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UNDP -
World Bank
**Water and
Sanitation
Program**

Learning What Works

A 20 Year Retrospective View on International
Water and Sanitation Cooperation

by Maggie Black

1978-1998



Public Disclosure Authorized

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Program Timeline

World Bank Research Project into low-cost technologies

- The World Bank under the Presidency of Robert McNamara committed to addressing problems of poverty. Alternatives required to conventional water/sanitation systems which cannot serve the poor.
- First World Bank research project to investigate low-cost alternative approaches for water supply and sanitation.

The UNDP-World Bank Low-Cost Water Supply and Sanitation Project -- TAG

- The first 'global project' jointly supported by the World Bank and UNDP is set up as a contribution to the forthcoming Water Decade.
- The Technical Advisory Group helps design projects using low-cost technologies and establishes an investment 'pipeline' for donors. Teams and experts disseminate low-cost models, especially for sanitation, and assist in their application.

Handpump Testing and Development Project

- The second major UNDP-World Bank global project: laboratory and field testing and technological development of community handpumps. Field trials in 15 countries. Rural water supplies established as the leading Water Decade activity.
- The Project develops the concept of Village-level Operations and Maintenance - VIOM - as a key criterion of handpump design. The Project reports its findings in a seminal work in 1987: *The Handpump Option*.

Project Preparation Units

- PPU's set up in regional locations by UNDP/World Bank to help overcome shortage of well-prepared projects for funding.
- PPU's converted to Sector Development Teams in 1984 to meet policy advice needs, became core UNDP-WB teams, later evolving into Regional Water/Sanitation Groups.

International Training Network for Water and Waste Management (ITN)

- The ITN is launched to help institutions in the developing world embrace the concept of low-cost approaches to water/sanitation and train personnel in their construction and use.
- Audiovisual aids and manuals widely disseminated; networking between seven ITN Centers established in Africa and Asia is centrally supported by the Program until 1994.

UNDP-World Bank Water and Sanitation Program created

- Consolidation of global projects funded by UNDP and managed by the World Bank into the 'UNDP-World Bank Water and Sanitation Program'.
- Gradual development of regionally-based teams (RWSGs) in Africa (East and West), Asia (Delhi, and later Singapore), to plan, design and implement projects and sector policies.

First Program Strategy

- The Program to focus strongly on 'software' issues. Strategy: (1) at country level, develop capacity and expand service delivery, through demonstration projects and advice; (2) at international level, develop implementation models and disseminate experiences.
- The Program gains reputation as a source of practical advice and guidance on how to put into practice the lessons learnt during the Water Decade.

Water and Sanitation Sector Timeline

United Nations Water Conference, Mar del Plata, Argentina

- A major UN conference establishes a worldwide commitment to meet the basic needs of unserved populations with safe water and sanitation services.
- The 1980s are declared the International Drinking Water Supply and Sanitation Decade.

1981 - 1990 International Drinking Water Supply and Sanitation Decade

- The UN General Assembly launches the Decade in 1981 under the slogan: 'Water and Sanitation for All'. Its central purpose: to improve service coverage and thereby reduce water- and sanitation-related ill-health.
- The Decade releases new funds and energy for services to reach the poor. Approaches undergo a radical overhaul and the Decade is rated a success, with rural water supply coverage rising from 30% to 50%. But population growth outstrips many gains.

International Drinking Water Supply and Sanitation Consultation, Interlaken, Switzerland

- A meeting of donors, developing country partners and NGOs reviews Decade Progress and agrees principles and practice for expanded sector activities to the year 2000.
- Agreement to establish a Collaborative Council on Water Supply and Sanitation to provide an international forum for exchange of views on key issues.

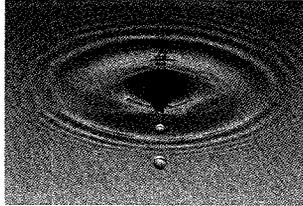
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1990-1998
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Preface

This year, 1998, marks the twentieth year of activity for the UNDP-World Bank Water and Sanitation Program. Originally conceived as an applied research project aimed at supporting cooperative efforts in the Drinking Water Supply and Sanitation Decade (1981-1990), the Program has proven to be a remarkable experiment in development partnerships.

Although activities have changed over the years, some elements of the Program have remained constant:

- focus on serving the poor;
- emphasis on partnerships involving multiple donors - led initially by the UNDP;
- use of field-based activities to try out new ideas, followed by efforts to analyze and share the findings from these experiences; and
- management of the Program within the World Bank.

Maggie Black, an independent writer on development issues has prepared this retrospective review on the Program's experience. Ms. Black's review traces the developments which have guided thinking and action

in the water and sanitation sector since the Program's inception in 1978, and analyzes how the Program has affected -and been affected- by these developments.

