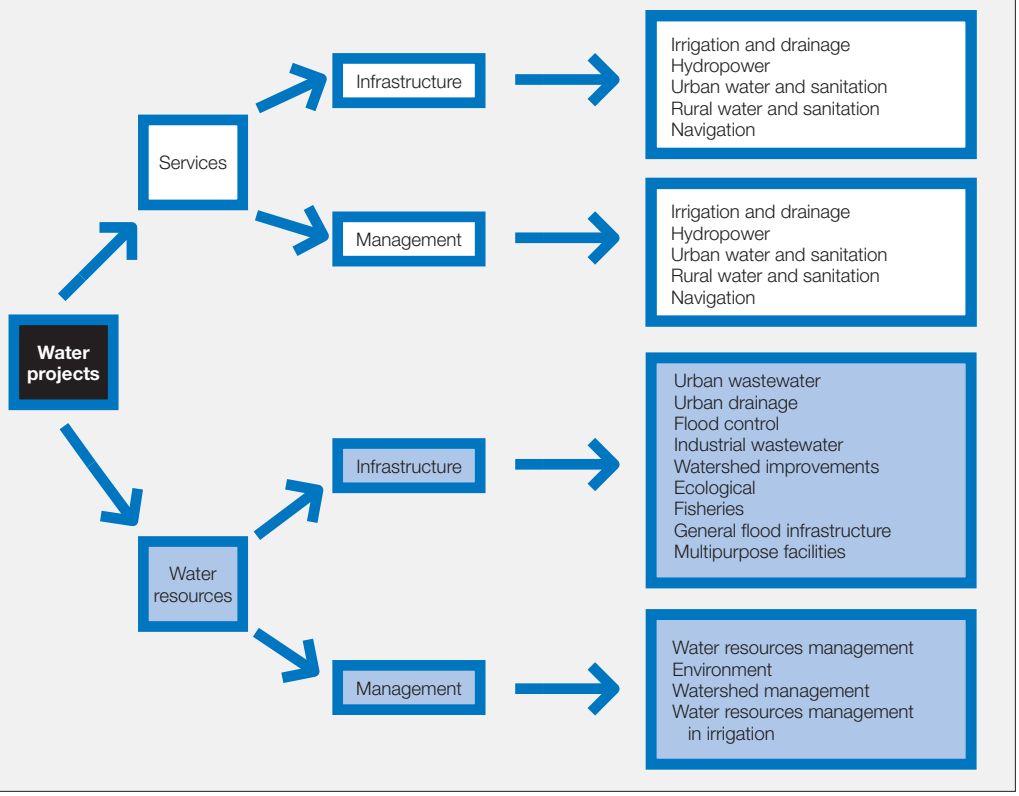
Methodology

Both the existing portfolio of projects and projects in the pipeline were analyzed.

The existing portfolio

The existing portfolio was defined as the cohort of Bank-financed projects subsequent to the 1993 Water Resources Management Policy Paper, which included all projects approved by the Bank's Board for fiscal 1993–2002. Since water resources is not formally a sector in the World Bank, the Bank's project coding system contains no code for "water resources management."[1] Accordingly, the Water Resources Management Group, working together with the Operations Evaluation Department (OED) designed a classification system for defining the water resources components of projects.[2] This classification system is illustrated in figure 1. For each project approved between 1993 and 2002, the PAD was reviewed. First, all projects which had a water component were identified. For these projects, the overall World Bank financing for specific items in figure 1 was identified. All analyses of the existing portfolio were based on these data.

f1 **Water services and water resources: definitions**



The pipeline

For the next three fiscal years (2003–05) each region has a pipeline of projects identified. Information on these projects is sparse, typically comprising only a project title and an expected loan amount.

Under the supervision of the regional water advisers, all projects with water resources components were identified. In each case, the task manager for the project filled out a form (figure 2) on the water resources management and infrastructure components to be funded, how much would be spent on these components and how the major themes of this Strategy were reflected in the project.

Discussions with the regions

Detailed interregional analyses were conducted on the basis of these data. A tailored version of these analyses was developed for each region and formed the basis of discussions with the Regional Management Teams (RTMs). The format for these discussions (which were chaired by the regional vice presidents in most cases) was as follows:

- Presentation of the main messages of the Strategy:
  - *Message 1:* That water resources management and development are *central to sustainable growth and poverty reduction* and therefore of central importance to the mission of the World Bank.
  - *Message 2:* That what is needed in most developing countries is both *management and development of infrastructure.*
  - *Message 3:* That the main *management challenge* is not vision (which is well articulated in the Bank's 1993 Water Resources Management Policy Paper), but more effective implementation. To be a more effective partner, the World Bank must be more attentive to the political economy of change, the prioritization of actions and the time taken for change.

f2 Questionnaire for the task manager of each water project in the pipeline

WATER RESOURCES SECTOR STRATEGY PIPELINE ANALYSIS: One-minute project checklist

Country: **Project:**
Loan Amount: **Fiscal Year:**

Importance of Water Resource Management Component of the Project	Importance of water resource management to the project	Very important ☐
		Some importance ☐
		Unimportant ☐
	Approximate proportion of lending in the project for water resources management and development	Less than 10% ☐
		10%-40% ☐
		40%-70% ☐
		70%-100% ☐
Major Water Resource Management Issues in the Region	Legal framework	Yes ☐ No ☐
	Institutions	Yes ☐ No ☐
	Allocation	Yes ☐ No ☐
	Water Quality	Yes ☐ No ☐
	Pricing	Yes ☐ No ☐
	Other (specify)	Yes ☐ No ☐
Infrastructure Components related to Water Resources Management	Multipurpose infrastructure	Yes ☐ No ☐
	Watershed infrastructure	Yes ☐ No ☐
	Flood control infrastructure	Yes ☐ No ☐
	Wastewater Infrastructure	Yes ☐ No ☐
	Drainage infrastructure	Yes ☐ No ☐
	Will this infrastructure be seen as potentially risky to the Bank's reputation?	Yes ☐ No ☐
	IFC or MIGA role?	Yes ☐ No ☐
	Private sector role?	Major ☐ Minor ☐ None ☐

- *Message 4:* That most developing countries have inadequate stocks of hydraulic infrastructure and that, therefore, the main *development challenge* for the World Bank is to assist countries in developing appropriate stocks of well-performing hydraulic infrastructure, mobilizing public and private financing.
- *Message 5:* That to play this critical catalytic role the World Bank needs to develop *a more effective business model* for dealing with "high-reward–high-risk" infrastructure. The proposed model puts development impact (not reputational risk) first, assesses the development impact of both engagement and nonengagement by the Bank, treats these projects as corporate projects from the start and aims at transparent, crisp, time-bound and predictable decisions.

- A discussion of the results of the external consultations on the draft Strategy.
- A presentation of the analyses of the regional portfolio (1993–2002) and pipeline (2003–05) of water resources lending. This includes:
  - *Lending for water resources in the current portfolio (1993–02):* All projects with water components were identified. Each project was reviewed in detail,

and costs of specific water service and water resources components identified (following the algorithm displayed in figure 1).

- *Projected lending for water resources in the pipeline (2003–05):* All projects that are (tentatively) in the lending pipeline for the next three years and that have water components were identified. (In most cases these projects are identified only by name, with an indicative level of likely Bank funding.) Under the direction of the regional water advisers, task managers filled out a data sheet on the water resources components of those proposed projects, with particular emphasis on the main themes—management and development—of this Strategy. Specifically, the data were analyzed to address the following issues:
  - *Issue 1:* How many projects in the regional pipeline have water resources components, and where are these projects?
  - *Issue 2:* How important are these projects as a proportion of the total regional pipeline, and how does this compare with the current portfolio?
  - *Issue 3:* How important are water resources issues in these projects?
  - *Issue 4:* What are the major water resources management issues in the pipeline of regional projects?
  - *Issue 5:* What are the major areas of proposed investment in water resources infrastructure, and how does this compare with the existing regional portfolio?
  - *Issue 6:* What is the likely role of the private sector and of IFC and MIGA in financing water resources infrastructure in Bank-financed projects in the region?
  - *Issue 7:* What share of regional projects with water resources components might be reputationally risky for the Bank?
  - *Issue 8:* How much progress has been made on Country Water Resources Assistance Strategies, and what are the next steps?
  - *Issue 9:* How are water resources activities in each region related to the major themes of the Strategy?

The main text of this Business Strategy presents the overall, Bankwide conclusions. This appendix presents these for each of the Bank's six regions.

Africa Region

This section presents the results of the data analysis for projects in the portfolio and the pipeline in the Africa Region (AFR).

Issue 1: The level and composition of water lending in the region

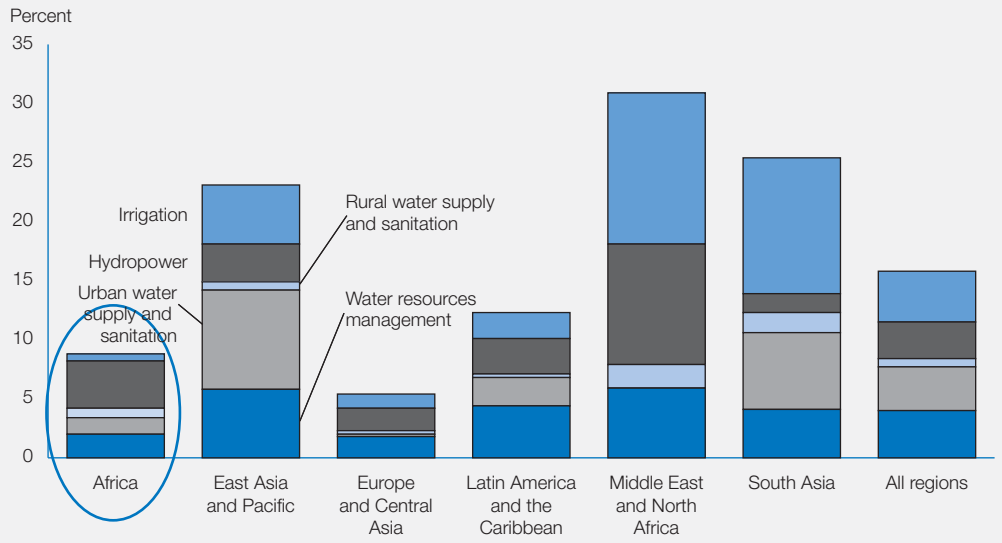
AFR has, relative to overall World Bank lending in the region, the second smallest portfolio of water projects (see figure AFR1). Only for water supply and sanitation is the portfolio comparable to that of other regions of the Bank.

Issue 2: How lending for projects with water resources components and for water resources components is changing

In recent years, however, AFR has invested heavily in analytic and advisory work in water resources. As shown in figure AFR2, this investment is leading to rapid growth in the portfolio of projects with water resources management components (from 5% of all Bank lending in the region in the portfolio to 11% of lending in the pipeline). Figure AFR3 shows that there is a similarly dramatic growth in the projected lending for water resources components (as defined in figure 1)—from 2% of Bank lending in the region in the portfolio to 3.5% of lending in the pipeline.

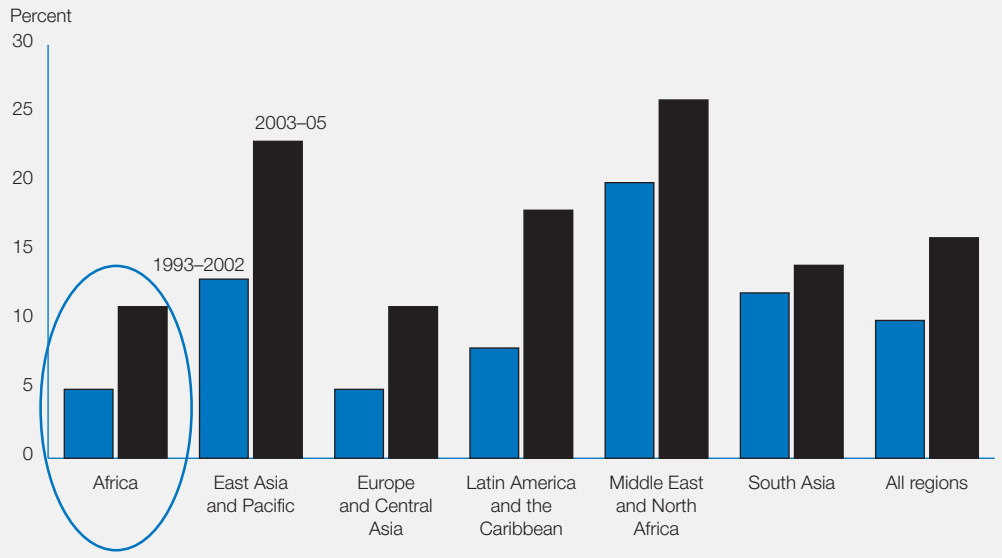
More than for any other region, lending figures for AFR underestimate the overall Bank engagement in water resources management. AFR has a substantial portfolio of nonlending activities in water resources management, a large portion of which are Global Environment Facility–funded projects dealing with international river basins. Most important is the major Bank commitment to the Nile Basin Initiative, a commitment in which the Bank has been instrumental in raising about $150 million in trust funds and in which the Bank plays a major catalytic role in support of the riparian countries.

fAFR1 Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002



Source: World Bank staff estimates.

fAFR2 Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05

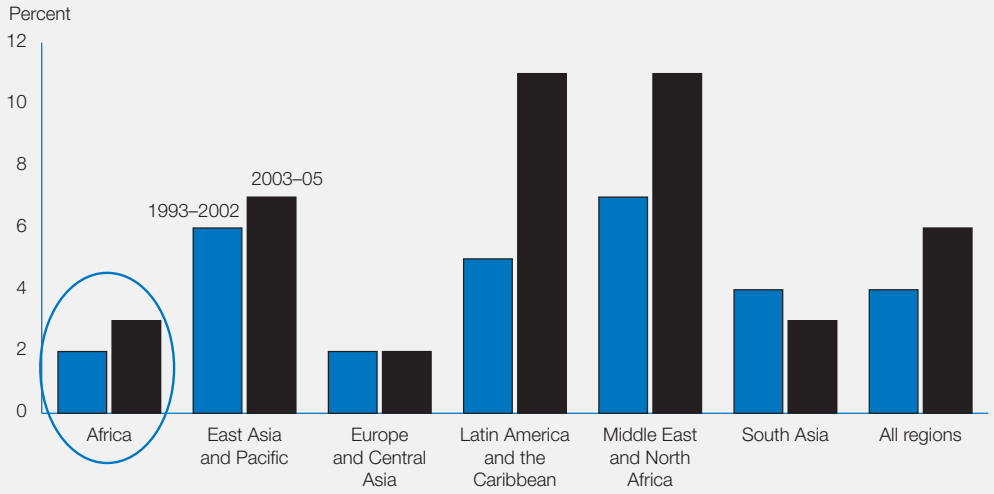


Source: World Bank staff estimates.

Issue 3: The distribution and concentration of projects with water resources components in countries in the region

As shown in figure AFR4, the 2003–05 pipeline of water resources projects in AFR consists of a large number (31, or about 10 projects a year) of mostly small projects (average loan or credit size of $53 million). A striking feature of the pipeline is the large number (nine) of proposed regional projects, primarily related to the major Nile Basin Initiative.

fAFR3 Lending for water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

This large number of small projects means (see figure AFR5) that, relative to other Bank regions, the "dominant country"is relatively less important in AFR. Nigeria, the major country in which the Bank's water resources lending is concentrated, accounts for only 12% of lending for projects with water resources components in AFR.

Issue 4: The major water resources management challenges in Bank projects in the region

As shown in figure AFR6, the major water resources challenges identified by regional task managers relate to the legal, institutional and political dimensions of water resources management highlighted in this Strategy. Progress in terms of allocation, pricing, institutional reform and legal framework will require the patient, persistent, sequenced approach to the political economy of reform that is the core of the management section of this Strategy.

Issue 5: The changing composition of lending for water resources infrastructure in the region

Figure AFR7 compares the composition of water resources lending in the portfolio and the pipeline. It shows that there is a marked diversification in Bank-financed water resources lending in AFR. The portfolio was dominated by multipurpose projects; the pipeline shows substantially less lending for such projects and large increases (from a very low base) in watershed management, flood control, wastewater and urban drainage.

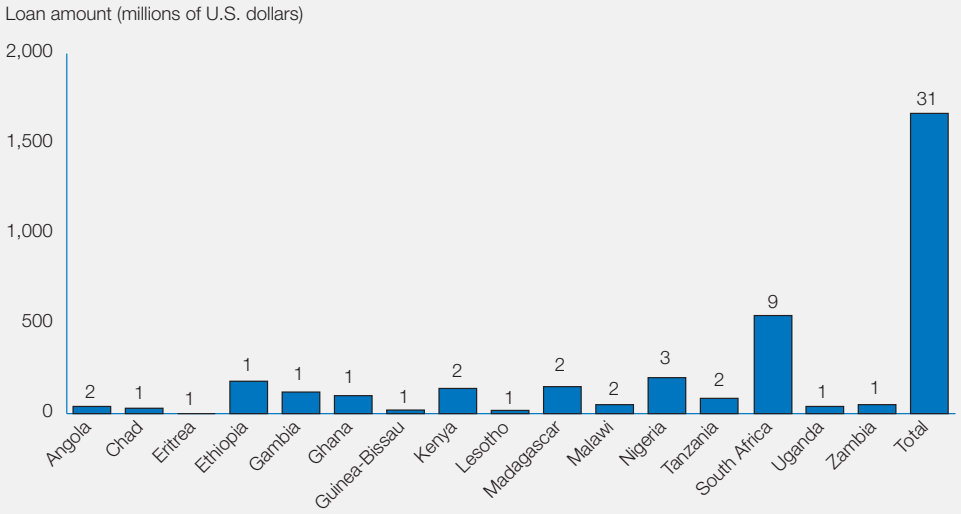
Issue 6: The anticipated role of the private sector and IFC and MIGA in projects with water resources components in the region

Bank staff expect the private sector to play a major role in almost half of all projects in AFR which have water resources management components (figure AFR8). This is the highest level in the Bank and underscores the importance of private sector involvement in the poorest of the Bank's regions. It is striking that MIGA and the IFC are expected to be involved in only about 10% of projects, far less than those in which the private sector is expected to play a major role (figure AFR9).

Issue 7: The proportion of projects in the pipeline that are likely to pose reputational risks to the Bank

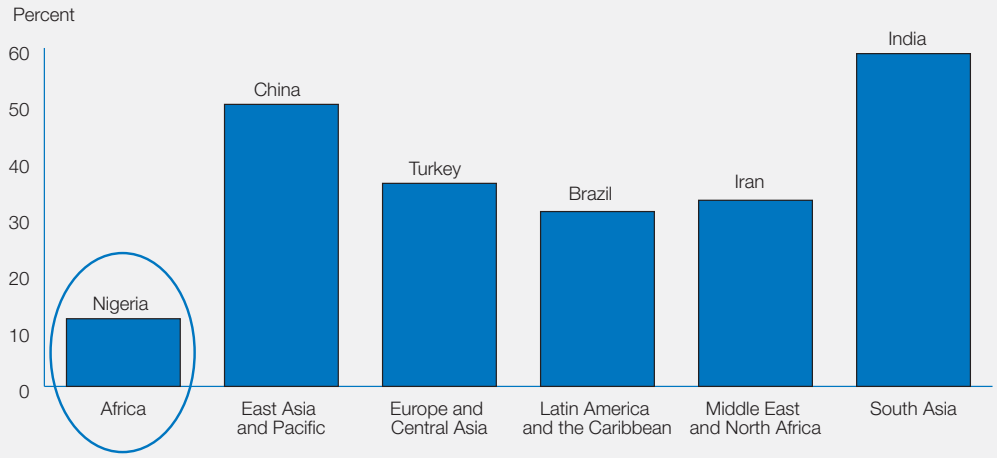
AFR has emerged as a Bankwide leader in engaging with high-reward–high-risk infrastructure. One reason for this is that whereas in better-off regions many countries have

fAFR4 Loan amount and number of projects with water resources components, by country, fiscal 2003–05



Note: Figures above bars are number of projects.
Source: World Bank staff estimates.

fAFR5 Largest borrower's share of regional lending for water resources projects, fiscal 2003–05

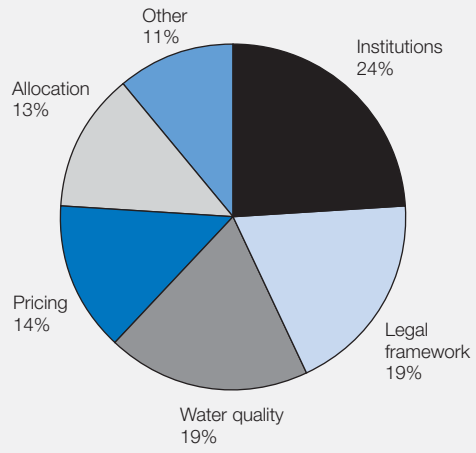


Source: World Bank staff estimates.

alternative (and often much less transaction costly) financing options, with much lower transaction costs, most countries in Africa do not have such options. Because of this leadership role (on an issue of importance to many of the Bank's borrowers in all regions), management of AFR played a prominent role in developing the new business model for dealing with high-reward–high-risk infrastructure, detailed in the Strategy.

A central element of the new business model is the early identification of high reputational risk projects and the provision of high-level support from regional and corporate Bank management. To get a sense of

fAFR 6 Major water resources issues in the pipeline of regional water resources projects, fiscal 2003–05



Note: Categories are not exclusive.
Source: World Bank staff estimates.

what Bankwide adoption of the new business model might mean, the assessment of the pipeline included an analysis of the incidence of "high reputational risk" projects. As shown in figure AFR 10, almost one in eight (4 projects of the 31 in the pipeline for the next three years) Bank-financed water resources projects is considered reputationally risky to the Bank. This suggests that there might be about one high-reward–high-risk water project that would need to be treated as a corporate project in AFR each year.

Issue 8: Progress and plans on Country Water Resources Assistance Strategies in the region

With seed funding from the Bank's Global Public Goods Fund, a first round of Country Water Resources Assistance Strategies was initiated. AFR used the funds to initiate a strategic long-term partnership between the Bank and the Niger riparians on their future cooperative development of the shared water resource. This includes a tentative strategy for Bank engagement in the Niger River Basin.

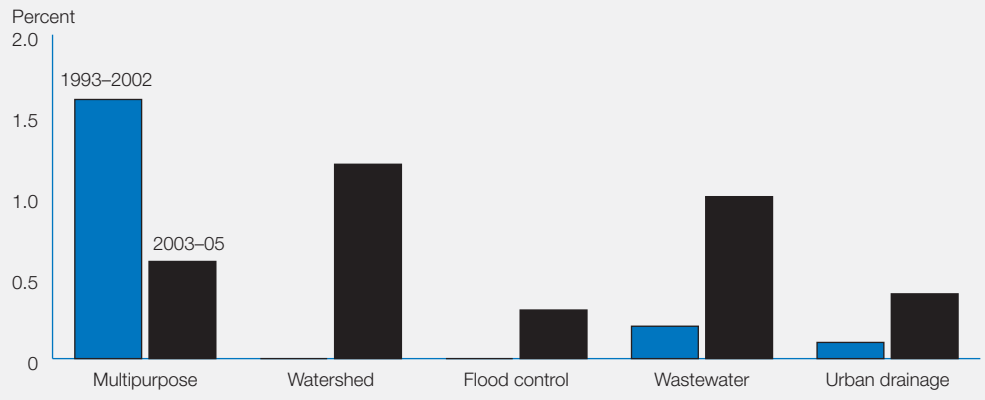
Issue 9: The water resources activities of the region relative to the major themes of this Strategy

AFR has had a major impact on the messages of the Water Resources Sector Strategy. The discussions with the RMT showed that in no Bank region is there stronger resonance with the main messages of the Strategy, as examined below.

Water, growth and poverty

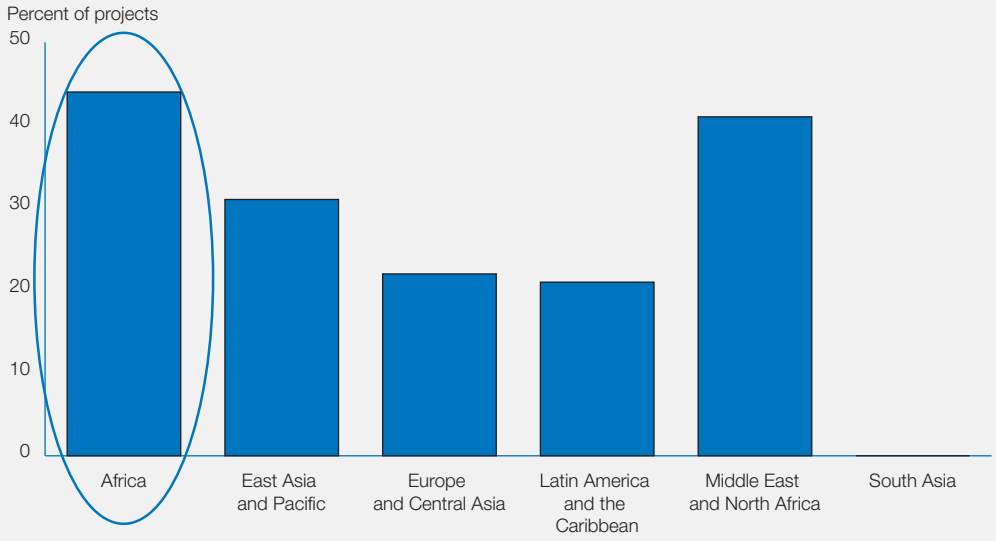
The high level of rainfall variability is an important factor limiting growth and poverty reduction in Africa. And the levels of water-related services (water supply, irrigation and hydropower) are much lower than for any other region. For this reason many African countries give high priority to water resources management as an instrument for growth and poverty reduction, and

fAFR 7 Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05



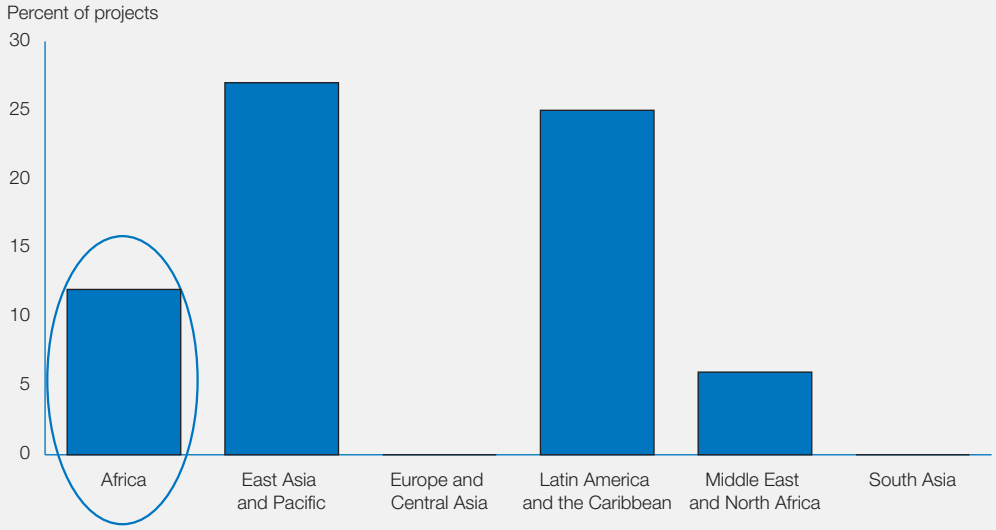
Source: World Bank staff estimates.

fAFR8 Share of IBRD/IDA-financed water resources projects in which the private sector is anticipated to play a major role, fiscal 2003–05



Source: World Bank staff estimates.

fAFR9 Share of IBRD/IDA-financed water infrastructure projects in which IFC and MIGA are likely to play a role, fiscal 2003–05

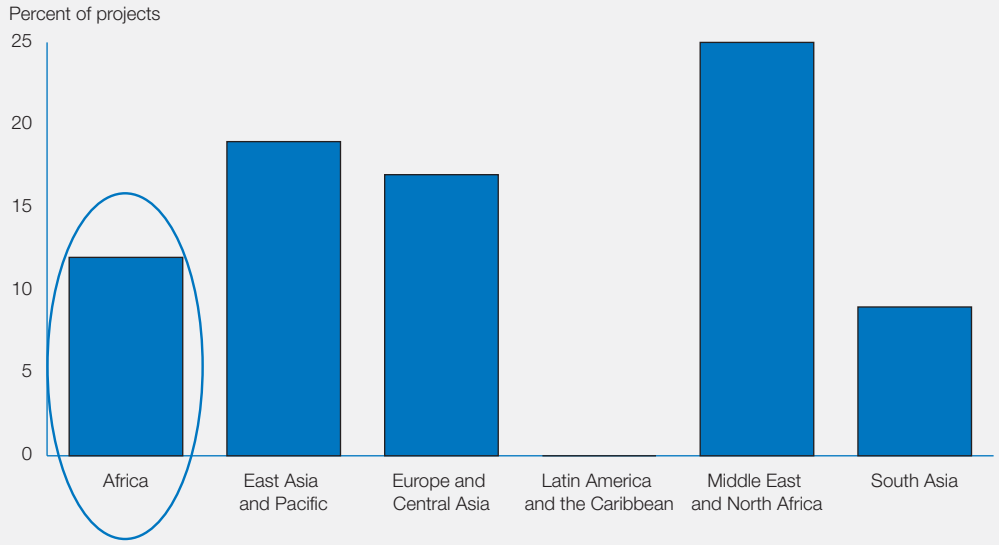


Source: World Bank staff estimates.

water resources management features prominently on AFR's agenda. Given the extraordinary density of international river basins in Africa, cooperation on such basins is a major theme for African countries and AFR.

There has been considerable success in benefit sharing in a current project (the Lesotho Highlands Project, involving Lesotho and South Africa). Of particular importance and visibility is the pathbreaking work on the Nile Basin Initiative, where cooperation

f AFR 10 Share of water resources projects considered to be "reputationally risky" for the Bank, fiscal 2003–05



Source: World Bank staff estimates.

could bring major economic "benefits from the river" as well as reduce the considerable costs of conflict "because of the river" and have major multiplier effects "beyond the river" (in the parlance of the Nile Team). Examination of historical and projected lending shows that sharp increases in Bank involvement in water resources management in AFR are anticipated. In addition, the Bank is playing a major role in nonlending advisory work on water resources in the region, especially on the issues of benefit sharing from international waters.

Development of improved tools

AFR gives high priority to the development of more effective tools for integrating sectoral concerns into the Poverty Reduction Strategy Papers (PRSPs). Stimulated by this observation, work has started (with funding from the Netherlands Trust Fund) on developing guidelines for integrating water resources management into the PRSPs.

Management and the importance of engaging with the political economy of reform

This theme finds broad resonance in AFR. In many countries (see the example of Nigeria in the main text of this Strategy), this means major Bank emphasis on developing sound water service institutions (such as water supply utilities and irrigation agencies) while simultaneously developing dialog on the longer term issues of basin management at the national and international levels. AFR anticipates that the change in IDA rules (with a greater portion of IDA funds going as grants) will result in substantially larger allocations of resources to regional activities of this sort. AFR accords high priority to giving voice to clients on their needs for high-reward–high-risk projects, for example through the New Partnership for African Development.

Development of an adequate stock of well-performing hydraulic infrastructure and mobilizing public and private financing

By most measures, Africa has much less hydraulic infrastructure than developed countries. African leaders give high priority to the development of water infrastructure at all levels, from the village to the river basin. At all international forums (exemplified in the New Partnership for African Development and the World Summit on Sustainable Development) African governments express a strong demand for assistance in developing water infrastructure at all levels. Given the relatively low levels of internal resources available, African countries look to combinations of external public assistance and private

investment to construct this infrastructure. They see the World Bank as an indispensable catalyst, guarantor and investor.

The need for integrated lending and advisory services

Africa faces three formidable challenges: low skills base, low ability to attract investment and low capacity to manage the diplomatic issues required for the development of its more than 60 international rivers. The only way to move forward is to move forward simultaneously on investment and capacity building. Indeed, the two are intimately related, because it is only through "doing" that the necessary capacity will be built.

Catalytic role of the World Bank and the need for a more effective business model for investing in high-reward–high-risk infrastructure

In no other region is the Bank's role so critical or indispensable. AFR has taken Bankwide leadership in articulating why the Bank must be actively engaged and why and how the Bank must develop a new business model that puts development impact (not reputational risk) first; assess the development impact of both engagement and nonengagement by the Bank; treat these projects as corporate projects from the start and aim at transparent, crisp, time-bound and predictable decisions. In recent years, AFR has had good experience with forming high-level regional groups for managing high-reward–high-risk projects (including Manantali and Lesotho Highlands). Adoption of the Patel Panel Report would make this endogenous. The region sees a particular need for greater consistency and alignment between the Bank and IFC to reduce the unnecessarily high transactions costs when dealing with high-reward–high-risk projects.

Organization, accountability and staffing for water resources management

As shown in figures AFR2 and AFR3, there has been a major change in AFR's engagement with water resources management issues in recent years. More than in any other region, management in AFR has devoted considerable budgetary resources off the top to water resources, and more specifically, to the Nile Basin Initiative. As shown in figure AFR1, the Africa water portfolio was unbalanced, in the sense that there was substantial activity only on urban water supply, with little on hydro and virtually nothing on irrigation. It was natural, therefore, that the water resources management activities in AFR emerged from the Private Sector and Infrastructure Network.

From this base the regional leadership on water resources reached out to other sectors (rural, environment, energy) to form a virtual water resources team, again with the major activity focused on the Nile Basin Initiative. With excellent professional leadership, with a sense of mission, with support from regional (and Bank) management and with the infusion of large amounts of trust funds, the team has grown rapidly and has been able to attract excellent technical staff, many from outside the Bank. As this work has attained a critical mass, the region is rethinking the organizational arrangements. While the regionwide "virtual" team will continue to be spread across departments and sectors, a small Nile Basin Initiative Coordination Unit will also be established.

East Asia and Pacific Region

This section presents the results of the data analysis for projects in the portfolio and the pipeline for the East Asia and Pacific Region (EAP).

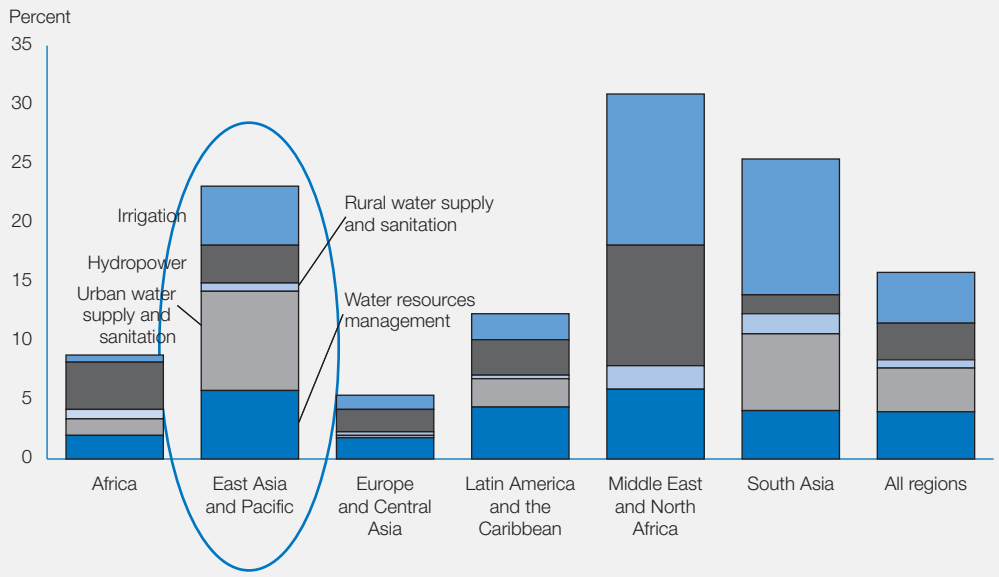
Issue 1: The level and composition of water lending in the region

EAP has a large and diverse portfolio of water-related projects (figure EAP1), accounting for 22% of lending in the region in 1993–2002. Particularly noteworthy are the investments in hydropower (the largest in the Bank) and water resources management.

Issue 2: How lending for projects with water resources components and lending for water resources components is changing

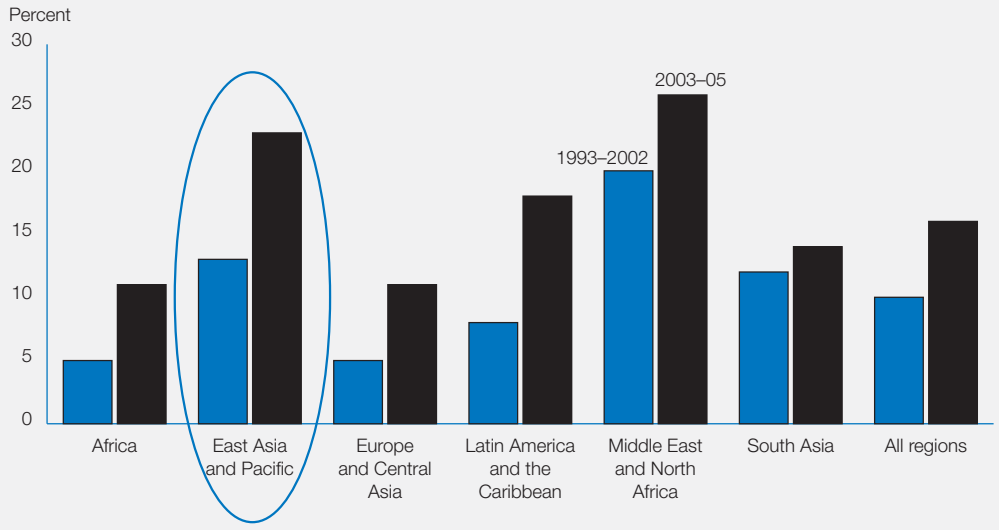
EAP is second only to the Middle East and North Africa Region in devoting the largest portion (13%) of lending to projects with water resources components (figure EAP2). And EAP has the largest allocation (6% of

fEAP 1 Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002



Source: World Bank staff estimates.

fEAP 2 Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05



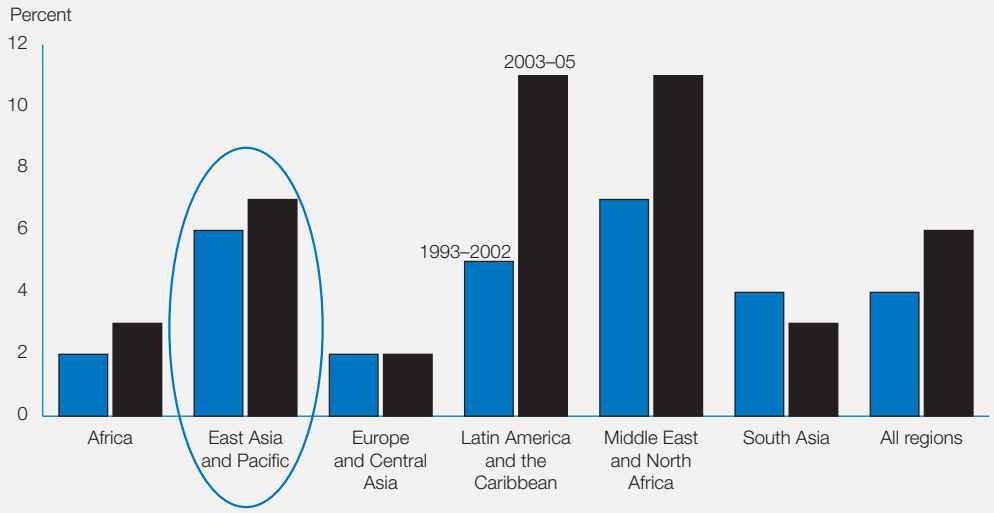
Source: World Bank staff estimates.

lending) to water resources activities. In the coming three years there will be a rapid increase (from 13% to 23%) in lending to projects with water resources management components, but only a small increase (from 6% to 7%) in resources for water resources components.

Issue 3: The distribution and concentration of projects with water resources components in countries in the region

The EAP water portfolio has long been dominated by China (since China accounts for

fEAP3 Lending for water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

70% of the land area and population of EAP), and this will remain the case over the next three years (figure EAP4). China is expected to have seven projects with water resources components, with loans of about $1 billion. While half of water lending in coming years will be to China (figure EAP5), lending to Vietnam is growing fast. There is only modest water-related lending in other countries in the region.

Issue 4: The major water resources management challenges in Bank projects in the region

The EAP countries are facing a variety of water resources challenges. In no country is this more evident than in China, where major challenges include:

- Mining of the aquifers of the North China Plain.
- Design, financing and operation of the massive South-North Transfer scheme.
- High levels of pollution.
- Use of water resources (including hydropower) as a basis for sustainable growth in Western China.
- Massive flooding in the Yangtze and other basins.
- Watershed management in the catchments of the Yellow, Yangtze and other river basins.

The survey of Bank task managers dealing with water resources projects in East Asia shows (figure EAP6) that the major perceived water resources management problems relate to water quality, institutions, pricing and allocation, in that order.

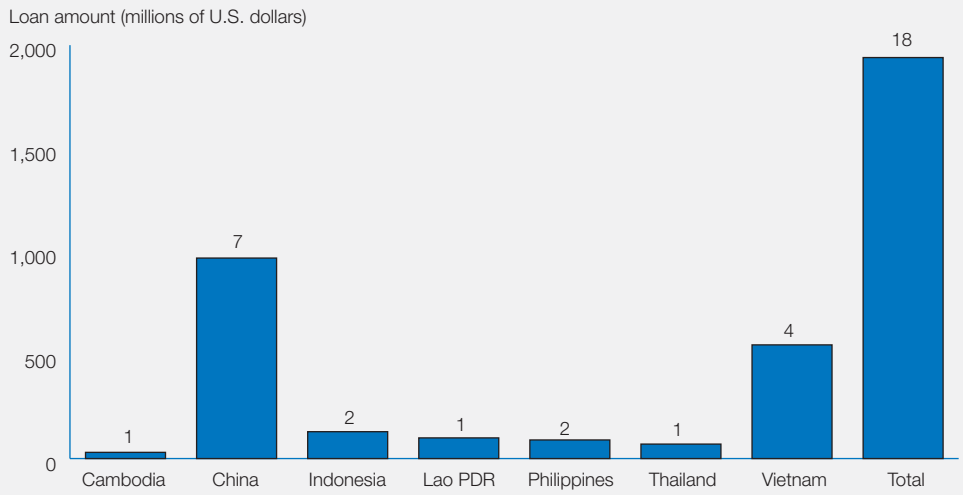
Issue 5: The changing composition of lending for water resources infrastructure in the region

Figure EAP7 compares current and emerging levels and composition of Bank investments in water resources in the region. There is a modest overall increase in Bank lending for water resources (figure EAP5) and substantial shifts in composition. There is a large decline in Bank engagement in flood control and major increases in lending for watershed management and urban drainage (figure EAP7).