As we begin our third decade of activity, special thanks are due to the many partners who have worked with the Program over the past 20 years, not least of all to the developing country organizations that undertook the Program's innovative, and accordingly risky projects. We also thank the external support agencies which have provided the grants that have made our continued and continuous learning possible. And finally, we extend our gratitude to the hundreds of individuals who have worked so hard as Program staff over the past two decades.

Helping the poor obtain sustained access to improved water and sanitation services is fundamental to development. We are pleased to share our experience with our many partners and look forward to continued collaboration in the years ahead.

Brian Grover
Program Manager
September 1998

Note by the author

The case study represents an attempt to describe in parallel the evolution of the UNDP-World Bank Water and Sanitation Program and the evolution of international thinking concerning water and sanitation during the 20 years of the Program's existence.

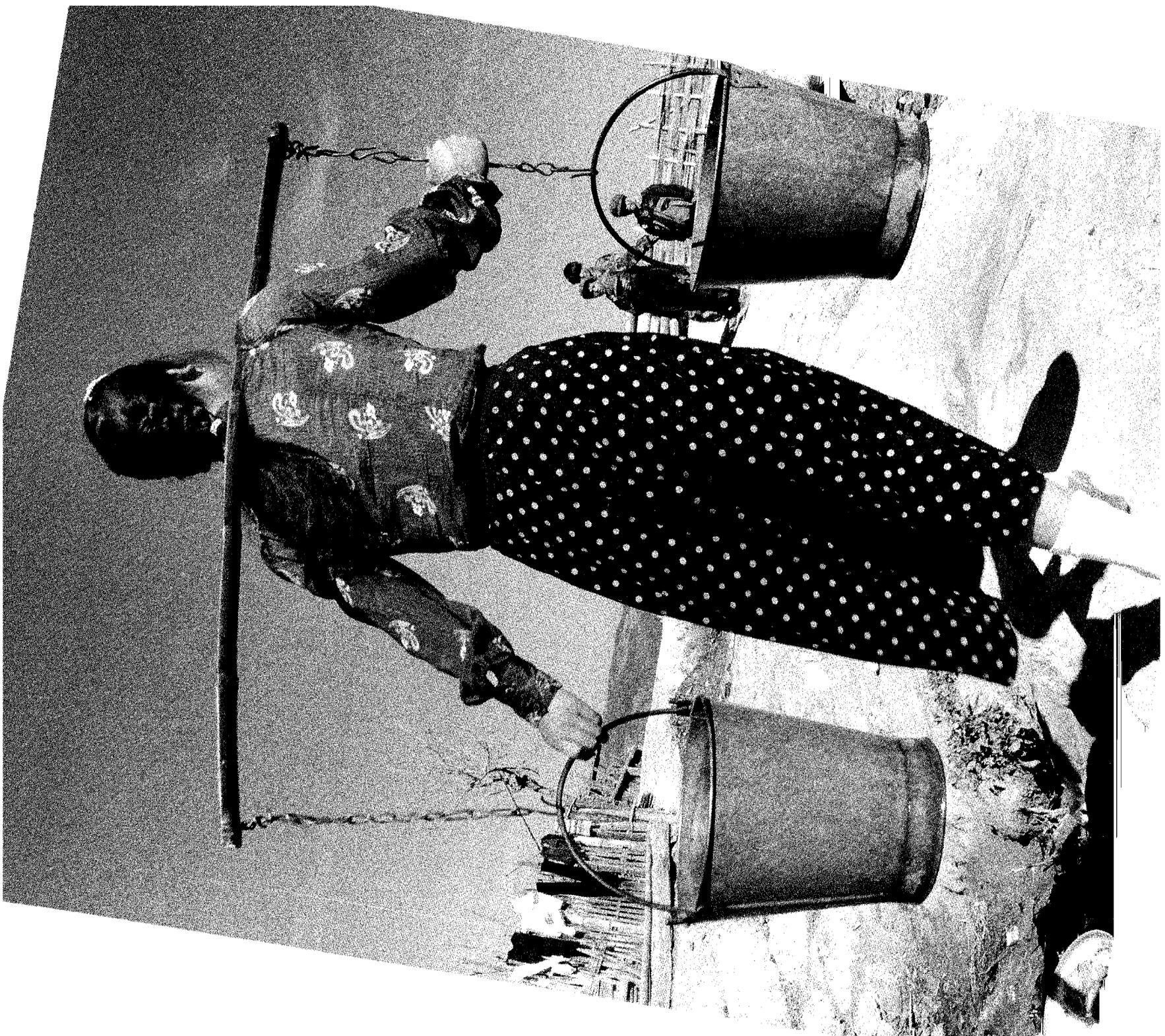
Finding a structure in which to present the activities of the Program over time has not been easy, and their division and characterization into three phases – The appropriate technology phase 1978-88, From 'hardware' to 'software' 1988-94, and Promoting the new agenda 1994-98, preceded by an introduction – seemed the best arrangement. However, a number of activities overlapped between phases – notably, a concern with 'software' which runs throughout. Therefore, the strategy adopted has been to describe or highlight them during the time in which they were given most weight either internationally or by the Program itself.