Issue 6: The anticipated role of the private sector and IFC and MIGA in projects with water resources components in the region

Much private international investment in water (water and sanitation and hydropower) over the last decade has taken place in East Asia. Bank staff expect the private sector to play a major role in about 40% of EAP projects with water resources com-

fEAP4 Loan amount and number of projects with water resources components, by country, fiscal 2003–05



Note: Figures above bars are number of projects.
Source: World Bank staff estimates.

ponents (figure EAP8), and for IFC and MIGA to play a major role in about 25% of Bank-financed projects with water resources components (figure EAP9).

Issue 7: The proportion of projects in the pipeline that are likely to pose reputational risks to the Bank

Task managers anticipate that almost 20% of projects with water resources components are likely to be reputationally risky to the Bank. With an anticipated 19 projects over 2003–05 and assuming that the new business model is adopted, this would mean about one new corporate project dealing with water resources each year in the region.

Issue 8: Progress and plans on Country Water Resources Assistance Strategies in the region

With seed funding from the Bank's Global Public Goods Fund, a first round of Country Water Resources Assistance Strategies (CWRAS) were initiated in fiscal 2002. In East Asia a draft CWRAS has been prepared for China. It examines China's principal water resources challenges, what China is already doing, and how the Bank can assist in the future. During fiscal 2003 a regional water resources strategy and a Philippines CWRAS are planned.

Issue 9: The water resources activities of the region relative to the major themes of this Strategy

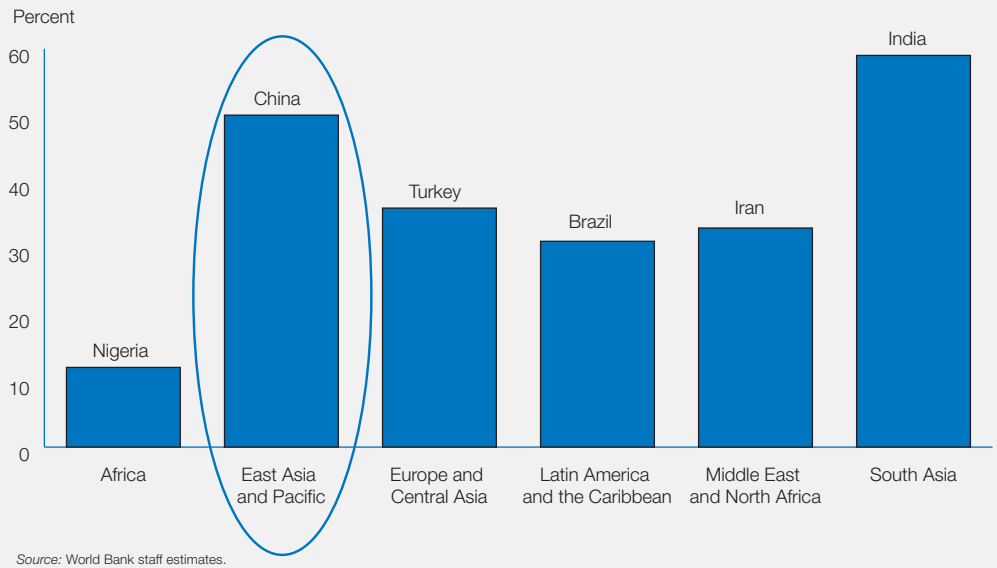
EAP has developed a simple and powerful schematic (figure EAP11) of the relationship between returns on infrastructure and on management relative to the level of development of water infrastructure in a country. This diagram is useful in explaining the varied challenges facing countries in the region (and even different areas within large countries) and the corresponding roles for the World Bank. The following sections examine how water resources activities in the region reflect the main messages of the sector Strategy.

Water, growth, poverty and sustainability

The countries of the region, large and small, increasingly see water resources management as critical for growth, poverty and sustainability. That said, the challenges vary widely along the spectrum of situations illustrated in figure EAP11.

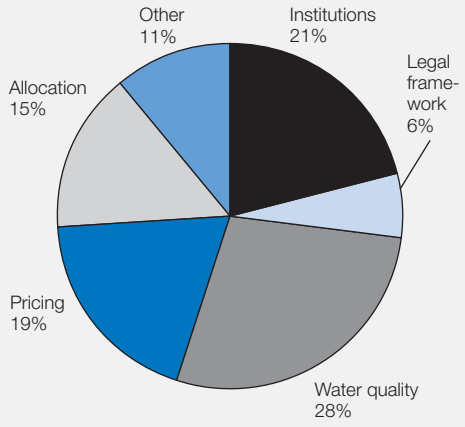
Parts of China face type 3 challenges. In much of eastern and northern China, especially in the catchments of the Huang (Yellow), Huai and Hai rivers, water deficits are

fEAP 5 Largest borrower's share of regional lending for water resources projects, fiscal 2003–05



Source: World Bank staff estimates.

fEAP 6 Major water resources issues in the pipeline of regional water resources projects, fiscal 2003–05



Note: Categories are not exclusive.
Source: World Bank staff estimates.

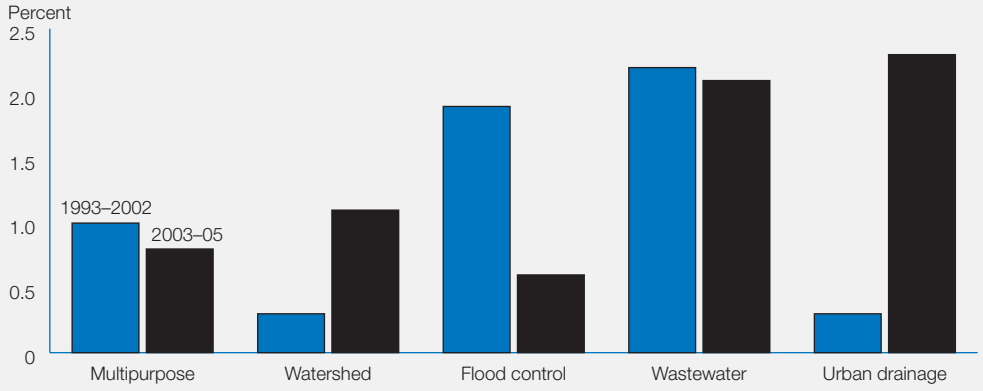
huge, which is having a major impact on the economy, environment and social fabric. While some infrastructure will still be built (such as the extremely expensive South-North transfer), the fundamental challenge in this part of China is better resource and infrastructure management and greater attention to the problems of water pollution. Accordingly, attention has shifted from issues of construction to issues of institutional and incentive reforms.

In other parts of China, such as the underdeveloped West, the situation is more mixed type 1 and 2. Here, the emphasis is on harnessing the productive potential of water resources for hydropower and irrigation, but with renewed attention to integrated basin management and watershed management (as in the Tarim Basin, for example).

Indonesia, the Philippines, Thailand and Vietnam are also facing mixed type 1 and 2 conditions. These countries have abundant water resources but are experiencing water shortage and competition for water around large cities, as well as serious water pollution problems that will require a mix of management and infrastructure investments. In addition, large less developed areas in these countries are in need of significant investments in infrastructure.

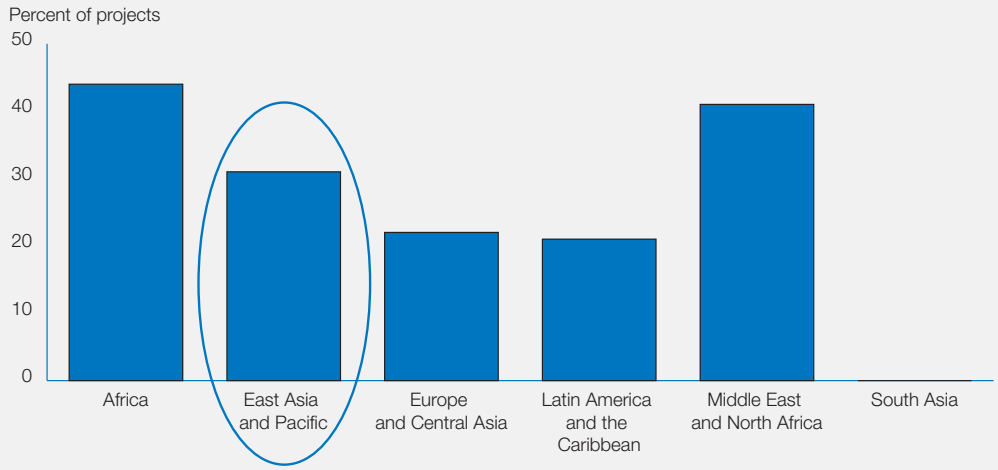
In smaller countries of the region (Lao PDR, for example) the situation is pure type 1. Here the export of hydropower is one of the very few options for generation of revenue needed to stimulate growth and reduce poverty.

fEAP 7 Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

fEAP 8 Share of IBRD/IDA-financed water resources projects in which the private sector is anticipated to play a major role, fiscal 2003–05



Source: World Bank staff estimates.

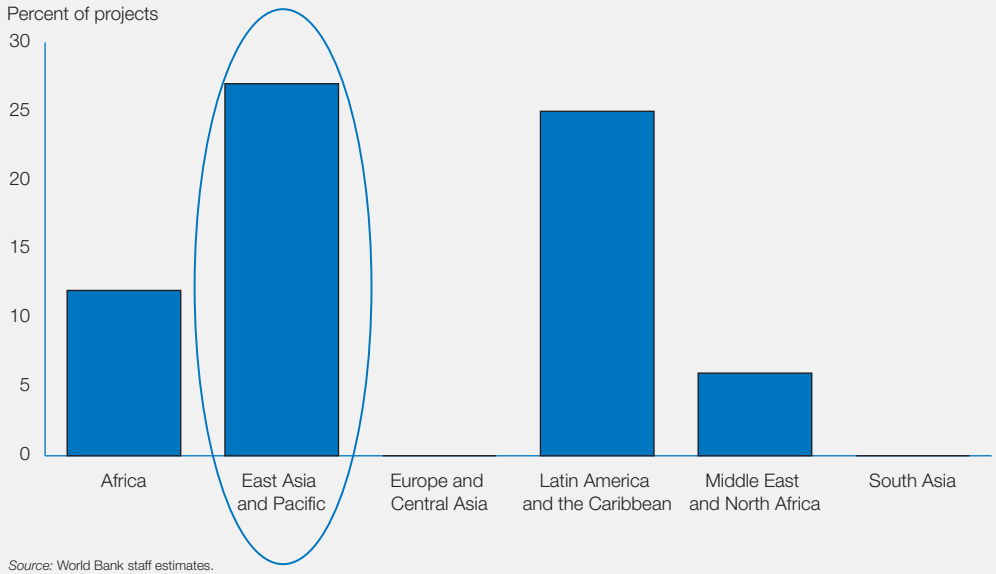
EAP management has recognized water as a priority cross-cutting issue and is directing the development of a regional water resources strategy as a basis for high-level dialogue and improved coordination with client countries and other donors, as well as improved coordination and management emphasis on Bank water activities throughout the region.

Management and the importance of engaging with the political economy of reform

As the transition described above takes place, policymakers have to face difficult decisions about such sensitive issues as pricing and water rights. The Bank is engaging in dialogue aimed at identifying prioritized, sequenced and politically practical steps to improve overall resource management.

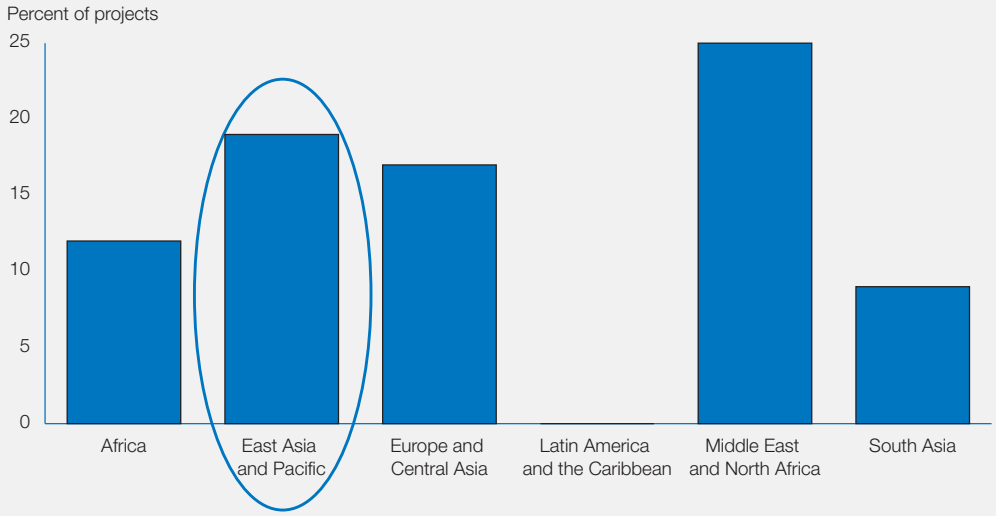
The political reforms taking place throughout the region throw up a set of new challenges, requiring careful thinking in the countries and in the Bank on the new set of incentives and the changed political economy of reform. For example, municipalities have new responsibilities and powers as a result of the decentralization processes

fEAP 9 Share of IBRD/IDA-financed water infrastructure projects in which IFC and MIGA are likely to play a role, fiscal 2003–05



Source: World Bank staff estimates.

fEAP 10 Share of water resources projects considered to be "reputationally risky" for the Bank, fiscal 2003–05

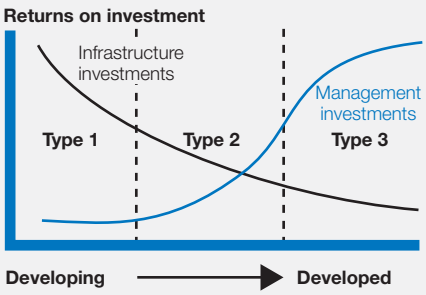


Source: World Bank staff estimates.

taking place in many countries in the region. Generally, municipalities do not want to borrow for wastewater treatment. There is a case for increasing dialogue on the public goods aspects of water supply, which are being neglected as the financial role of central governments declines.

A particular challenge faces the Bank in EAP as management reforms move to the fore in much of the region. Bank data show that for water resources the ratio of lending for institutional development relative to infrastructure was lower in EAP than in any other Bank regions. This is so in part because it

fEAP 11 Rates of return on investment by development of water infrastructure



Source: World Bank, China Country Water Resources Assistance Strategy 2002.

reflects a past concentration of the countries in the region on brick-and-mortar issues. But it also reflects a reluctance, strong among countries in East Asia, to borrow for anything other than physical infrastructure. This situation has positive aspects in that it has provided an impetus in the region to seeking partnerships with multilateral and bilateral agencies that provide grant financing, thus improving the coordination of water resources activities in the region. In addition, the region is encouraging its clients to borrow more for institutional development aspects as is done in other regions such as Latin America and the Caribbean.

Development of an adequate stock of well-performing hydraulic infrastructure and mobilizing public and private financing

The EAP approach (figure EAP 11) shows that in some parts of the region appropriate engagement means helping move away from infrastructure toward management reforms. In other parts of the region, however, much of the necessary water infrastructure has still to be built. And especially in the smaller countries, Bank engagement as a catalyst, guarantor and investor is essential if this infrastructure is to be built.

In the past, Bank lending in the region was characterized by a heavy emphasis on infrastructure projects, thought often with significant institutional reform components. EAP is now moving to a more overt emphasis on institutional and reform issues, which are now an important part of major water infrastructure projects. Examples of the new generation of projects include the recently approved Hubei Power Project in China, the Tarim Basin in Western China, and work on the host of institutional and economic issues related to groundwater and river basins in the North China Plain, on the water resources sectoral adjustment loan in Indonesia, and on integrated water resources management including transboundary issues in the Mekong River Basin. On the urban water side, old-style infrastructure projects throughout the region have given way in the past decade to projects with greater institutional and reform content. There are projects under preparation in China, Indonesia, the Philippines and Vietnam that emphasize institutional, policy and reform issues in water resources management.

The Bank's as well as other lending institutions' role in developing an adequate stock of well-performing hydraulic infrastructure is especially critical in the smaller, poorer countries of the region, which do not have the go-it-alone option.

Catalytic role of the World Bank and the need for a more effective business model

The Bank has a long, and mostly positive, history of engagement with large-scale infrastructure in EAP. The Chinese government, for example, points to Bank projects as turning points for the country on a host of fundamental practices, ranging from procurement practices, to resettlement, environmental flows and benefit sharing. But there is a groundswell of dissatisfaction (prominent in the report on the "Cost of Doing Business" and in consultations in the region done for this Strategy and in the context of the report of the World Commission on Dams) from borrowers throughout the region with what they perceive to be unrealistic and shifting standards that makes doing business with the Bank difficult, with high transactions costs and long delays.

Organization, accountability and staffing for water resources management

EAP management has recognized water as a priority cross-cutting issue and is directing the development of a regional water resources strategy that will provide a basis for high-level dialogue and improved coordination with client countries and other donors, as well as improved coordination and man-

agement emphasis within the Bank on water activities throughout the region.

EAP has made a major transition in human resources for water resources management. Many senior-level staff have retired and been partially replaced by new technical staff with broad water resources management capabilities. The region has a strong cadre of staff in most water-related areas.

EAP has been operating under a more informal approach to water resources management than other regions. Two years ago the region appointed a regional water adviser for the first time. Despite having few resources to work with, the adviser helped achieve evident improvements in coordination of water resources management activities. EAP's informal approach has been different from that in other regions, where regional water advisers are accountable to all of the relevant sector directors, have formal responsibility for ensuring more coherence in water activities across sectors and countries and have some resources for this. Although the informal approach has been effective, EAP management is designing a more defined approach, including the establishment of a virtual water team coordinated by the regional water adviser that will have responsibility for preparing and implementing cross-sectoral activities, such as regional and country water resources strategies; improving quality through reviews of project documents and analytic and advisory work; and improving coordination of water activities throughout the region. The Regional Management Team will review the scope and resource requirements of this approach during this fiscal year within the context of a regionwide strategy for water resources.

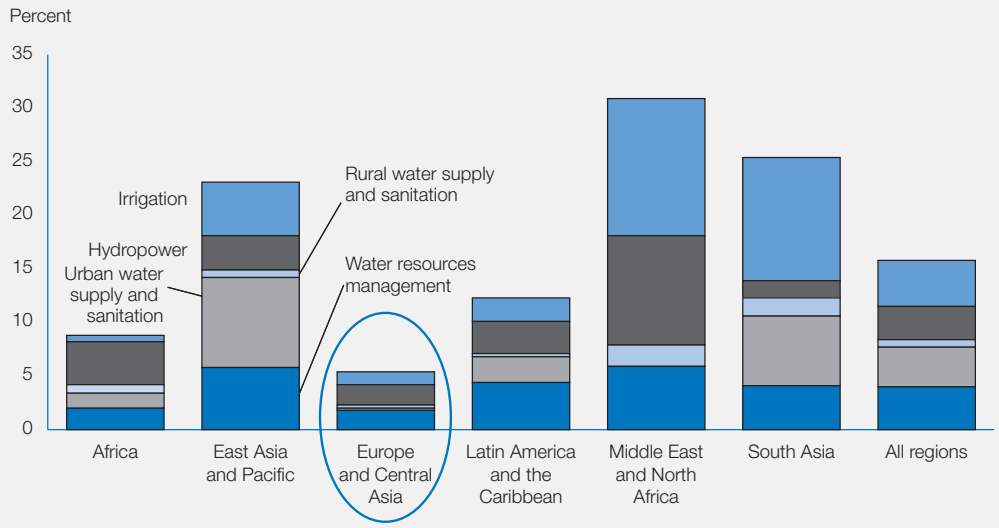
Europe and Central Asia Region

This section presents the results of the data analysis for projects in the portfolio and the pipeline in the Europe and Central Asia Region (ECA).

Issue 1: The level and composition of water lending in the region

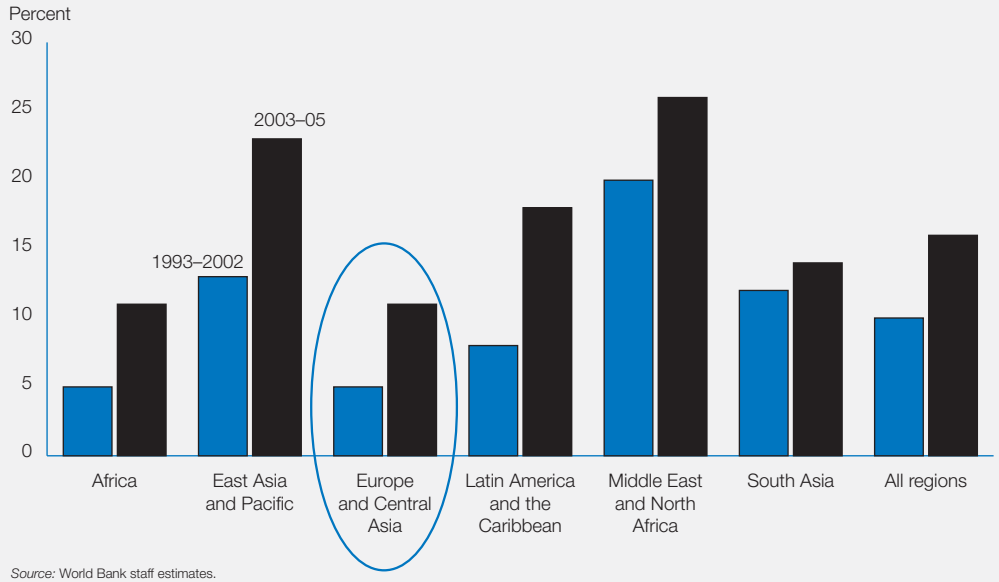
ECA has by far the smallest share in water projects (figure ECA1). In no sector—water and sanitation, irrigation, hydropower, water resources management—does the region have a major lending program. In the poorer IDA countries (nine ECA countries are IDA borrowers), the overall assistance envelope is very tightly constrained. There are fewer other donors than in other re-

fECA 1 Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002



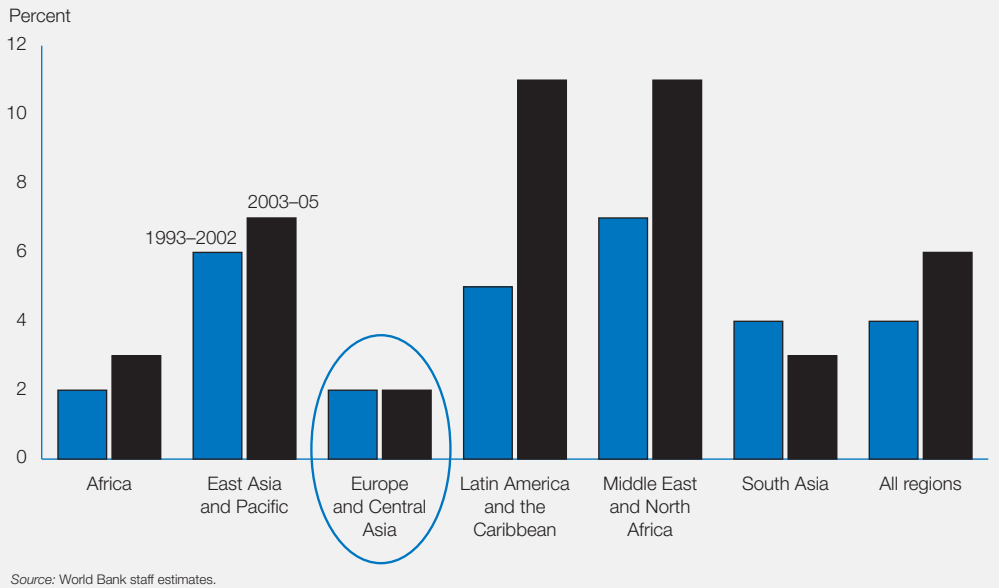
Source: World Bank staff estimates.

fECA2 Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

fECA3 Lending for water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05

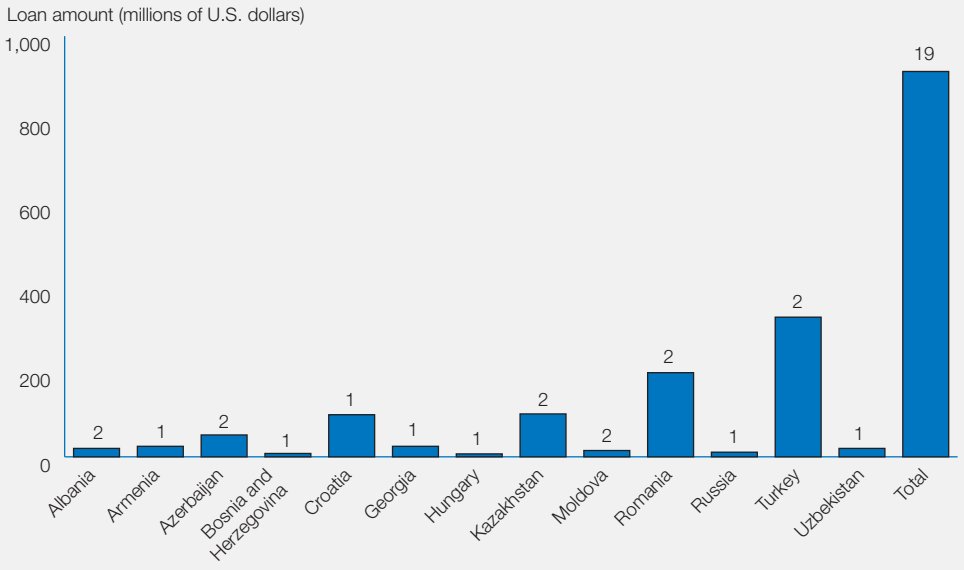


Source: World Bank staff estimates.

gions, and the climate for private investment is very poor. In many of the IBRD countries investment in urban water and wastewater is constrained by the difficult financial situation of municipal authorities, the poor investment climate and great political and social difficulties in raising tariffs.

Finally, in contrast to the other regions, there is little or no population growth (except in Central Asia), and infrastructure was fairly well developed in the past. The priority is for rehabilitation and institutional reform rather than for large greenfield investments.

fECA4 Loan amount and number of projects with water resources components, by country, fiscal 2003–05



Note: Figures above bars are number of projects.
Source: World Bank staff estimates.

Issue 2: How lending for projects with water resources components and lending for water resources components is changing

A review of the current portfolio shows that ECA dedicates the lowest proportion of Bank lending of any region to projets with water resources management components (figure ECA2) and to water resources components themselves (figure ECA3). However, there have been substantial investments in irrigation and urban water supply, which are not all reflected in the figures. A sharp increase (from 4% to 11% of regional lending) is expected in projects with water resources components, however, for 2003–05. There is also significant sector work under way in flood and disaster mitigation and in water resources management.

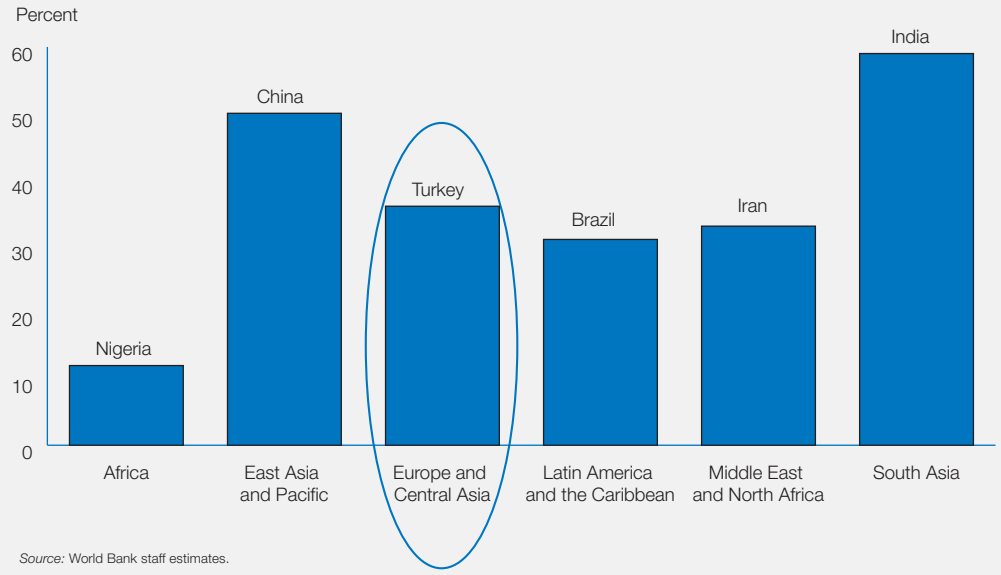
Issue 3: The distribution and concentration of projects with water resources components in countries in the region

As shown in figure ECA4, ECA is investing in a widely dispersed portfolio of small projects in a large number of countries. The major exception is in Turkey, where there are two large projects in the pipeline. Turkey accounts for about 35% of projected lending for projects with water resources components in ECA (figure ECA5). A large flood rehabilitation project is under implementation in Poland, a substantial flood and hazard mitigation project is under preparation in Romania, and a hydropower rehabilitation project is in the early stages of preparation in Ukraine.

While the Nile Basin Initiative in Africa has gone from strength to strength (and is likely to lead to major Bank lending in the future), the Aral Sea Basin Program, developed earlier, has focused on addressing humanitarian and water resources management problems around the Aral Sea itself and in supporting urgent dam safety and water flow monitoring measures.

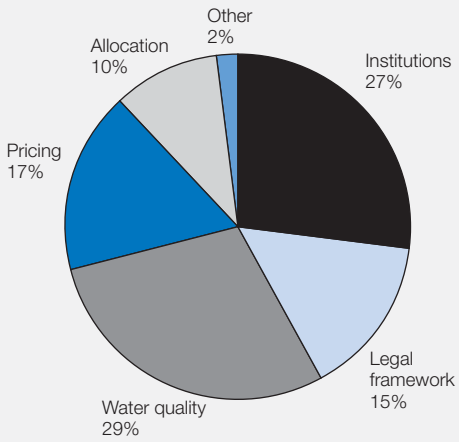
Water supply projects were supported in Kazakhstan, Turkmenistan and Uzbekistan, to address human health impacts of increasingly saline groundwater. Pilot wetland restoration work was undertaken, and a major project addressing water resources management in the lower Syr Darya Basin was financed. Dam safety, irrigation and

fECA5 Largest borrower's share of regional lending for water resources projects, fiscal 2003–05



Source: World Bank staff estimates.

fECA6 Major water resources issues in the pipeline of regional water resources projects, fiscal 2003–05



Note: Categories are not exclusive.
Source: World Bank staff estimates.

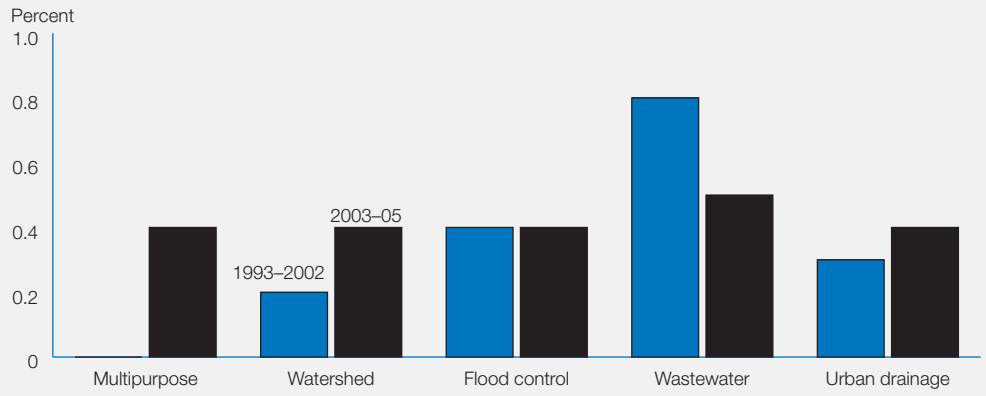
flood control projects were supported in the Kyrgyz Republic and Tajikistan, and a hydropower rehabilitation project in Tajikistan. The Aral Sea project is also supporting a major regional strategy development exercise. Its main conclusions are that the highest priority investments and incentive measures must be in improved irrigation and drainage management, which account for more than 90% of water use in the basin and which are very inefficient, partly because of poor policies but mainly because of deteriorating infrastructure.

Future investments are constrained by the very difficult macroeconomic environment in these countries and by public expenditure and IDA lending constraints. However, investments are under preparation in irrigation and in drainage and wetland restoration (Uzbekistan) and community watershed management (Tajikistan), and initial discussions are under way on improved water management in the Ferghana Valley and improved energy and water management on the Naryn cascade. Discussions on water resources between the Central Asian countries continue on a regular basis (the most recent meetings between the heads of state took place in Dushanbe in October 2002). A framework exists for water sharing among countries, though implementation is not always smooth.

Issue 4: The major water resources management challenges in Bank projects in the region

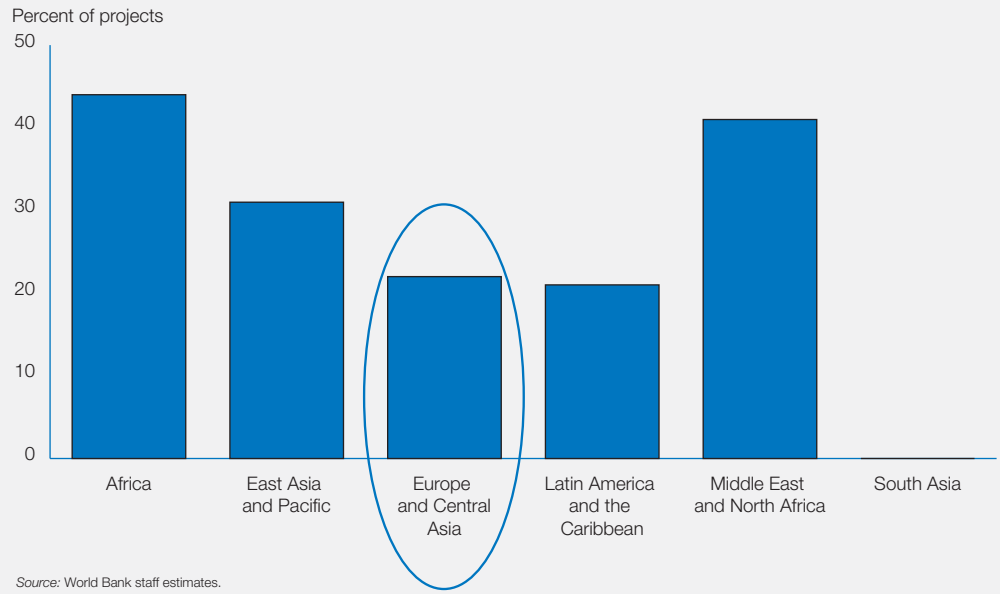
The major water resources challenges vary across the region. In the water-abundant

fECA 7 Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

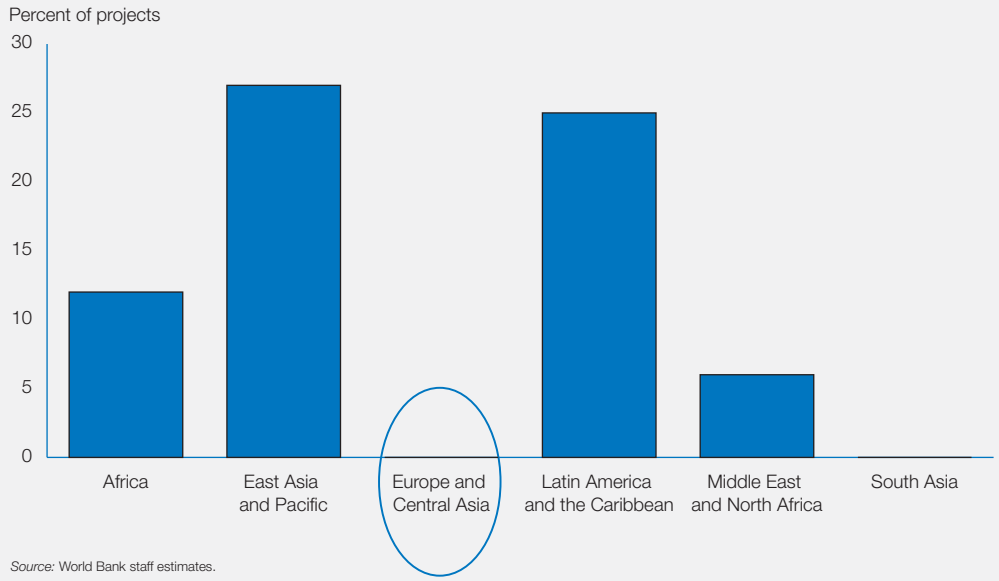
fECA 8 Share of IBRD/IDA-financed water resources projects in which the private sector is anticipated to play a major role, fiscal 2003–05



Source: World Bank staff estimates.

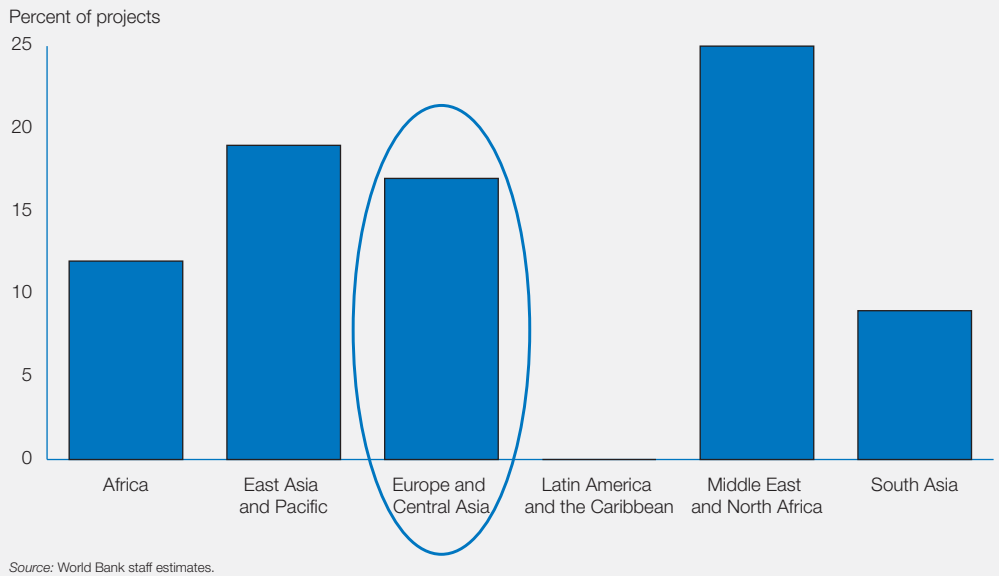
north and west, the challenges include water quality management, flood control and the balance between recreational and ecological uses of water and urban and industrial development uses. In the water-scarce east and southeast, the major resource management challenges include more efficient water management for irrigation, drainage and salinity control, and flood management and dam safety. In all parts of the region there are major institutional, policy and social challenges. And decisionmakers face difficult political challenges in meeting social needs for maintaining basic municipal services in the short run and achieving financial sustainability objectives in the longer term. There are also challenges of phasing (water users may be willing to pay higher charges if water delivery is reliable, but without funding, the investments to provide improved services cannot be made).

fECA 9 **Share of IBRD/IDA-financed water infrastructure projects in which IFC and MIGA are likely to play a role, fiscal 2003–05**



Source: World Bank staff estimates.

fECA 10 **Share of water resources projects considered to be "reputationally risky" for the Bank, fiscal 2003–05**



Source: World Bank staff estimates.

Issue 5: The changing composition of lending for water resources infrastructure in the region

The composition of investments in water resources components is evolving in the region. In the portfolio, wastewater investments were dominant (figure ECA7). As ECA's activities in Eastern Europe are reduced and activities in Central Asia and the Caucasus increase, lending for wastewater is declining and lending for flood control and urban drainage remains unchanged. But there are sharp increases in lending for watershed management and

multipurpose projects. Lending for improved water resources management as a component of irrigation and drainage projects continues to grow, though slowly.

Issue 6: The anticipated role of the private sector and IFC and MIGA in projects with water resources components in the region

Bank staff expect the private sector to play a major role in about 20% of Bank-financed projects with water resources management components (figure ECA8). It is striking that there is no anticipated involvement of MIGA or IFC in these projects (figure ECA9). This is because of the declining role of the Bank in the EU accession countries and the very difficult environment for private sector investment in the remainder of the region.

Issue 7: The proportion of projects in the pipeline that are likely to pose reputational risks to the Bank

Regional staff expect about 16% of projects with water resources components to present reputational risks to the Bank (figure ECA10). With all six water resources projects a year expected in the region (figure ECA4), this implies that under the new business model there would be one new corporate project dealing with water resources in the region each year.

Issue 8: Progress and plans on Country Water Resources Assistance Strategies in the region

With seed funding from the Bank's Global Public Goods Fund, a first round of Country Water Resources Assistance Strategies (CWRAS) was initiated. ECA used the funds for developing a CWRAS for Azerbaijan. The initial document focuses on the water challenges facing the country, including the importance of water for poverty reduction; the importance of rehabilitation of infrastructure and of setting priorities for the limited funds available for rehabilitation; and the need for institutional changes at all levels, including legislation, national coordination mechanisms, involvement of the private sector and involvement of users and user associations. A second CWRAS is being initiated for Ukraine, and preliminary work in Turkey supports the development of a legal and regulatory framework for comprehensive water resources allocation across uses.

Issue 9: The water resources activities of the region relative to the major themes of this sector Strategy

The following sections examine how water resources activities in the region reflect the main messages of the sector Strategy.

Water, growth, poverty and sustainability

The following sections examine how water resources activities in the region reflect the main messages of the sector Strategy. Water resources management is critical for poverty alleviation, growth and environmental sustainability in the region. Again, Central Asia is the classic case. Large numbers of people depend on irrigated agriculture for their livelihoods, and hydropower could become a major source of energy, especially in the upstream riparian states. But mismanagement of water has been the central factor in the dramatic decline of environmental conditions in and around the Aral Sea and in the salinized irrigation areas.

Irrigation and water utilities also play a more subtle role in the financial distortions inherited from the Soviet era, which have such a debilitating effect on growth and poverty reduction. The web of social tradeoffs organized according to the principles of the Soviet economy still has major impacts on water management, growth and poverty reduction.