Similarly, the structure adopted internally for each phase – Key issues, Main Program activities, Lessons learned and Evolutions in international thinking – is not without its flaws. Many key issues –

such as maintenance of services – remain key throughout (although the terminology used to describe them changes with evolutions in thinking - in this case to 'sustainability' of services). The structure has therefore led to some degree of repetition, and it may also have led to emphases and under-emphases at different stages with which not every Program Manager would agree. The wide variety of views among influential people associated with the Program over time has in itself been difficult to reconcile.

All faults in analysis or presentation are the author's own. This is not an authorized account of the Program and the views expressed are a synthesis reached by the author, not those of UNDP, the World Bank, or any longstanding Program staff member or supporter.

Maggie Black



Introduction: The historical context

In 1977, the World Water Conference in Mar del Plata, Argentina, adopted a Declaration which initiated a new era in international co-operation for improved water supplies and sanitation in the developing world. According to this Declaration, the 1980s were to become the 'International Drinking Water Supply and Sanitation Decade' (IDWSSD). The slogan for what became known as the Water Decade was: 'Water and Sanitation for All.'

Those operating behind the scenes at Mar del Plata had a wider purpose in mind, to which the Declaration would lend much-needed political weight. While many developing countries participating in such a Decade could not realistically aim for 'Water and Sanitation for All,' they had committed themselves to trying to reach – with international assistance – as many of their people as possible. This, in turn, would necessitate a radical overhaul of precepts and investment strategies then governing the proliferation of taps, pumps and pipes in the developing world. This overhaul was, in the view of some of the Declaration's key instigators, badly overdue.

Why? For a very simple reason. The vast majority of those without water and sanitation services were poor, and the countries in which they lived were frequently water-short and had little to spend on public infrastructure. Conventional water and

sewerage systems – the standard Western model – were only affordable for an elite minority: city centers, middle- and upper-class suburbs, business districts. But investment in these systems was the only type available from international donors and lenders, notably the World Bank. Thus, if there was to be any substance to the Decade slogan, entirely different, lower-cost approaches would have to be found, capable of extending services to poorer urban and rural areas. And governments and donors would have to be persuaded to invest in them.

At this time, it seemed to a handful of visionaries in international public health engineering that their main responsibility was to identify such approaches and proselytize them. Their ideas drew force from the upheavals in development thinking which had characterized the early 1970s and which were gradually percolating into the many layers and reaches of the international establishment.

During the 1960s, the eradication of world poverty via development and 'aid' had been seen as *the* post-colonial mission. The international institutions put in place after the second World War were – with some adaptations – applied to this task. The transfer of technology and resources to developing countries along classic Marshall Plan lines did much to boost their immediate economic growth. But it swiftly became clear that, in terms of the goal of poverty reduction, the strategy was achieving very little.

Instead of wealth 'trickling down,' most of the poor were becoming progressively more marginalized from economies operating beyond their reach and often according to a quite separate set of norms. At the same time, population growth meant that the poor were becoming rapidly more numerous. A coterie of figures with world standing began to advocate investment in development approaches which could tackle poverty directly. Among them, Robert McNamara, President of the World Bank from 1968 to 1981, was a leading exponent. By the early 1970s, the failure of current development models to meet the 'basic needs' of much of humanity had become a refrain in international circles.

The sense of crisis surrounding international development and ideas for its redress were explored in a succession of UN conferences – on Environment, Population, Human Settlements and other issues – of which the World Water Conference at Mar del Plata was one. Trends in current thinking inevitably struck a chord among experts active in international organizations – including public health engineers. Experience made them keenly aware that, in water and sanitation,

marginalization and exclusion were all that low-income groups could remotely anticipate from existing models of service delivery and expansion.

This awareness fused with another. In the 1960s, ideas of self-reliance and community action had begun to be popularized as an antidote to the development model that the industrial, capitalist world was propagating. The notion that 'Small is Beautiful' advanced by E.F. Schumacher, and the movement for 'intermediate technology' he launched, elicited a widespread and sympathetic response. There was a gross mismatch between the sophisticated and expensive technology being transferred to many parts of the developing world, and the pre-industrial and semi-industrialized settings in which it was expected to function. The alternative development model had to be technologically, and socially and economically, less monolithic and more sensitive.