A special area of focus for the region is the Regional Seas programs. In addition to the Aral Sea program, ECA is supporting programs in the Black, Caspian and Baltic Seas and in lakes Ohrid and Baikal. The Black Sea program supports a framework for country-specific investments (in agricultural pollution reduction, wetland restoration and wastewater treatment) in the Black Sea watershed to address the problem of excess nutrient flow to the Black Sea. The Baltic program has supported water and wastewater and agricultural programs, and a regionwide investment in water quality and fisheries resource monitoring is under preparation. The Lake Ohrid program has

supported water quality monitoring, watershed management and development of a framework for cooperation between Albania and Macedonia, while the main issues in the Caspian include oil spills and fisheries resources. In Lake Baikal, ECA has supported watershed planning and local community initiatives and a framework agreement and is now financing investment in closed-cycle treatment for a pulp and paper mill bordering the lake.

A regional water resources strategy is under preparation to take stock of work to date, review water resources issues and institutions in the borrowing countries of the region and provide strategic direction. It will be complemented by the disaster and flood mitigation strategy and ongoing country work. A regional water and sanitation strategy was prepared in 2001, and the recently issued Regional Rural Action Plan addresses water management issues, which are also addressed in the summary regional environment strategy.

Management and the importance of engaging with the political economy of reform

The political reforms taking place throughout the region present new challenges, requiring careful thinking in the countries and in the Bank about the new set of incentives and the changed political economy of reform. For example, municipalities have new responsibilities and powers as a result of the decentralization processes taking place in many countries in the region. Generally, municipalities do not want to borrow for wastewater treatment. There is a case for increasing dialogue on the public goods aspects of water supply, which are being neglected as the financial role of central governments declines. In irrigation, the old central water delivery systems are gradually being reduced in scope, replaced by water user associations at the field and, gradually, at the secondary level. Funding for maintenance of major infrastructure (dams) is declining, and dam safety is an issue in several countries (Romania, Russia, Kyrgyz Republic). Governments need to continue to play a central role in flood and river basin management and hydrometeorological monitoring, but funding and governance arrangements are in transition.

Development of an adequate stock of well-performing hydraulic infrastructure and mobilizing public and private financing

In many ways ECA is very different from other regions. Most countries in the region inherited large stocks of water infrastructure, but national budgets are inadequate for maintaining this stock. With some important exceptions, the challenge in the region is not building more infrastructure but deciding what infrastructure will be maintained and rehabilitated, and what retired.

An additional complication is that IDA allocations to ECA countries are very low. ECA's strategy, accordingly, prioritizes band-aid repairs to the most important infrastructure—plugging leaks, painting over decaying pipes to extend their lives and the like.

The possible exception relates to the development of hydropower in the upstream riparians of the Amu and Syr Darya Rivers. This represents one of the few potential sources of growth for these economies and could help to remedy the mismatch between demands for energy in the upper states (primarily in the winter) with the demand for irrigation in the downstream states (primarily in the summer). Such investments, however, would require reliable markets and private sector participation, and are likely to take place over the medium term rather than in the immediate future.

Organization, accountability and staffing for water resources management

Despite the growing portfolio in projects with water resources management components, there are presently only six water and sanitation specialists, four water resources and irrigation specialists and two environmental engineers (including staff in the country offices). One of the water resources and irrigation specialists is the lead water sector specialist but also has a very heavy operational work program (preparing two and supervising four major projects). The sector managers for water and sanitation and natural resources also provide assistance with strategic issues. There is generally good cooperation between water and irrigation, water and sanitation, water and environment, and water and agricultural staff. The arrangement ensures that the

strategic approach to water resources management is thoroughly grounded in operational realities, but additional staffing would reduce dependency on outsourcingand allow staff to spend more time on strategic thinking and coordination across boundaries.

Latin America and Caribbean Region

This section presents the results of the data analysis for projects in the portfolio and the pipeline in the Latin America and the Caribbean Region (LCR).

Issue 1: The level and composition of water lending in the region

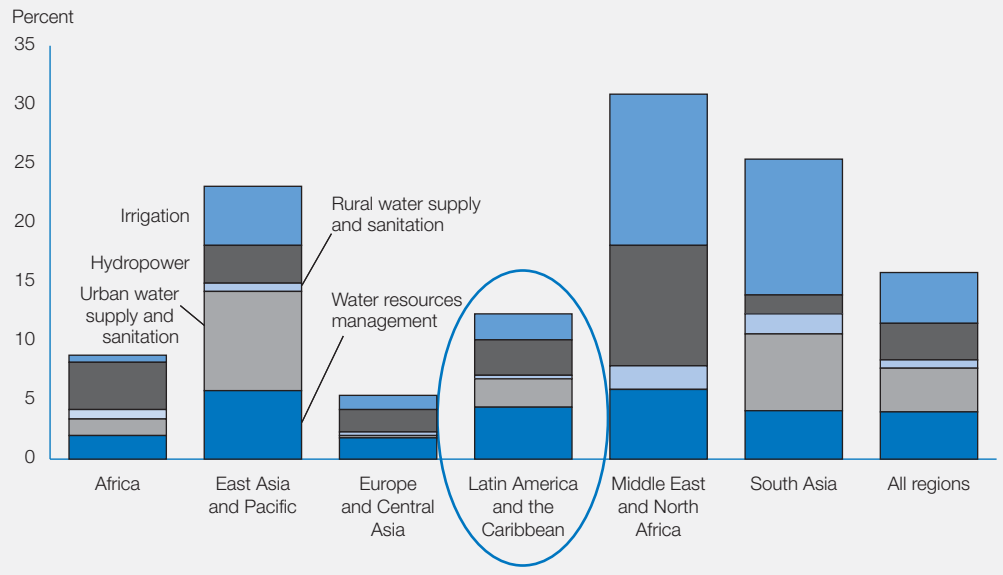
LCR has a modest portfolio of water-related projects, which account for 12% of Bank lending in the region compared with Bankwide average of 16% (figure LCR1). The portfolio is well balanced, with substantial lending in irrigation, urban water supply, hydropower and water resources management.

Issue 2: How lending for projects with water resources components and for water resources components is changing

Of the 12% of lending for water-related projects, about half (or 8% of lending, as shown in figure LCR2) goes to projects with water resources management components (as defined in figure 1), with about 4.5% of all lending going specifically to the water resources components (figure LCR3).

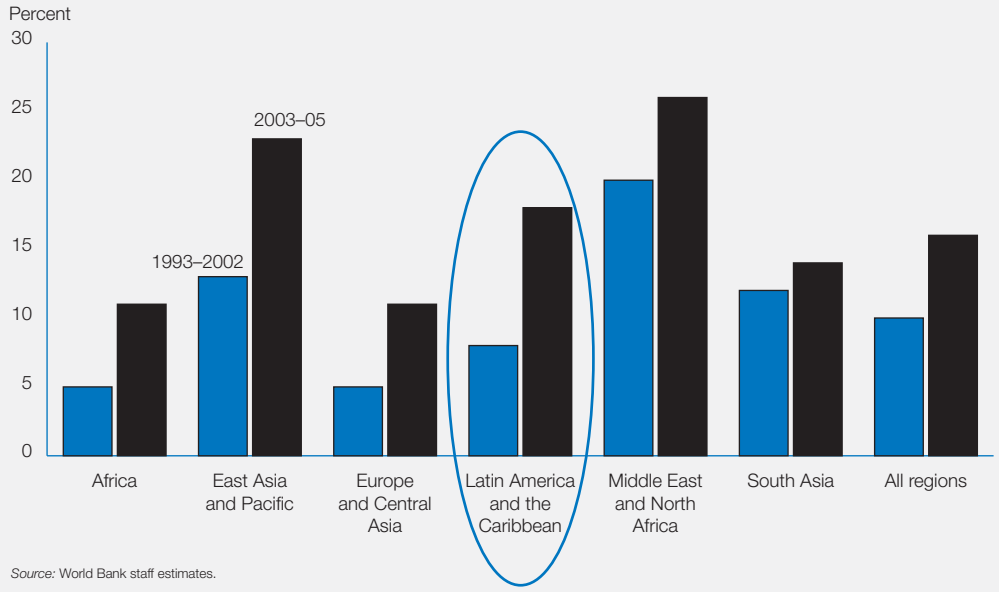
Comparison of the portfolio (1993–2002) and the pipeline (2003–05) shows that there will be major changes in coming years. The proportion of lending going to projects with water resources components will rise from 8% to 18% (figure LCR2), with lending for water resources components rising from 4.5% to 11.5% of Bank lending in the region (figure LCR3). These are the biggest proportional changes of any Bank region. LCR will overtake the Middle East and North Africa as the region with the largest proportion of lending for water resources management components (figure LCR3).

figure LCR 1 Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002



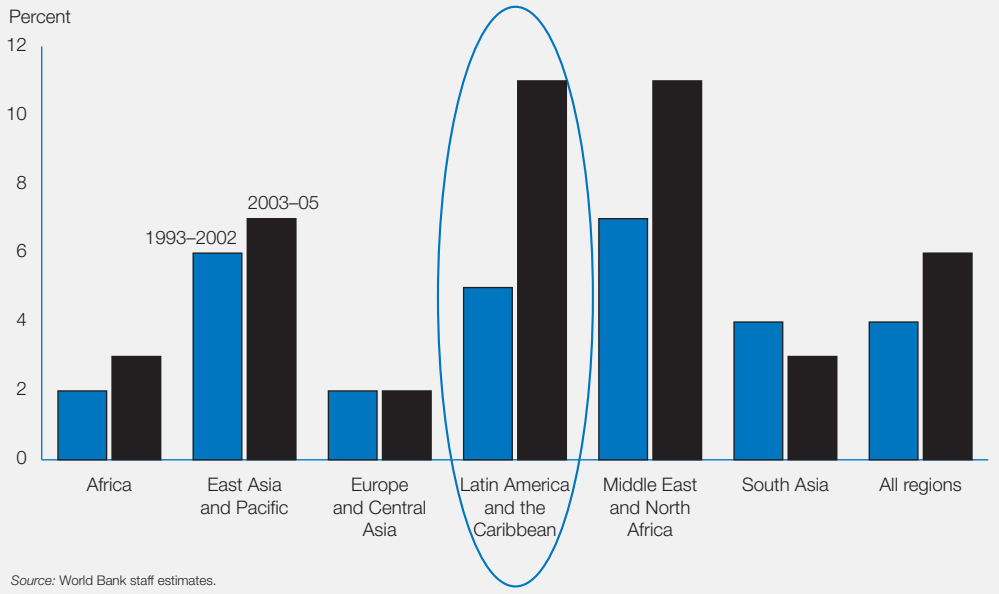
Source: World Bank staff estimates.

fLCR2 Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

fLCR3 Lending for water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05

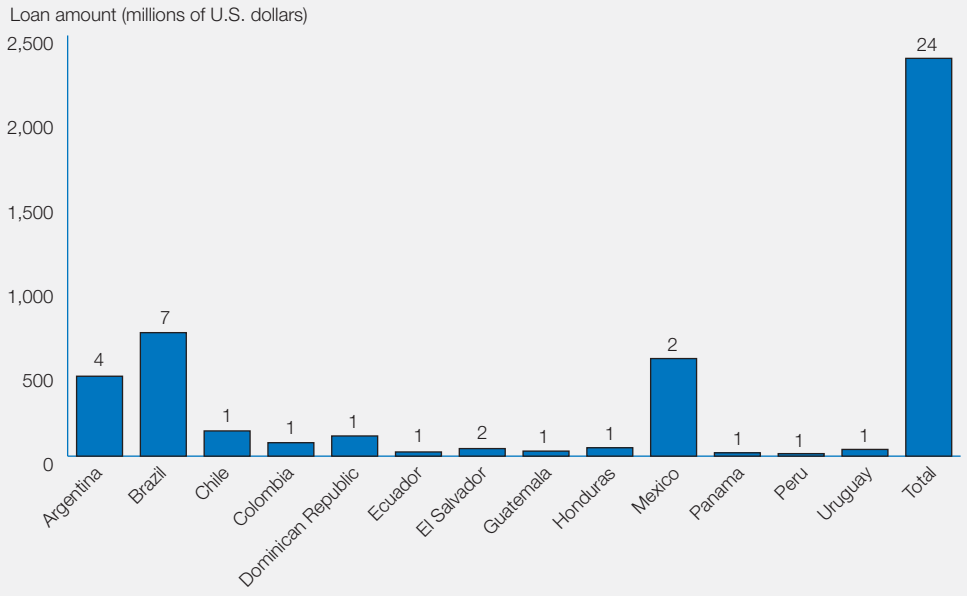


Source: World Bank staff estimates.

Issue 3: The distribution and concentration of projects with water resources components in countries in the region

Figure LCR4 shows that there are two types of countries when it comes to water resources in LCR. More than 80% of lending goes to Argentina, Brazil, Chile and Mexico—countries with relatively high quality water resources management institutions. Brazil alone accounts for about 30% of water resources lending projected over the next three years (figure LCR5). There is little lending to the other, poorer and poorer performing countries of the region.

fLCR4 Loan amount and number of projects with water resources components, by country, fiscal 2003–05



Note: Figures above bars are number of projects.
Source: World Bank staff estimates.

Issue 4: The major water resources management challenges in Bank projects in the region

Task managers in the region considered legal and institutional issues to be the major water resources management challenges in the region (figure LCR6).

Issue 5: The changing composition of lending for water resources infrastructure in the region

Lending will rise for all categories of water resources infrastructure in the region over the next three years (figure LCR7). Especially striking are the large proportional increases in watershed projects, multipurpose projects, flood control and urban drainage.

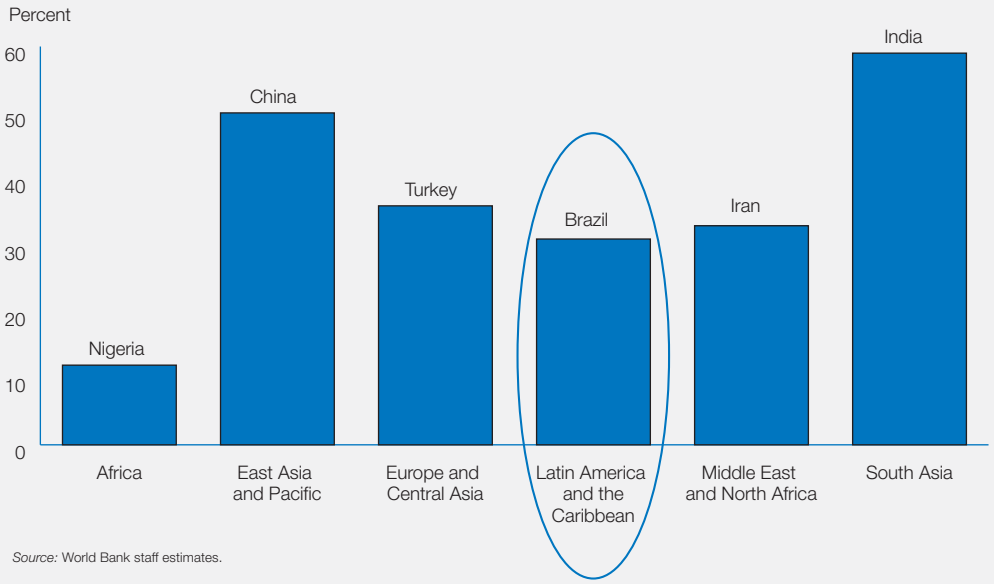
Issue 6: The anticipated role of the private sector and IFC and MIGA in projects with water resources components

LCR has had extensive experience over the past decade with private sector involvement in water services and water resources management. It is expected that about 20% of Bank-financed projects with water resources components will involve the private sector and that there will be a high level of involvement of both IFC and MIGA (figures LCR8 and LCR9).

Issue 7: The proportion of projects in the pipeline that are likely to pose reputational risks to the Bank

Task managers in the region do not believe that any of the projects in the pipeline pose a reputational risk to the Bank (figure LCR10). That LCR, the highest income and most-developed region served by the Bank, has the lowest risk profile seems surprising. Discussions with political and technical leaders in the region reveal a perception that the Bank's unique comparative advantage is not in easy and simple projects (which most countries are capable of doing themselves), but in the most difficult and controversial issues on which global knowledge is needed. (The low risk profile is also a marked shift from the past. A Bankwide review of urban water projects in the mid-1980s showed that, relative to other regions, LCR had

fLCR5 Largest borrower's share of regional lending for water resources projects, fiscal 2003–05



Source: World Bank staff estimates.

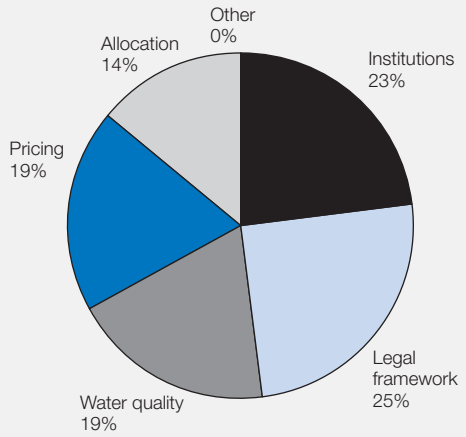
pushed on all the most difficult and contentious issues, and that this risk-taking had played a fundamental role in basic sector reforms in the region.)

Issue 8: Progress and plans on Country Water Resources Assistance Strategies in the region

With seed funding from the Bank's Global Public Goods Fund, a first round of Country Water Resources Assistance Strategies was initiated. Building on a strong, long-standing partnership, the region developed an innovative Country Water Resources Assistance Strategy in conjunction with the government of Brazil. The main lines of cooperation emerging from the CWRAS include:

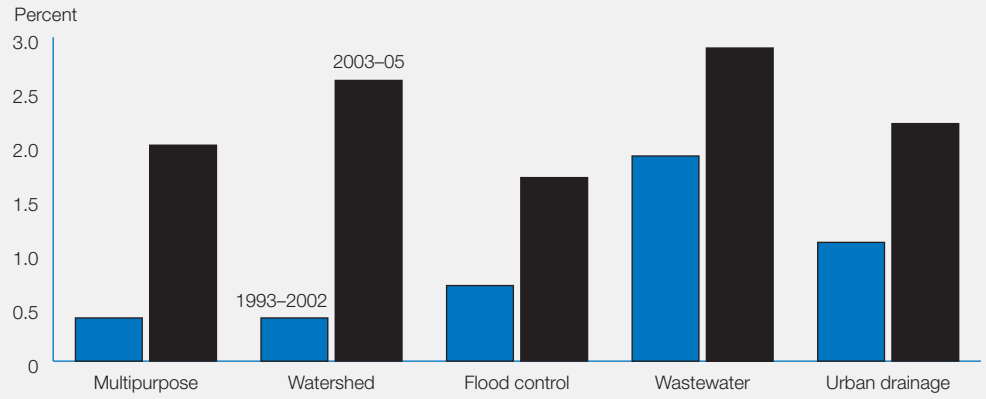
- A focus on the national program for pollution control, with special emphasis on the government's innovative output-based aid approach.
- Credit operations in two major river basins, the Rio São Francisco in the Northeast, and the Paraiba do Sul in the Southeast. In São Francisco the focus will be on the further development of the river as the basis for regional long-term development in the poor Northeast. In the Paraiba do Sul the focus is on pollution control and the consolidation of the institutional basis for river basin management.
- Continued support for reforming states, following the demand-driven and performance-driven model developed in the Proagua project, with a special emphasis on institutional development and water rights management.

fLCR6 Major water resources issues in the pipeline of regional water resources projects, fiscal 2003–05



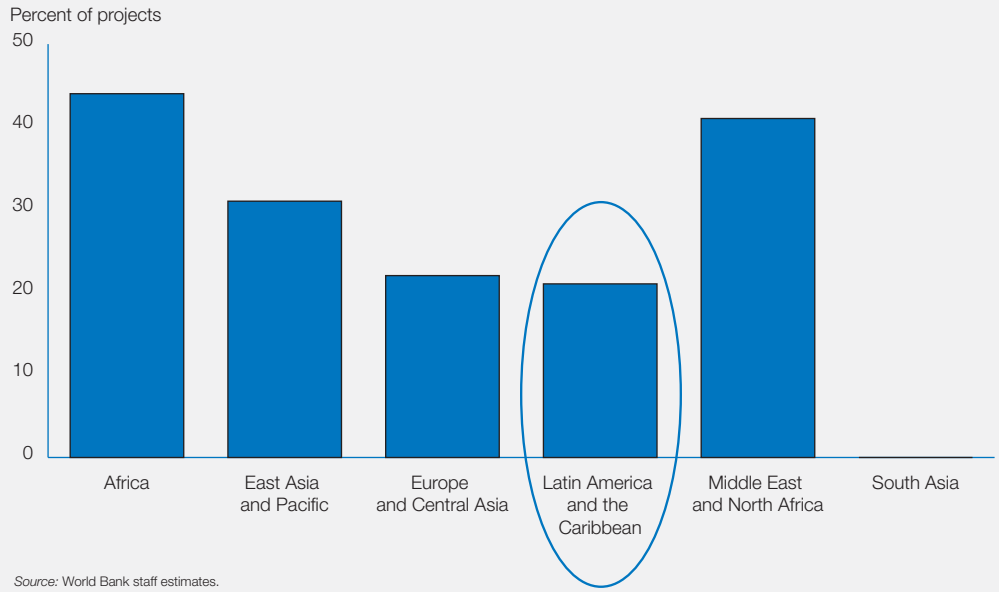
Note: Categories are not exclusive.
Source: World Bank staff estimates.

fLCR 7 Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

fLCR 8 Share of IBRD/IDA-financed water resources projects in which the private sector is anticipated to play a major role, fiscal 2003–05



Source: World Bank staff estimates.

- Support for the institutional development of the new National Water Agency, particularly in the areas of priority setting, regulation and information systems.

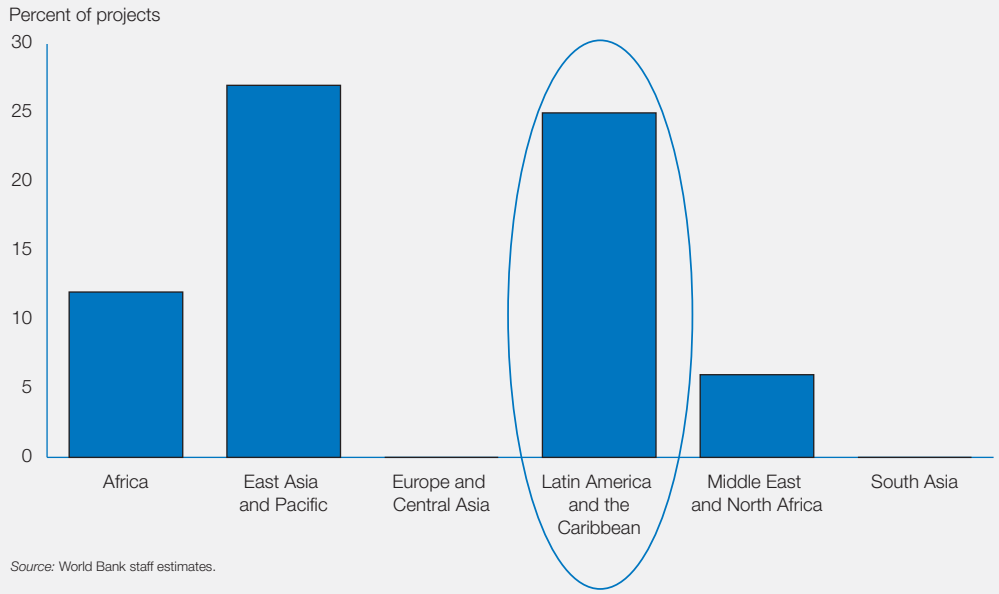
Issue 9: The water resources activities of the region relative to the major themes of this sector Strategy

The following section examines how water resources activities in the region reflect the main messages of the sector Strategy.

Water, growth, poverty and sustainability

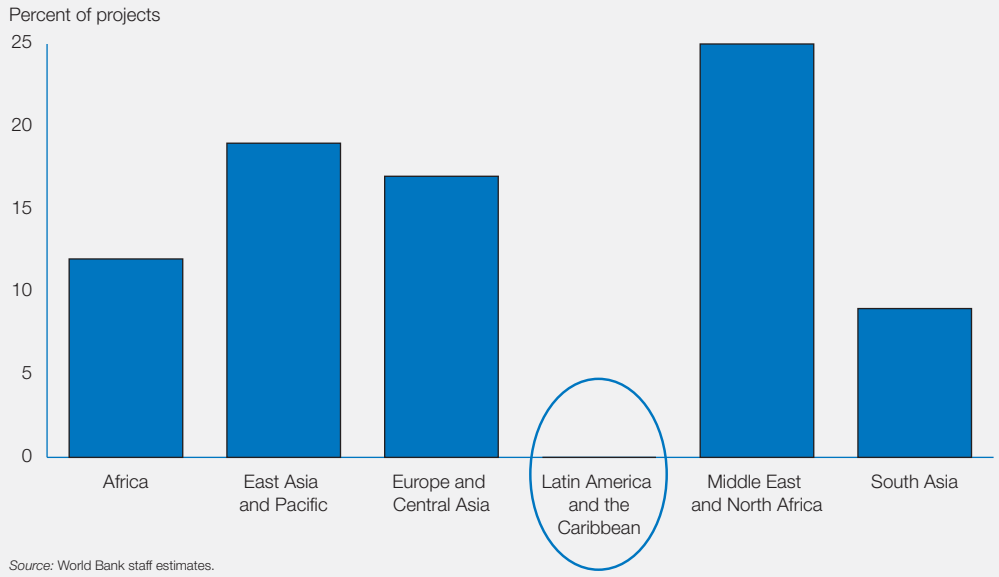
Like EAP, LCR has a wide variety of water resources challenges across the region and even within some of the larger countries. In the more developed parts (such as Chile and Southeastern Brazil) the main challenge now is management (see figure EAP11), whereas in many other parts of the region major investments in hydraulic infrastructure are yet to be made. Of particular importance is infrastructure for hydropower.

fLCR 9 Share of IBRD/IDA-financed water infrastructure projects in which IFC and MIGA are likely to play a role, fiscal 2003–05



Source: World Bank staff estimates.

fLCR 10 Share of water resources projects considered to be "reputationally risky" for the Bank, fiscal 2003–05



Source: World Bank staff estimates.

The region is at the forefront of many aspects of water resources management, in many cases with profound and complex impacts on growth and poverty. A particularly important issue is water rights. There is ample evidence that clearly defined rights for the use of water have been fundamental for the growth of agriculture and agricultural exports in Chile and Mexico. And it is equally clear that this has given rise to large growth in employment. But it is also clear that these processes have led to a concentration of water rights in the hands of those who are able to extract the greatest economic value

from such resources. Not all better water management is win-win in all dimensions.

Management and the importance of engaging with the political economy of reform

In recent years the LCR has been a Bank leader in effective engagement with the political economy of reform. The region has focused its resources on working with countries and political leaders with a track record and commitment to reform. The region has supplemented this selectivity by developing criteria for ensuring that commitment to reform is a precondition for accessing Bank resources in multistate loans in large countries. And the Bank has supported the development of innovative, output-based mechanisms when borrowers have been committed to using these. This focused, disciplined approach has had broad support in the countries.

Development of an adequate stock of well-performing hydraulic infrastructure and mobilizing public and private financing

As in EAP (see figure EAP11), LCR varies widely in its infrastructure needs. Some regions have already built most of the major water resources infrastructure that they need. But many others need to build extensive infrastructure. And many countries have massive underexploited hydropower potential, which can provide the basis for growth and poverty reduction. And throughout the region, there are huge unmet needs for investments in wastewater collection and treatment.

LCR is broadly perceived, by both Bank staff and borrowers, as being unreasonably sensitive to reputation risks faced by the Bank when it engages in controversial, high-reward–high-risk infrastructure. In this view there is little need for Bank engagement with many straightforward investments, since the countries know how to do these and do not need Bank expertise. In consultations done as part of this Strategy, partners in the region repeatedly expressed concern that the Bank is unwilling to get involved in the difficult and controversial issues that are, in the views of many, precisely where the Bank has a strong comparative advantage.

Even the Bank's most sophisticated borrowers (such as Brazil) expressed a strong desire to have the Bank engaged in difficult issues. But at the end of the day, these are countries with other financing options, domestic and international. It is in the poorer countries of the region, where the Bank (and the Inter-American Development Bank) are indispensable, that nonengagement with such issues has the largest negative impact on development.

These issues were discussed in detail with the LCR Regional Management Team, who pointed out that the region faced excess demand from borrowers and needed to set priorities for what it would and would not do. Logic would suggest that in such a sophisticated region the Bank was less needed on basic issues and that it would be reasonable to expect a higher risk profile than is the case in less sophisticated regions. The fact that the opposite is true (figure LCR10) suggests that the region might need to re-think its approach to risk, probably in consultation with its clients in the region.

The catalytic role of the World Bank and the need for a more effective business model

There is widespread concern amongst the Bank's borrowers and partners in LCR about rigid, unrealistic and inflexible business practices that impose large costs on borrowers. Most countries with financing choices have largely disengaged from the Bank and build their water infrastructure with other public and private resources. (They regret this, because they believe that the Bank has a unique comparative advantage in dealing with the nexus of economic, financial, technical, environmental and social issues in such projects.)

As in other regions, this leads to a particular form of adverse selection. Countries with capacity do not engage with the Bank because they believe the Bank's procedures to be unreasonably rigid and impractical. This leaves the countries that lack choices (always those with less capacity) to do what countries with more capacity cannot and will not do.

Because of these widespread concerns in LCR, there is strong support for the proposed new business model that will make decisions more transparent, practical and time-bound.

Organization, accountability and staffing for water resources management

LCR has made several important and highly productive light organizational changes for dealing with the growing portfolio of water resources lending. The appointment of a highly regarded water professional as part-time regional water adviser has had a major impact in bringing different sectors in the region together on water issues. And in the largest country (Brazil) another highly regarded water professional is responsible to both relevant departments (PSI and ESSD) for water resources issues in the country. These changes have made a major difference, as evidenced by the comments of counterparts in two consultations in Brasilia, one in 1999 and one in 2002. In the first consultation clients observed that "there [were] many Banks on water in Brazil, who don't communicate with each other." Three years later the clients commented favorably on the high degree of consistency and quality of the Bank's work on water in the country.

The region does, however, face several important changes. The region has some world-class water staff, but it has too few of these already and will be sorely stretched to meet the rapidly expanding demand for Bank support for water resources management in the region. Furthermore, the cross-sectoral leadership which has worked so well in Brazil has yet to be replicated in other parts of the region (including the vital area of Mexico and Central America).

Middle East and North Africa Region

This section presents the results of the data analysis for projects in the portfolio and the pipeline in the Middle East and North Africa Region (MNA).

Issue 1: The level and composition of water lending in the region

MNA has dedicated a larger proportion of its lending (31%) to water-related projects over the last decade than other regions (figure MNA1), with large irrigation, urban water and sanitation and water resources portfolios.

Issue 2: How lending for projects with water resources components and for water resources components is changing

Of the 31% of regional lending dedicated to water-related projects over the past decade, about half (17%) is for projects with water resources components (figure MNA2) and about 6% specifically for water resources components (figure MNA3). These already high figures are expected to increase still further in 2003–05—rising from 17% to 26% of Bank lending in the region for projects with water resources components (figure MNA2), and from 6% to 11% of lending for water resources components (figure MNA3).

Issue 3: The distribution and concentration of projects with water resources components in countries in the region

The region has a well-distributed portfolio of water resources–related projects (figure MNA4), with the dominant country (Iran) accounting for 30% of projected lending (figure MNA5).

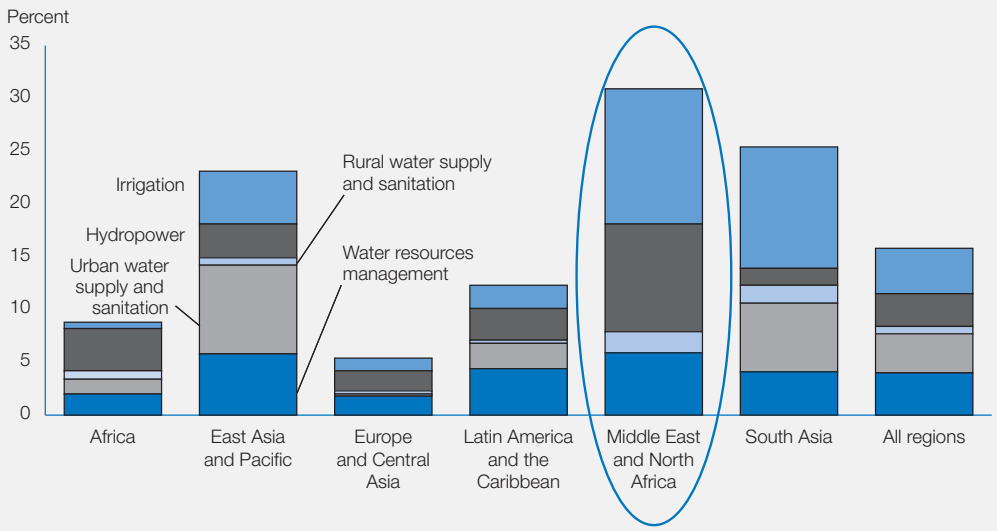
Issue 4: The major water resources management challenges in Bank projects in the region

Task managers in MNA indicated that the major water resources management challenges in the region are institutions, water quality, the legal framework, pricing and allocation (figure MNA6).

Issue 5: The changing composition of lending for water resources infrastructure in the region

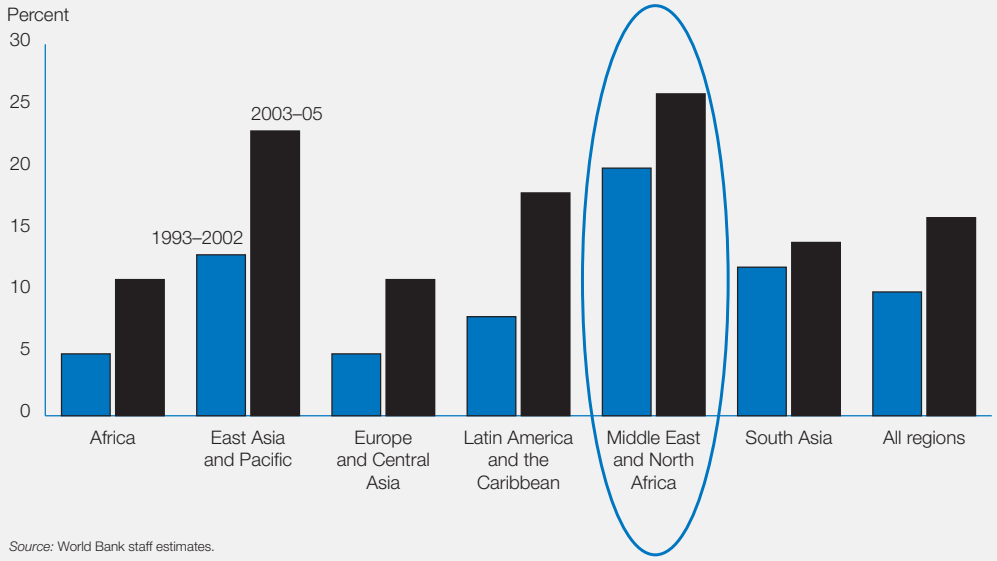
Over the past decade, water resources investments in MNA were dominated by wastewater (figure MNA7). Over the next three years there will be a marked diversification and broadening of Bank investments. The proportion of lending going to wastewater will remain about the same, but there will be large increases in multipurpose projects and watershed management and, to a more modest degree, urban drainage.

fMNA1 Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002



Source: World Bank staff estimates.

fMNA2 Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05



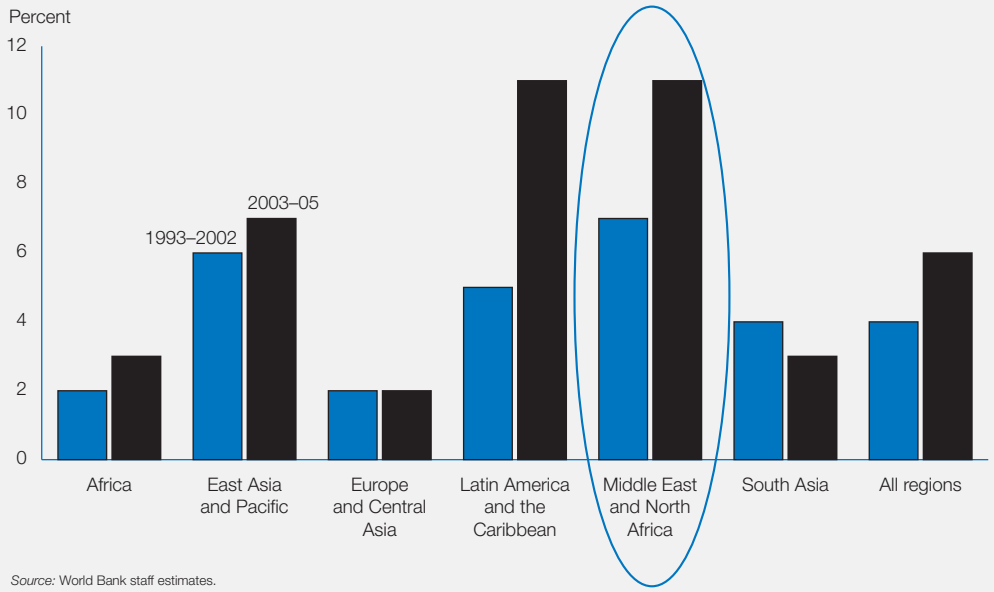
Source: World Bank staff estimates.

Issue 6: The anticipated role of the private sector and IFC and MIGA in projects with water resources components

Bank staff expect the private sector to be involved in about 40% of Bank-financed projects with water resources management components (figure MNA8). IFC and MIGA are expected to be involved in only about 5% of projects, or just a little over 10% of projects in which the private sector will be involved (figure MNA9).

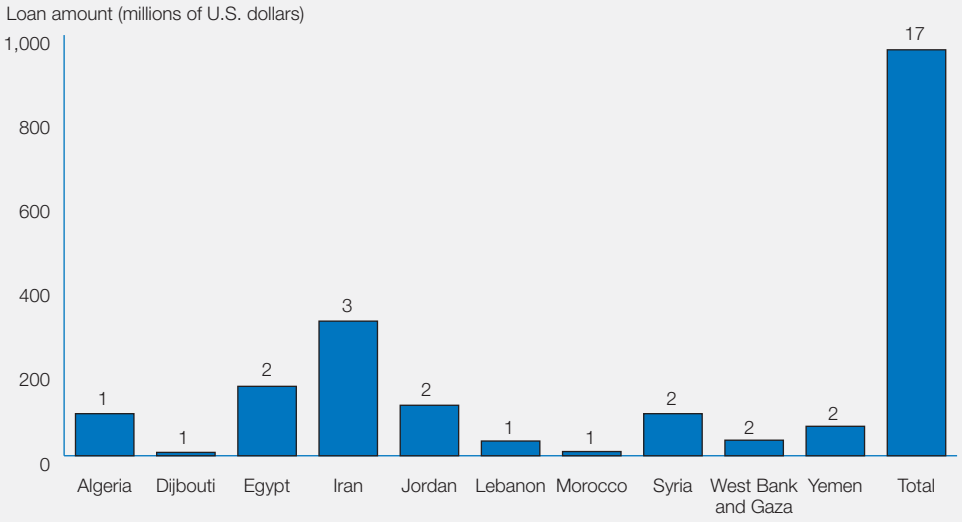
The ratio of projects with likely IFC and MIGA engagement to projects with likely

fMNA3 Lending for water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

fMNA4 Loan amount and number of projects with water resources components, by country, fiscal 2003–05



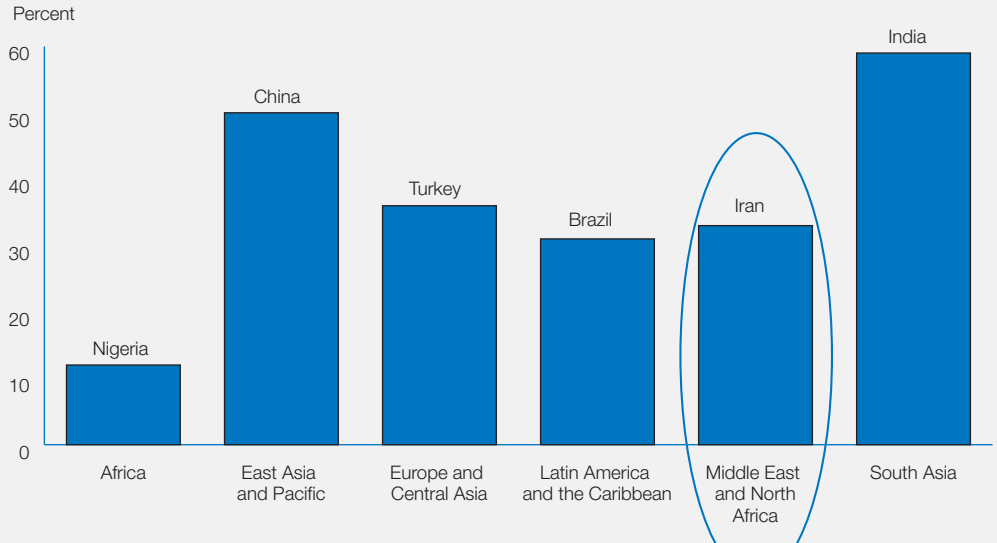
Note: Figures above bars are number of projects.
Source: World Bank staff estimates.

private sector involvement is much lower than it is for, say, EAP and LCR. This is because in MNA there is little prospect of major private sector investment. Most private sector participation is in the form of management contracts.

Issue 7: The proportion of projects in the pipeline that are likely to pose reputational risks to the Bank

Staff in MNA rate more than 20% of projects with water resources components in the

fMNA 5 Largest borrower's share of regional lending for water resources projects, fiscal 2003–05



Source: World Bank staff estimates.

2003–05 pipeline as reputationally risky for the Bank. Since there are 17 anticipated projects, this would mean about 1 new reputationally risky water resources project in the region each year.

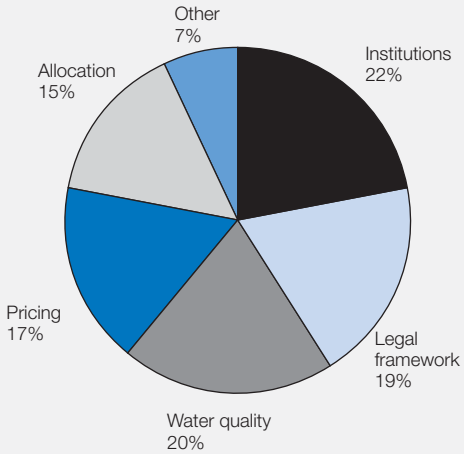
Issue 8: Progress and plans on Country Water Resources Assistance Strategies in the region

With seed funding from the Bank's Global Public Goods Fund, a first round of Country Water Resources Assistance Strategies was initiated in fiscal 2002. Since MNA had already made a large investment in country strategies with its own resources, it used these resources to focus on potential engagement in a high-reward–high-risk water resources project. The region used the funds for a study of the Jordan River Basin and the economic, environmental, technical and political challenges of transferring water from sources outside of the basin.