During the late 1960s, some international organizations including WHO, UNICEF, and the International Development Research Centre (IDRC) in Canada, began to get involved in schemes for the provision of rural drinking water supplies in low-income communities. Two of the countries concerned were India and what later became Bangladesh. The technology used was the borehole and handpump. In India, hard-rock percussion drilling was introduced by humanitarian organizations during the Bihar famine. An 'appropriate' deepwell handpump was initially developed by local missionaries, and was further developed, standardized, and – by the 1970s – locally manufactured, as the 'India Mark II.' In Bangladesh where the water table was above the suction level in most of the country, indigenous non-mechanical drilling methods could be used, and very cheap cast-iron handpumps added. The borehole-handpump approach was also tried on a modest scale in Africa.

On a similarly small scale and non-commercially, alternative sanitation enthusiasts were introducing improvements to latrines, in Thailand, Vietnam, India and Zimbabwe. Much of this experimental work was initiated by NGOs, and then taken up by international organizations such as IDRC and UNICEF – as in the case of water supply. In those parts of Asia which were water-rich, the pour-flush latrine with a water seal was the convenience of choice; in drier zones, and therefore in much of Africa, the Ventilated (therefore odourless) Improved Pit – VIP – latrine was the alternative. Low-cost reticulation networks, gravity flow water systems and rainwater harvesting were other promising approaches.

Gradually, an embryonic set of new approaches to providing basic water and sanitation services to the poor was emerging. But most of what was happening was still in the missionary category, undertaken in the name of humanitarian improvement; it did not warrant attention from serious investors. John Kalbermatten, senior Water Supply Advisor at the World Bank, was among those determined to build a bridge between the two.

He set out to persuade his colleagues that the Bank's lending policy on water and sanitation infrastructure could not, by its nature, facilitate service spread to the world's poor. If this was the case, he argued, approaches for addressing poverty directly which had been designated World Bank policy by Robert McNamara in 1972 could not enter the Bank's water and sanitation portfolio. In 1976 after many attempts, Kalbermatten finally won agreement for a research project to look into viable investment alternatives for low-income areas. This provided him with a basis for collecting together a team of researchers with high caliber and high commitment to a new vision of water and sanitation services for the poor.

Profound shifts were required – in ideology, in policy, in institutional approaches and structures, in engineering R&D, and in donor and recipient government attitudes – to develop and apply alternative service models in such a way as to bring 'Water and Sanitation for All' within any remotely practicable range. More than 20 years later, those shifts are far from complete. In 1976, they appeared daunting enough. But the process of shift would throw up challenges to the whole history and practice of public health engineering could not have been anticipated, nor could the growing external pressures – environmental, economic and political – to which water and waste management have since been subjected.

The immediate problem – applied research into technologies was not within the World Bank's normal research remit – had been temporarily overcome and a two-year Appropriate Technology research project was set up. Many of the systems examined were those with which NGO activist engineers around the world and a few brave technology institutes – such as the Blair Research Laboratory in what was then Rhodesia – had been experimenting. The main emphasis was on sanitation: pour-flush and VIP latrines; double-pit composting latrines, small-bore sewerage systems and improved septic tanks for urban areas.

The World Water Conference in 1977 therefore took place at an opportune moment as far as the initial kindling of World Bank interest was concerned. The Declaration of Mar del Plata establishing the Water Decade – the product of effective behind-the-scenes lobbying by committed international public health experts – came at a time when research activity sponsored by no less an international player than the World Bank was well underway. Technological options with demonstrated effectiveness in low-income areas had been shown to exist and could be explored for wider application, both for drinking water supplies and for sanitation.

The politicking efforts required to generate commitments from cumbersome international gatherings are sterile unless mechanisms exist to fertilize their promise. Sometimes new UN bodies have been established for this purpose: the UN Environment Programme (UNEP) after Stockholm in 1972, HABITAT after the Human Settlements Conference in 1976, the UN Commission on Sustainable Development after the Earth Summit in 1992. But there has never been strong support for a separate UN body on water; indeed such an idea was discouraged at Mar del Plata. However, a water and sanitation program with a specific poverty-reduction focus was an eminently suitable way for leading institutional members of the international community to support the prospective Water Decade.

Once more, Kalbermatten and the cadre of experts and fellow thinkers faced difficulties within the World Bank. Having identified potential technologies, the next step was to undertake demonstration projects. But a self-standing demonstration project fell outside the scope of the Bank's lending program. It was, however, within that of the grant-making UN Development Program (UNDP) – which had been declared 'lead agency' for the Water Decade. Kalbermatten therefore approached Bill Mashler, the key divisional director at UNDP, who responded enthusiastically. UNDP accepted, therefore, to become joint sponsor and principal funder of the first generation of projects to constitute what became the UNDP-World Bank Water and Sanitation Program. At the same time, the core group of World Bank and UNDP activists began to seek co-operation from other bilaterals.

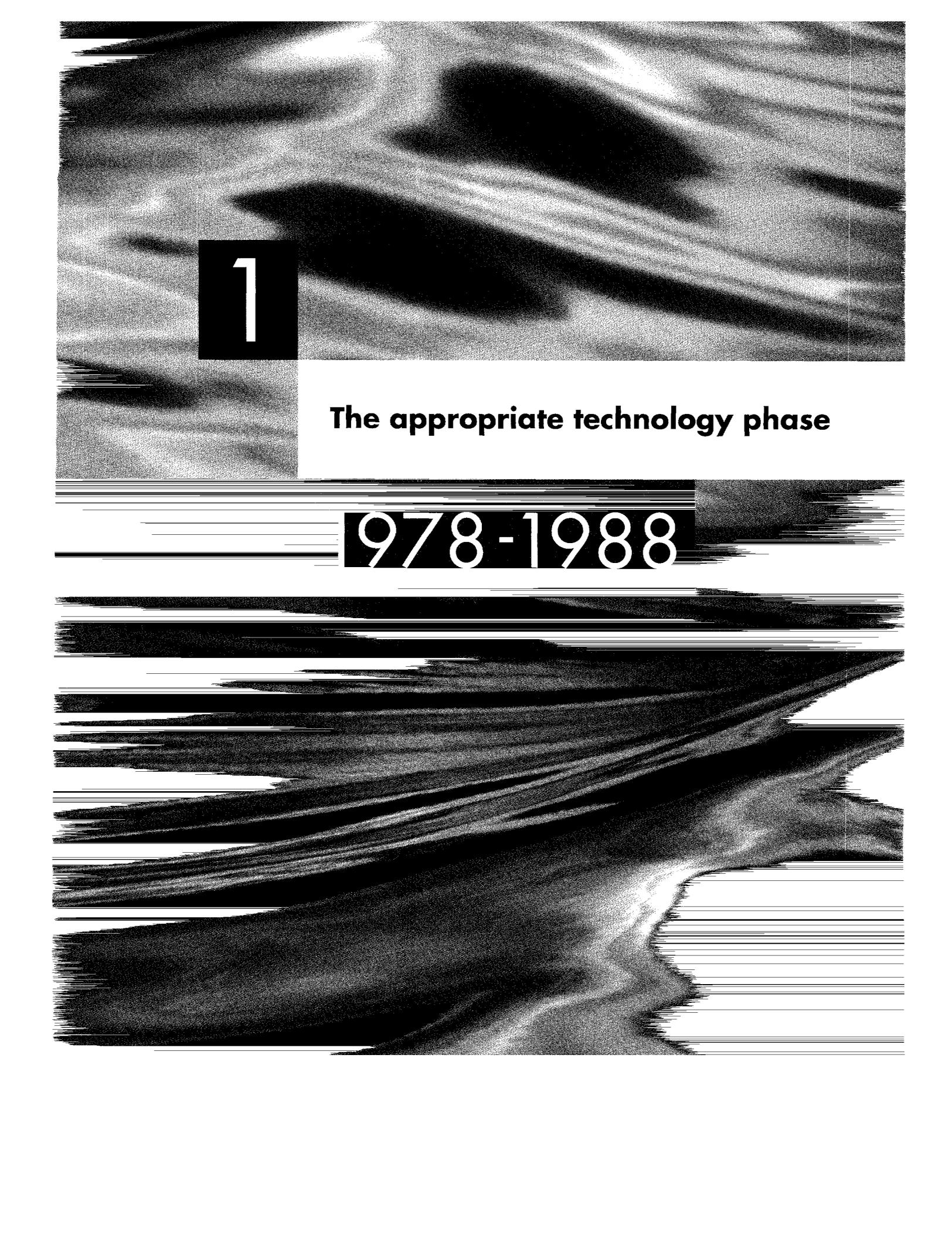
This, then, was the inception of a unique international collaborative venture in pioneering alternative models for improved water supply and sanitation systems for low-income communities in the developing world. Its strength derived from the combination

of UNDP's role in technical co-operation, and the World Bank's role in investment, in joint support of human development goals to reduce poverty. Through the Program, both organizations demonstrated their belief that innovation in hardware and software were needed if the gap in water and sanitation service coverage between the 'haves' and the 'have-nots' was to be reduced. The Program also gained vital strength from the teamwork between key individuals in UNDP and the Bank, and the *esprit de corps* they manifested in adapting and shaping the Program over the years in order to maintain its relevance.

In the 20 years since its inception, the Program has been supported by a wide range of donors including the Swiss, Nordics, Canada, Germany, UK, and Netherlands. Its activity has extended from countries in Southern and Eastern Africa and South Asia to East Asia, West Africa and Latin America. Its partnership network has embraced other international organizations, including WHO and UNICEF; bilateral programs; NGOs active both at the international and local level; ministries and departments in the developing world; and professional water- and sanitation-related bodies in both donor and recipient countries. This model for development cooperation was itself pioneering – and, for some of those involved, represented a departure from previous experience in international affairs.