Issue 9: The water resources activities of the region relative to the major themes of this sector Strategy

The following sections examine how water resources activities in the region reflect the main messages of the sector Strategy.

fMNA 6 Major water resources issues in the pipeline of regional water resources projects, fiscal 2003–05

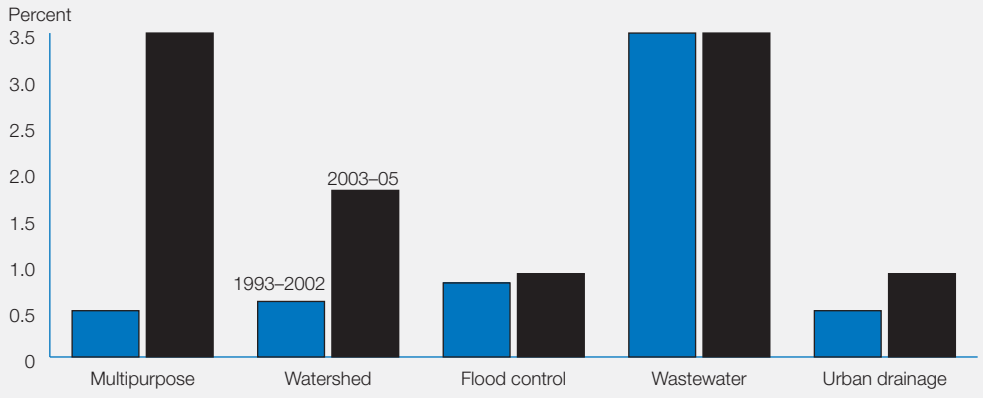


Note: Categories are not exclusive.
Source: World Bank staff estimates.

Water, growth, poverty and sustainability

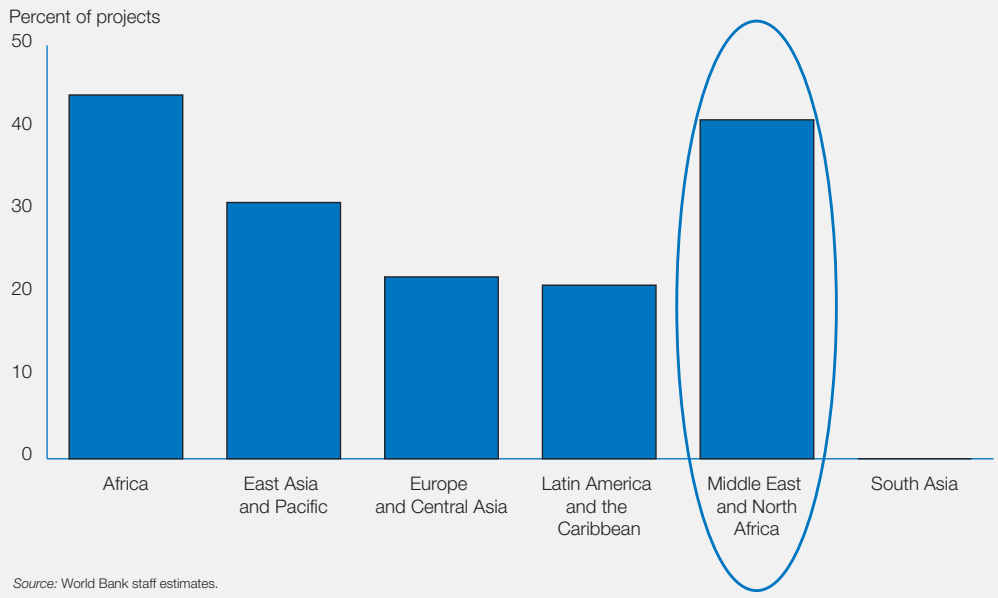
The high level of World Bank lending for water in MNA reflects the fundamental importance of water to the economy, environment and people in the driest region of the world. While these links are visceral, it is the view of the Regional Management Team (RMT) that the Bank has not done sufficient analytic work

fMNA 7 Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05



Source: World Bank staff estimates.

fMNA 8 Share of IBRD/IDA-financed water resources projects in which the private sector is anticipated to play a major role, fiscal 2003–05



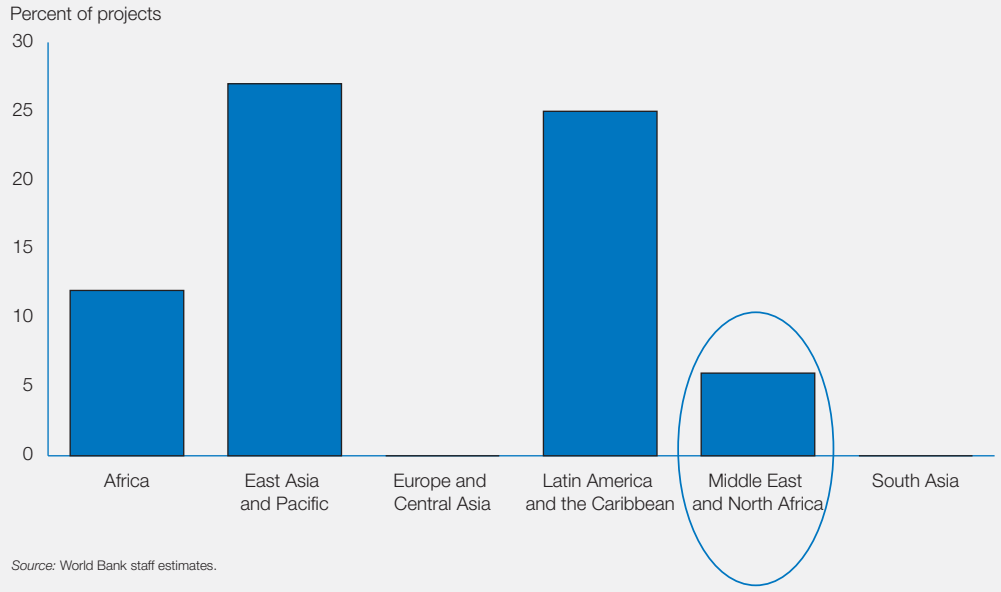
Source: World Bank staff estimates.

aimed at conveying the seriousness of the water situation to policymakers and opinion-makers, dissecting and delineating these links, and using this information to prioritize water relative to other sectors and to prioritize actions within the water sectors.

Management and importance of engaging with the political economy of reform

The region has been a Bankwide leader in drilling down the 1993 Water Resources Management Policy Paper into both Regional Water Strategies and, in some cases, Country Water Resources Assistance Strategies. In many respects these drill-downs, like the parent strategy, focus heavily on the normative, and, in the view of the RMT, too little on the positive. This has meant that in a number of cases there is a large gap between the (appropriate) normative positions laid out in the regional and country strategies and the reality of change on the ground.

fMNA9 Share of IBRD/IDA-financed water infrastructure projects in which IFC and MIGA are likely to play a role, fiscal 2003–05



Source: World Bank staff estimates.

Just as this sector Strategy complements the Bankwide 1993 Policy Paper, now with a focus on the political economy of implementation, so, the RMT believes, should MNA conduct a new round of work that takes the objectives of the current regional and country strategies as given but focuses on the political economy of change—on sequencing, prioritization and practicality, and on what the Bank can do to support improvements.

Development of an adequate stock of well-performing hydraulic infrastructure and mobilizing public and private financing

While the major focus in the region needs to be on better management, there are many major infrastructure challenges that MNA clients wish the Bank to be engaged in. These include major interbasin water transfers, often with an international waters dimension and often with major environmental, cultural property, economic and financial implications (such as the proposed Red Sea–Dead Sea transfer).

As indicated in figures MNA8 and MNA9, Bank staff and regional partners foresee a major role for the private sector in a region where, to date, such a role has been modest across many sectors of the economy. The very high hoped-for levels of private engagement suggest that some of these hopes may not be realized. But they also suggest that private sector involvement is vital and that Bank engagement as a catalyst, guarantor and financer is equally important.

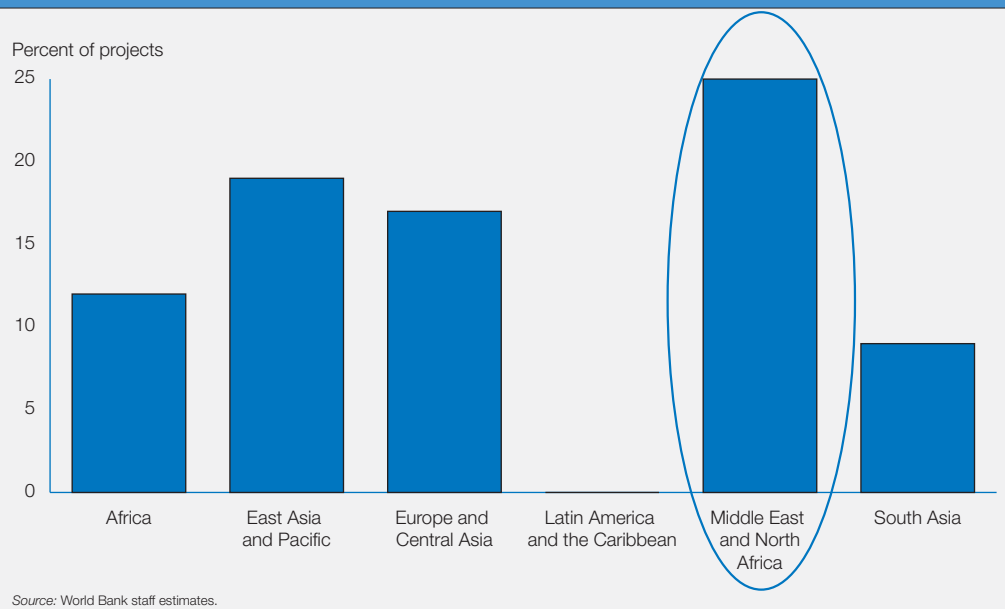
The catalytic role of the World Bank and the need for a more effective business model

Clients in the region see the Bank as a central partner in complex water infrastructure issues. This is both because of the ability of the Bank to mount teams that deal in an integrated manner with the economic, financial, technical, environmental and social issues, and because of the importance of the Bank in catalyzing the much-needed involvement of the private sector. But, as in other regions, there is a strong demand from clients for the Bank to develop a new business model, which simultaneously ensures that economic, technical, environmental and social standards are met and that decisions are made in a more predictable, transparent and time-bound manner.

Organization, accountability and staffing for water resources management

In many ways MNA has been a leader in the Bank in developing an effective regionwide

f MNA 10 Share of water resources projects considered to be "reputationally risky" for the Bank, fiscal 2003–05



Source: World Bank staff estimates.

water resources management team. Yet country directors and the RMT still feel that there is much to be done in developing a seamless approach to the provision of services on water to the clients in the Region. The Region does not foresee any organizational changes to make this happen, but rather emphasizing behavioral change for managers and staff in the regions who work on water.

South Asia Region

This section presents the results of the data analysis for projects in the portfolio and the pipeline for the South Asia Region (SAR).

Issue 1: The level and composition of water lending in the region

SAR has a large portfolio of water-related investments. Over the past decade, 25% of Bank lending in SAR has been for water-related projects (figure SAR1), a level second only to MNA. This lending has been dominated by large volumes for irrigation and substantial lending for hydropower. Lending levels for water and sanitation have been very low—the lowest in the Bank.

Issue 2: How lending for projects with water resources components and for water resources components is changing

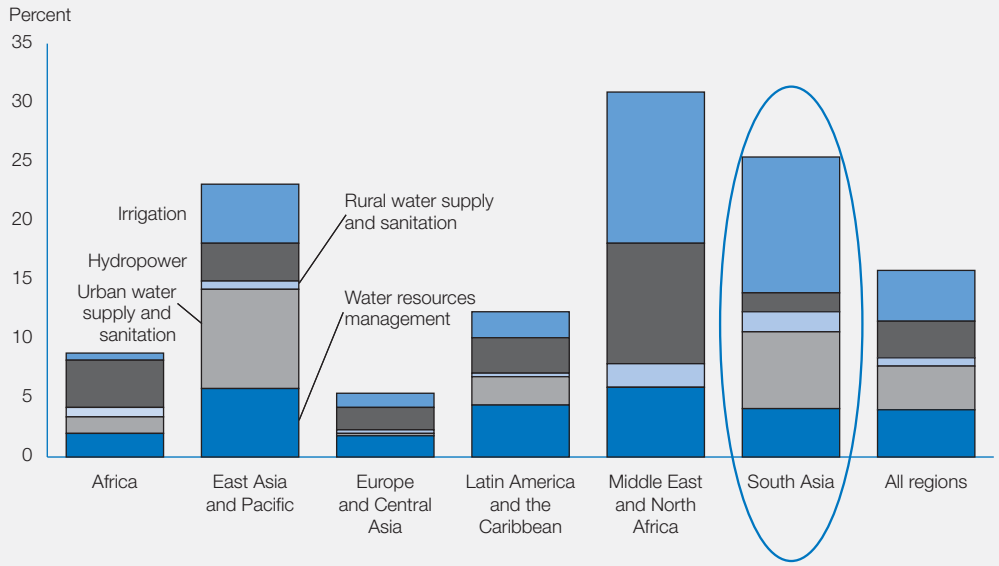
Of the 25% of SAR lending for water resources, about half (12%) is for projects with substantial water resources components (figure SAR2) and about 4% directly for water resources components (figure SAR3).

As shown in figures SAR2 and SAR3, water resources lending is rising rapidly in all other regions in the Bank. SAR is a curious exception to this trend. Relative to levels over the past decade, SAR lending over the next three years for projects with water resources components is projected to rise slightly (from 12% to 14%), while lending for water resources components will decline by more than 30% (from 4.1% to 2.8% of regional lending).

Issue 3: The distribution and concentration of projects with water resources components in countries in the region

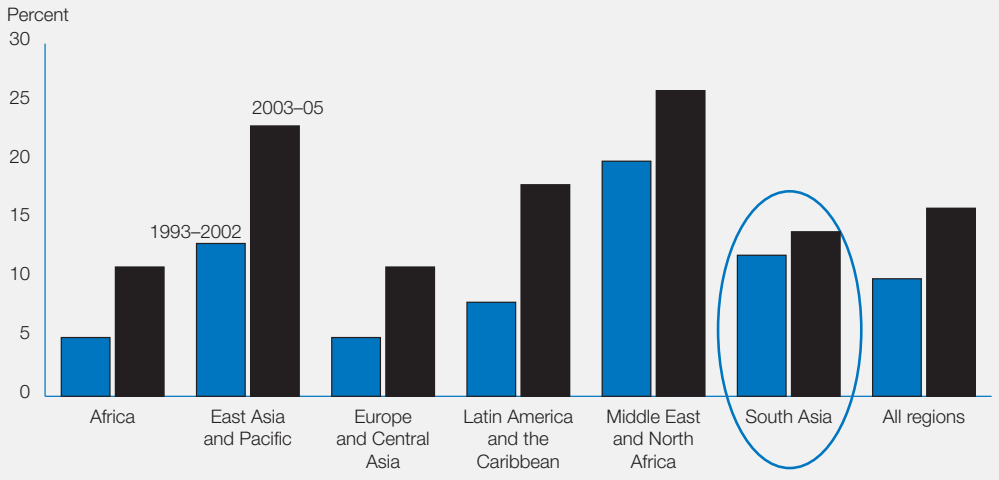
Over the next three years, SAR anticipates only 11 projects with water resources components (figure SAR4), with a high concentration of lending in India (figure SAR5).

fSAR 1 **Regional composition of water resources lending as share of total regional lending, fiscal 1993–2002**



Source: World Bank staff estimates.

fSAR 2 **Lending for projects with water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05**



Source: World Bank staff estimates.

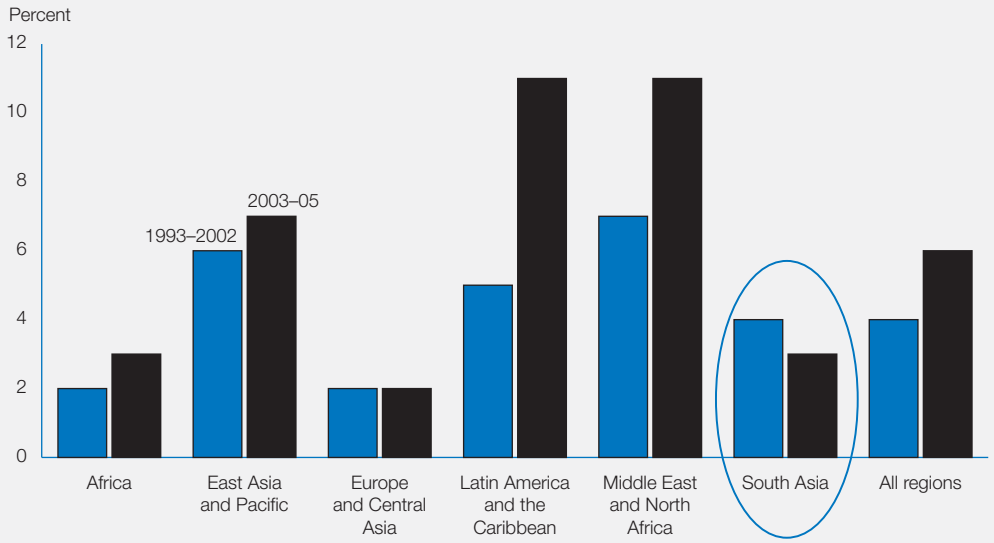
Issue 4: The major water resources management challenges in Bank projects in the region

Task managers in the region indicated that all major water resources issues—institutions, water quality, allocation, legal framework and pricing—are of major importance (figure SAR6).

Issue 5: The changing composition of lending for water resources infrastructure in the region

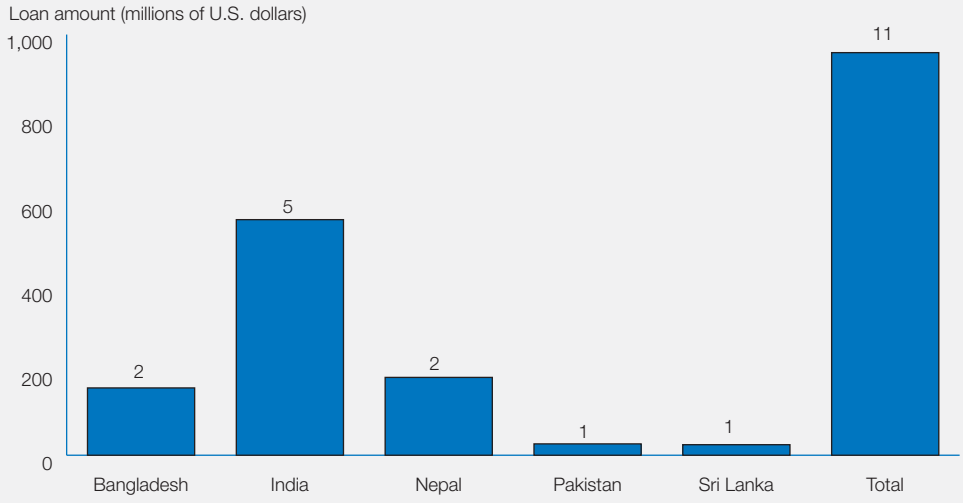
With the minor exception of a small rise (from a low base) for urban drainage, SAR investments in water resources infrastructure is projected to decline in the next three years. This is particularly striking for investments in

fSAR 3 **Lending for water resources components, as share of total regional lending, fiscal 1993–2002 and 2003–05**



Source: World Bank staff estimates.

fSAR 4 **Loan amount and number of projects with water resources components, by country, fiscal 2003–05**



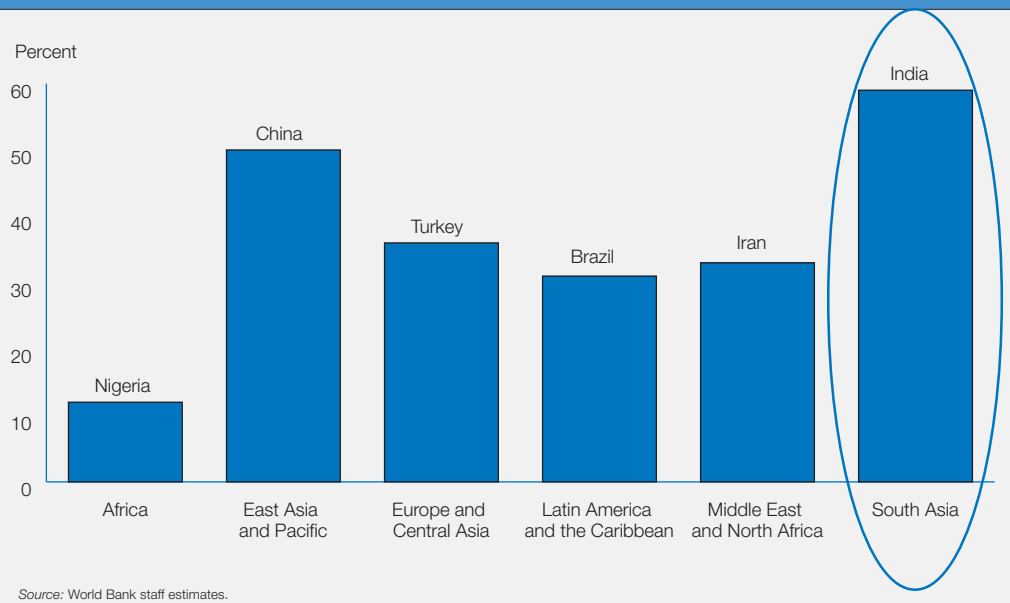
Note: Figures above bars are number of projects.
Source: World Bank staff estimates.

watershed management, where levels of investment are rising dramatically in most other regions. Despite several very successful Bank-financed watershed projects, and despite massive nationwide engagement with micro-watershed management in India, Bank lending for this critical activity is projected to decline in coming years.