The UNDP-World Bank Program has never commanded major resources – to the chagrin of some of its key supporters. In any one year, its budget has never exceeded US\$15 million. However, its influence on the major shifts which have occurred in international thinking and practice relating to water supply and sanitation has been out of all proportion to its size and budget. These shifts have affected policy and practice within the World Bank, and among the wider international water supply and sanitation community. Many alumni of the program have gone on to serve in the Bank and in key positions in the developing world, helping to bring about the transformation in thinking – notably, the emphasis on the poor, on women, and on the underserved – which has characterized the water and sanitation story over the past two decades. The ongoing transformation of policies and structures has, in turn, been reflected in the Program's own evolution.

This parallel story offers important lessons both for the future extension of essential services critical to all human life and for international co-operation as a whole. These lessons are the focus of this case study.

A black and white photograph of a landscape. In the foreground, there is a dark, textured path or road that curves from the bottom left towards the right. The middle ground shows a field or meadow with some darker patches. In the background, there is a bright, hazy area that could be a body of water or a distant horizon. The overall image has a grainy, high-contrast appearance.

1

The appropriate technology phase

1978-1988



The appropriate technology phase 1978-1988

During the first ten years of its operations the Program did not formally exist as one administrative entity. Projects were initiated on an *ad hoc* but associated basis, as needs and opportunities arose.

KEY ISSUES

Urban sanitation

The 1976 Human Settlements Conference – Habitat I – brought to world attention a new development crisis: the 'exploding cities.' Rapid population growth, improvements in public health, deteriorating livelihoods on the land, and the magnet of urban jobs and economic opportunity – in which development resources had largely been invested – had ignited an urban demographic explosion.

The pace of urban expansion in the developing world was turning out to be much faster than that of its historical precursor in Europe and North America. A very high proportion of new urban inhabitants – up to 70% in some cities of Africa – were living in slums and shantytowns without amenities of any kind. Without adequate resources – natural resources in the form of plentiful water, and economic resources to

build pipeline and drainage infrastructures – municipal authorities were facing environmental sanitation challenges of major proportions.

Developing country authorities addressing these problems tended to rely on external technical assistance. This usually came in the form of master plans for sanitation prepared by donor country consultants – plans informed by precepts governing public health engineering in the industrialized world. The historical triumph of the sanitary revolution had been to elevate the role of engineering to a position of centralized authority over networks of ducts, pipes, drains and sewers, and to remove issues relating to water and waste disposal out of the province of household action and into the realm of public administration. Those schooled in delivering this solution overlooked *its dependence on the fruits of civic wealth and industrial progress*, and the many other ways in which it was ill-suited to the very different urban environments now characterized as 'exploding.'

Thus the first problem to which the UNDP-World Bank Program addressed itself was the sanitary crisis threatened by the developing world's rapid urban expansion. Important influences were the 1976 Habitat Conference, and the situation in Latin America, where Ministries of Health had been actively engaged in addressing urban sanitation during the 1970s, their own 'Water and Sanitation Decade,' which turned out to be an inspiration for its international successor. The key issue was the lack of alternatives to sewerage currently on offer from consulting engineers. The challenge was to expand the conventional range of options to embrace lower-tech, lower-cost alternatives, and to convince engineers and planners to include them in master plans for developing country settings.

To achieve this, a whole set of correctives was necessary. Not only would viable technologies need to be demonstrated and proven, economically and technically, but the policy environment would have to change in favor of nonconventional engineering solutions, and incentives offered to engage the commercial sector. As a 1980 World Bank publication pointed out uncompromisingly: 'If governments wish to improve a community's health, they should make funds available for a combination of technologies designed to achieve that objective. In general, sewerage is not the least cost method of achieving health benefits and to subsidize this method alone may pre-empt the appropriate solution.'

Community water supplies

At the time the International Drinking Water Supply and Sanitation Decade (IDWSSD) was launched by the UN General Assembly in November 1980, the World Health Organization (WHO) estimated

that over 1,800 million people – around 40% of the world's total – lacked a safe drinking water supply. Rural people were overwhelmingly the worst provided for: only 31% had access to a safe supply, and in Africa, where taps and pumps were thinnest on the ground, only 22%. The rural sanitation figures were even worse: worldwide coverage was only 13%. But rural sanitation was – and remains – a poor relation in water and sanitation because its absence is not perceived to pose a serious threat to life and health except in areas of extremely dense habitation.

The urgent need for community water supplies in rural areas quickly captured the lion's share of attention among both donors and recipients and became the major thrust of the Water Decade.

Although UNDP was designated the lead agency for the Decade within the UN system, the Decade's underlying purpose was less infrastructural expansion (UNDP's remit) than the improvements in health they were supposed to bring (WHO's remit). WHO recognized the lack of safe drinking water and excreta disposal to be responsible for massive levels of disease and death, especially among children; these figures accounted for between 10 and 25 million deaths each year, and 80% of all the world's sickness. Diarrheal diseases were the main culprits, but many other water-washed or water-related diseases played their part, including bilharzia, guinea-worm, trachoma, scabies, river blindness and malaria.

At the start of the Decade, the major inhibition to the provision of water supplies in rural areas was that public health engineering authorities in developing countries were classically structured to provide and administer centralized piped water systems with household connections. These were self-evidently impractical and unaffordable for rural communities which might be situated far from main roads, whose households were often scattered, and whose members were primarily engaged in homestead farming of a semi-subsistence kind and lived in dwellings constructed from natural materials.

Rural people in such settings normally relied for household water supplies on natural ponds, springs and streams – and in drier areas and seasons, on wells which were often hand-dug. However, population and environmental pressures were leading to pollution of natural sources, and in some places to a lowered water table and serious seasonal shortages.

NGO's and some bilateral and multilateral donors were becoming more involved in the provision of wells and boreholes with handpumps for poor communities in developing countries by the 1970s. But in only very few cases – Ghana, India, Bangladesh and a few others – had the low-cost approach to community water supplies been adopted

as a component of government-run public health engineering. In these countries, some effort had been made to develop, standardize, and encourage local manufacture of suitable handpumps, but considerable work remained to be done.

A key issue had emerged. Where authorities responsible for rural water supplies had installed significant numbers of handpumps, a high proportion of these broke down after a period of time – and remained broken down. Centralized systems of operation and maintenance were inappropriate for 'systems' in which each installation was a separate, stand-alone facility located some distance away. Where

such installations had been provided in the name of public health as a free public good, there was no sense of community ownership. Consequently, when they broke down the community did nothing. They neither knew how to mend their system nor perceived the breakdown as 'their' problem. This raised another issue: did they value the service and if not, why not?

Rural sanitation in Lesotho

Lesotho is a small, mountainous, and densely settled country entirely surrounded by South Africa. Between 1978 and 1983, more than a dozen Technical Advisory Groups (TAG) missions were undertaken, leading to major Program support for a pilot rural sanitation program in collaboration with UNICEF. This subsequently evolved into a national program integrated with rural water supply.

By 1988, six districts had fully operational rural sanitation teams. In that year, over 2,500 latrines were constructed, mostly at the householders' expense, while efforts went ahead to transfer latrine technology to the private sector. Policy change at the national level was marked, with the 1987-91 Development Plan stating the target of having teams operational in all 10 districts by 1991.

A health impact study undertaken in one district found that children living in households with latrines suffered 24% less diarrhea than children in homes without them.

The Lesotho success story in urban and rural sanitation led to a national water supply and sanitation sector plan, towards whose fulfilment many major donors played a part.

MAIN PROGRAM ACTIVITIES

During its appropriate technology phase, the UNDP-World Bank Water Supply and Sanitation Program's activities were carried out as 'global' or 'interregional' projects. The projects came into being in response to different chall-

enges, and were separately managed from World Bank headquarters.

During these early years, five major global projects were initiated: one whose primary concern was urban sanitation, another focusing on community water supplies, a third to promote sector training, and a fourth on the recycling of resources and waste recovery. The fifth project was the Project Preparation Unit (PPU). The first three are described below (two in this section, one in the next); the Resource Recovery project turned out to be less central to the main thrust of the later Program and the evolution of thinking in the sector. To a very large extent, the dynamic commitment of the early managers of these

projects – Richard Middleton, Saul Arlosoroff, Michael Potashnik and Carl Bartone – brought the fully-fledged Program into existence. The PPU's were regionally based, operational and tailored to generate a pipeline of well-prepared investment projects.

The World Bank provided the administrative context and leadership but no active funding since the projects fell outside its lending program. The singularity of the World Bank's relationship with the Program has been, throughout its history, both a source of strength and a source of difficulty. Fluctuations in the relationship have in part reflected changes of emphasis in international thinking and in the World Bank, not only about priorities in water resources management, but about development modalities in relation to the perennial problem of how to reduce poverty.

The early global projects were mainly funded by UNDP, but a growing number of bilateral donors provided support. These included the Canadian International Development Agency (CIDA), Danish International Development Agency (DANIDA), Finnish International Development Agency (FINNIDA), German Ministry for Economic Cooperation (BMZ) and German Agency for Technical Cooperation (GTZ), the UK Overseas Development Administration (ODA), Swiss Development Cooperation (SDC), Norwegian Aid (NORAD) and the Swedish International Development Agency (SIDA). Many of these agencies have subsequently made a significant contribution to international thinking and practice in relation to basic water and sanitation services. Some provided the Program with early staff members, notably in the field.

At the same time, the Program built up its partnerships with other collaborators in the UN system, in recipient countries, and with professional and non-governmental institutions such as the Consumers Association in the UK and the Swiss Center for Applied Technology (SKAT). The PPU's in Africa and Asia gradually began to assume more importance in the Program.