Issue 6: The anticipated role of the private sector and IFC and MIGA in projects with water resources components

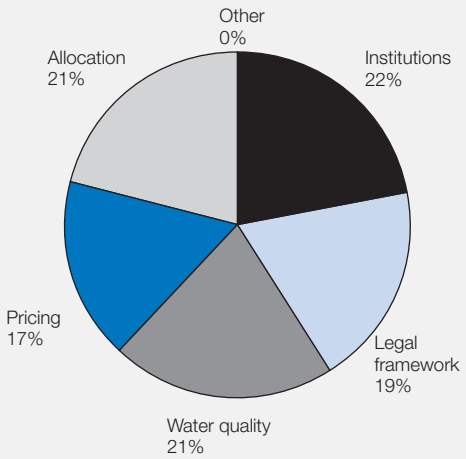
With respect to the likely involvement of the private sector in water resources projects in the pipeline, SAR is a striking outlier, with

fSAR 5 Largest borrower's share of regional lending for water resources projects, fiscal 2003–05



Source: World Bank staff estimates.

fSAR 6 Major water resources issues in the pipeline of regional water resources projects, fiscal 2003–05



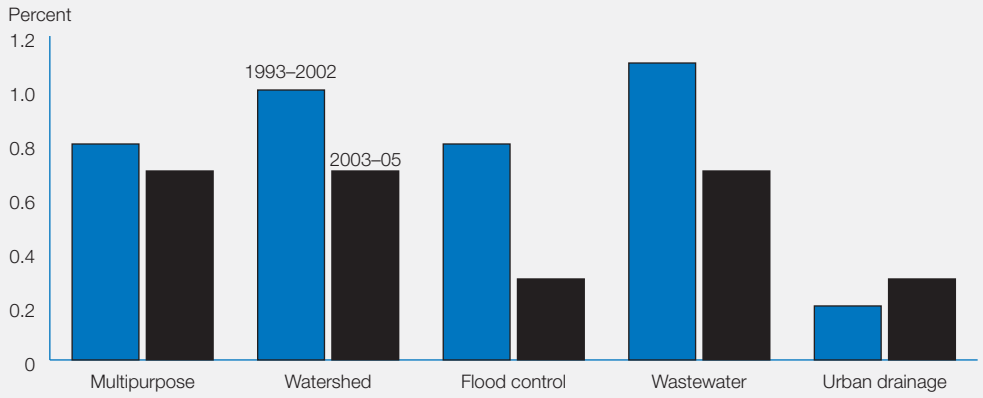
Note: Categories are not exclusive.
Source: World Bank staff estimates.

no projected involvement of the private sector or MIGA (figures SAR8 and SAR9). Closer inspection suggests that this projection is reasonable. Because energy sector reform has been so slow and halting in the region, there is no projected Bank involvement in hydropower (where there has, historically, been a major Bank presence, as shown in figure SAR1). There has also been very little progress in water utility reform, and thus little projected Bank lending and little immediate prospect for private sector involvement. The region is thus, reasonably, focusing its lending program on water and sanitation and on rural water and sanitation, while using nonlending instruments (AAA-WSP-WBI-PPIAF) in urban water and sanitation.

Issue 7: The proportion of projects in the pipeline which are likely to pose reputational risks to the Bank

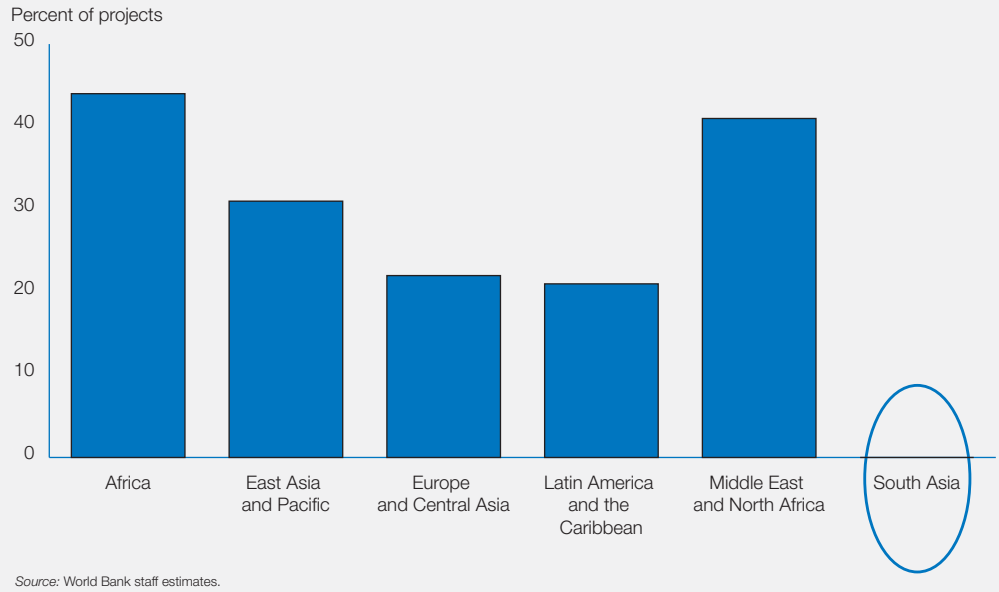
Regional staff expect a low level of reputational risk for Bank water resources projects in the region (figure SAR10). This is in part a consequence of the withdrawal from the controversial issue of construction of hydropower dams and in part a consequence of the Bank's focus on relatively noncontroversial irrigation. Discussions with a variety of partners in the region (undertaken as part of the consultations on this Strategy) show that the Bank could make a substantial contribution to enhanced development by engaging more proactively with major water infrastructure issues. Discussions also found a large reservoir of dissatisfaction with the

fSAR 7 **Changing levels and composition of Bank investments in water resources, as share of total regional investments, fiscal 1993–2002 and 2003–05**



Source: World Bank staff estimates.

fSAR 8 **Share of IBRD/IDA-financed water resources projects in which the private sector is anticipated to play a major role, fiscal 2003–05**



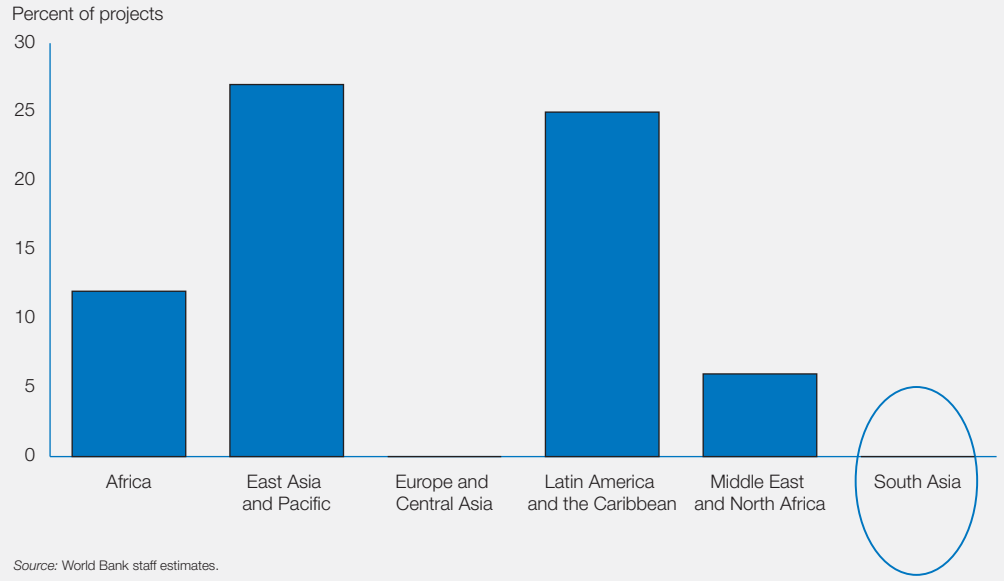
Source: World Bank staff estimates.

Bank, both from NGOs (who blame the Bank for past engagement with projects like the Sardar Sarovar Dam) and from government officials (who want the Bank to help with difficult issues and who perceive the withdrawal of the Bank from engagement with controversial water projects as motivated primarily by concerns with the Bank's own reputation).

Issue 8: Progress and plans on Country Water Resources Assistance Strategies in the region

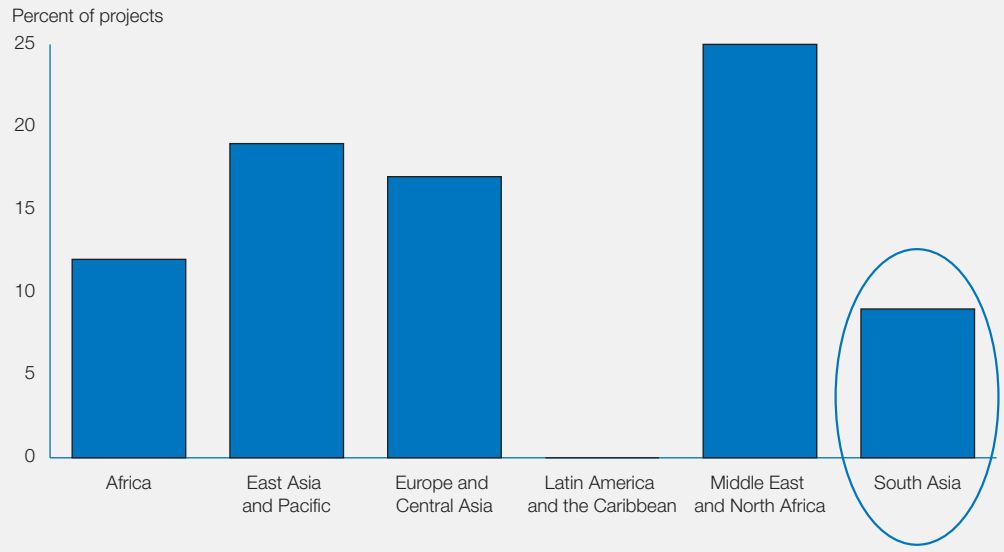
With seed funding from the Bank's Global Public Goods Fund, a first round of Country Water Resources Assistance Strategies was initiated. These funds were used to initiate a review of the Bank's involvement with water

fSAR 9 **Share of IBRD/IDA-financed water infrastructure projects in which IFC and MIGA are likely to play a role, fiscal 2003–05**



Source: World Bank staff estimates.

fSAR 10 **Share of water resources projects considered to be "reputationally risky" for the Bank, fiscal 2003–05**



Source: World Bank staff estimates.

resources management in Pakistan. The first step is an innovative assessment of the nexus of environment, water resources and drought and their implications for poverty alleviation and sustainability. A central feature of the work is a focus on the political economy underlying current performance. Next steps in strategy development include further work on the political economy—assessing how these realities constrain reform efforts, how the political economy might be changed, what the realities of political econ-

omy on the ground mean for engagement of the Bank and how Bank engagement might affect these realities. It is also the intention to drill down, in the spirit of the Country Water Resources Assistance Strategies, the findings into the Bank's operational work and to drill up to influence and supplement the Country Assistance Strategy.

Issue 9: The water resources activities of the region relative to the major themes of this sector Strategy

The following sections examine how water resources activities in the region reflect the main messages of the sector Strategy.

Water, growth, poverty and sustainability

SAR is, in many ways, a textbook case for the impacts, positive and negative, of water on growth, poverty reduction and sustainability. In both colonial and independence eras major public investments made were made in water storage, transmission, management and use. With huge, mostly positive, impacts on poverty, both through direct effects on farmers and indirect effects operating through the multitude of linkages of agricultural production with the development of local commerce and industry and even with the economic returns of investments in human capital. These effects were magnified by the green revolution. The net effect is that in much of South Asia, irrigated districts have often been synonymous with prosperity and unirrigated districts with poverty. And water management has, in the era of the green revolution, been fundamental (along with the application of science) to the low food prices (of great benefit to the urban poor) and unimaginable food security of recent years.

The very success of water development activities, however, gave rise to arrogance and a set of incentives for construction and rent-seeking that resulted in a "more is better and even more is even better" mentality. The adverse effects of large water projects on some affected people were brushed aside, as was the evidence of declining performance and rising environmental problems (especially salinization) as a result of a disproportionately large attention to construction and disproportionately small attention to management.

As in other regions there is a wide variety of challenges in the SAR with respect to the infrastructure-management balance. At the one extreme is the Himalayan region (a classic type 1 situation in the terms of figure EAP11), in which only a tiny portion of the vast hydroelectric potential has been tapped. (Nepal, for example, has developed less than 600 megawatts of an estimated 70,000 megawatts of economically viable hydropower potential). At the other extreme are the vast irrigated areas of the Indo-Gangetic plains, in which the challenge is primarily one of management (type 3). In these areas, water management is at a crucial cross-roads—the old ways (under fiscal, environmental and social pressures) are not yet dead, and the new ways (with greater attention to fiscal, social and environmental sustainability) are not yet born.

Management and importance of engaging with the political economy of reform

At the heart of the challenges in moving to a new water economy in South Asia are the political economy challenges. The old ways (so productive once, but now undermined by incentives that have becomes ends in themselves) are no longer appropriate, in part because of the very successes of the old style investments and in part because the world, and the views on fiscal, environmental and social sustainability, have changed.

In SAR the Bank has started to move these issues to center stage, in its dialogue with clients and in its lending and nonlending activities. First has been the move by the India Department to back reformers—more particularly, to back reforming states. The Bank's activities in water development and management have slowly and imperfectly aligned with this fundamental change (perhaps moving away from the "old ways" too slowly). Second is the early emergence of a new generation of thinking and ideas (exemplified by the new Pakistan Country Water Resources Assistance Strategy discussed above) that are putting political economy front and center stage. Initially, this was done to diagnose the reasons for past successes and failures. The plan is to carry this emphasis through to examine the political economy implications of reform efforts of the government and the support efforts of

the Bank and the effects that government and Bank initiatives might have in moving towards a more productive political economy of water management. Of necessity, this will lead to a focus on the critical issues of sequencing, priorities and political feasibility. And of necessity, too, it will be an inexact process characterized by experimentation and learning, both within the Bank and in the vibrant policy communities in most countries in the region.

Development of an adequate stock of well-performing hydraulic infrastructure and mobilizing public and private financing

In such a large and diverse region, different countries (and different parts of countries) are at quite different places along the spectrum illustrated in figure EAP11. While the challenges in many areas are of types 2 and 3, there are also many areas where there are, or will be, large opportunities for investments in hydraulic infrastructure as a springboard for sustainable growth and poverty reduction.

In these areas the Bank and its borrowers face a series of related challenges. In many parts of South Asia, the development of water resources infrastructure should be a major element of a sustainable growth and poverty alleviation strategy. But in most parts of the region, there are fundamental distortions and practices that work against the development of this potential. Most striking is the case of hydropower, where there is enormous untapped potential, but where distortions in the electricity sector make further investment in much-needed supply financially unviable. This argues for a two-stage process by the Bank, in which attention is now focused on improving the performance of the electricity sector (a difficult job, with its own complex political economy). As progress is made, the vast hydropower resources (especially in the Himalayan areas, but elsewhere too) must be developed for sustainable growth and poverty reduction.

The Bank, therefore, needs to be ready to engage once the fundamental reforms in the electricity sector are initiated. Given the long lead times for assessing options and doing feasibility studies, this argues for a multi-tracked approach. Track 1 (which is being pursued vigorously by the Bank) is to focus on the vital issue of energy sector reform (which contributes to large fiscal deficits, low credit rating, and environmental degradation). Unless and until these fundamental sector reforms are made, there will be no case for Bank financing or guaranteeing of major water infrastructure. Track 2 would be support for developing information and planning capacity (options assessment, technical, social and environmental), so that when reform takes place, a supply-side response can occur without long delays. Track 3 is engagement of politicians and officials and opinionmakers in appreciating the new global public-private paradigms for construction of major infrastructure.

The catalytic role of the World Bank and the need for a more effective business model

Once the necessary reforms in the energy and other relevant sectors are made, the Bank will have a critical role to play in facilitating the timely construction of economically, fiscally, technically, environmentally and socially sustainable infrastructure. In the larger countries, the Bank can help to get the new generation of infrastructure launched, its support especially critical in the early days before public and private partners have developed confidence in the new paradigm. In this transition period, the Bank can have an important role as guarantor and financer. But the larger countries will, sooner or later, find their own way forward. It is in the smaller countries, where development will not take place without external support, and where private investors will not enter without the comfort provided by such external support, that the Bank will be indispensable.

In assuming this role, the Bank will have to both learn from its history and not be a captive to this history. The controversies over Sardar Sarovar were the start of a reconsideration of the role of the Bank in large water infrastructure. The Bank has appropriately re-visited the way it engages with such projects and has given greater weight to environmental and social issues. But it is clear that the Bank has yet to find an appropriate new equilibrium, in which errors of commission and errors of omission are given equal

weight, and in which development impact, rather than the Bank's reputation, is the primary concern.

In no region is this weight of history more evident. And in no region are the still-open wounds from these struggles more apparent, with NGOs opposing the engagement of the Bank "in more Narmadas" and elected public officials feeling that the Bank has abandoned its commitment to dealing with the fundamental and controversial development choices which they, by virtue of their public accountability, cannot avoid. It is striking that in no region was dissent with the proposed approach to the new business model stronger or more polarized—from NGOs who saw this as a return to "the bad old days" and from government officials who saw the approach as far too timid.

In short, the evolution of the new business model, a necessity for the Bank globally, has particular resonance and importance in South Asia in the medium and long term. In the short term, the issue has less relevance because the Bank is unlikely to engage in a large number of major investments because of the economic and fiscal problems in the water-using sectors (hydropower water supply and irrigation). The Bank and its borrowers can take advantage of this interim period by using it to initiate the necessary assessment and planning work for identifying options and investment opportunities once conditions are more propitious.

Organization, accountability and staffing for water resources management

Over the next three years lending for water resources components will comprise a lower proportion in SAR than in four of the other five Bank regions. Given the centrality of water resources development and management issues, Bank management, clients and partners all acknowledge that something must be done to revitalize the Bank's work on water resources in the region.

This revitalization will have several elements. One will be to strengthen the mandate of the regional water adviser, to make this position the strategic and operational focus of the Bank's work on water resources—be it in irrigation, water supply, hydropower or the environment. And so that there is a cross-departmental team working on water resources issues. A second element will be a recruitment effort focused on attracting the best international expertise to complement the large cohort of local staff who work on water resources issues in SAR. A third will be to develop a shared vision of what the Bank should be doing in the mid-term, formalized in a set of Country Water Resources Assistance Strategies (building on the innovative work which has started on the Pakistan CWRAS). A fourth will be to initiate a process of policy dialogue with governments, the private sector, professional associations, academics and civil society in the region. And a fifth will be to develop a trust fund for stimulating innovation on critical aspects of water resources management in the region.

Notes

1. The new 2002 coding system is a significant improvement. Although "water resources management" is not treated as a sector (there is no formal Water Resources Sector Board), it is treated as a "theme," which task managers can use to help identify projects that have water resource components.
2. Assignment of costs to different components is necessarily a judgment call, and one on which reasonable people can disagree. This analysis followed the assignment methodology developed jointly by the Operations Evaluations Department and the Global Water Unit in reviewing the portfolio of Bank investments over the last decade. A specific area of legitimate concern is the assignment of irrigation-associated drainage to "services" rather than "water resource infrastructure" (and the associated inconsistency of treating urban drainage as "water resource infrastructure"). In the review of the 369 project documents for the OED portfolio review, no distinction was made between irrigation and drainage components and it is, therefore, not possible to separate these without major new processing work. In assessing the 2003–05 pipeline, the same definitions were used.

ABBREVIATIONS

AAA	Analytic and advisory activities
AFR	Africa Region
ANA	National Water Agency, Brazil
BOT	Build-operate-transfer
CAS	Country Assistance Strategy
CGIAR	Consultative Group for International Agricultural Research
CODE	Committee on Development Effectiveness (of the Board of Executive Directors of the World Bank)
CWRAS	Country Water Resources Assistance Strategy
EAP	East Asia and Pacific Region
ECA	Europe and Central Asia Region
ESSD	Environmentally and Socially Sustainable Development Network
ESW	Economic and sector work
EXT	External Affairs Department
GDP	Gross domestic product
GEF	Global Environment Facility
IDA	International Development Association
IFC	International Finance Corporation
LCR	Latin America and the Caribbean Region
MIGA	Multilateral Investment Guarantee Agency
MNA	Middle East and North Africa Region
NGO	Nongovernmental organization
OECD	Organisation for Economic Co-operation and Development
OED	Operations Evaluation Department
PAD	Project Appraisal Document
PRSP	Poverty Reduction Strategy Paper
PSI	Private Sector and Infrastructure Network
QACU	Quality Assurance and Compliance Unit
QAG	Quality Assurance Group
RMT	Regional Management Team
SAR	South Asia Region
UNEP	United Nations Environment Programme
WBI	World Bank Institute
WCD	World Commission on Dams
WRMG	Water Resources Management Group