The low-cost water supply and sanitation project - TAG

The first UNDP-funded global project grew specifically out of the findings of the World Bank appropriate technology project launched in 1976 in the run-up to the Mar del Plata World Water Conference. The project was launched in 1978, and managed by Richard Middleton; his leadership and the reputation it gained helped lay the groundwork for others.

The main emphasis was on urban sanitation, specifically on low-cost alternatives to waterborne sewerage. Not just particular technologies – 'on-site' technologies, essentially latrines – but a

completely different approach to sanitation would have to be piloted, studied, and shown to be viable in order for it to gain professional and sectoral status as a public health engineering option.

Apart from preparing institutional and technical models and setting out to demonstrate their financial feasibility, the project had two other purposes. One was to help prepare the ground for new initiatives – to create a 'project pipeline' so that interventions designed to reach low-income communities would be made ready for financing by large-scale investors; the other was to identify sources of funding. This, then, was the bridging function – between low-cost approaches and large-scale investment – perceived as central to the Program's mandate.

The key project services were provided by consultants forming a *Technological Advisory Group (TAG)*; the project subsequently became known as TAG. These consultants were provided on a short-term basis to countries seeking assistance; some were provided full time, and became known as 'sanmen.' This regular field presence was one of TAG's strengths. In the early years of the project's life, 20 countries were assisted by TAG, including Bangladesh, Botswana, Brazil, India, Indonesia, Lesotho, Nepal, Philippines, Tanzania, Thailand and Zimbabwe. In Africa, the context was often a World Bank 'sites and services' housing scheme. In Asia, the context was often upgrading of squatter settlements.

Thus, in a large spread of countries and program contexts, a modest – if high-quality – TAG team was expected to effect a major change in professional attitudes towards sanitation options and practice. This was a tall order; some achievements outstripped expectations [see box on Lesotho]; others were more modest.

TAG consultants were multi-disciplinary, predominantly composed of sanitation engineers; but there were also some public health specialists and social anthropologists. Existing experience with latrines showed that consumer acceptance posed a problem. Where they were provided free, latrines often remained unused – at least for their intended purpose. Therefore the TAG project managers respected from the outset the need to look at prevailing beliefs and behaviors about waste disposal, analyze acceptability criteria for latrine use, and promote hygiene education. In this respect, the TAG was very much a pace-setting operation.

The TAG prepared projects in several countries, and by 1981 its activities had led to low-cost sanitation activities being funded in Botswana, Brazil, India, Lesotho and Tanzania. Thus, it did manage to begin – at least in donor-assisted schemes – the transformation in sanitation approaches that it sought to achieve. But there remained in many countries considerable resistance to

the idea that low-cost sanitation alternatives be included in the range of options promoted by governmental authorities.

The key problem was the abiding difficulty of persuading the engineering establishment to take any notice of technologies which seemed to belong to an earlier era, did not provide any commercial boost to the industry, or confer status on professionals associated with it. This made the need to demonstrate economic viability and consumer acceptability even more pressing. Both were still problematic. On-site sanitation might be lower-cost than sewerage, but it was not cheap. Latrine pits had to be built of solid materials to be safe, and of a certain size not to need frequent emptying. Rarely did the urban VIP cost less than \$200 to install (it could cost twice this amount), a sum significantly lower than \$1,000 and up for a sewer connection but still wildly out of keeping with the household incomes and dwellings of many of those it was meant to serve. This was a further inhibition to problems of acceptability deriving from social and cultural factors: for example, a dislike of retaining human waste below the ground on which a household dwelt.

Apart from the continuing need to experiment with lower-cost materials and improved (less odor, fly-free) designs, the TAG identified non-engineering – or 'software' – problems as those most frequently barring the way to success. A great deal of effort was needed to overcome the reluctance, and even resistance, of both institutions and consumers to the use of latrines. The difficulties of re-orienting institutional thinking and practice, and the time required to do so, had been under-estimated. Marketing and promotion, social mobilization, incentives to bring in private manufacturers, the development of support and maintenance services or industries, and extensive health education were needed, as was training for engineering staff and private artisans.

Over time, the TAG produced a significant number of technical publications and training materials to help promote low-cost sanitation approaches; these were widely disseminated. The Program helped to improve latrine technologies and to get them better-known and more widely used in donor-assisted projects. In some countries -- notably Lesotho, Bangladesh, Ghana, Indonesia and India -- on-site sanitation gradually became incorporated into mainstream public health engineering, and to some extent into private sector manufacture and sale to consumers. TAG helped to start a process rolling; but its momentum was slower and the institutional response more muted than TAG's initiators had hoped.

The handpumps project

In 1981, the UNDP and the World Bank initiated a global and interregional project for the Laboratory and Field Testing and Technological Development of Community Water Supply Handpumps. This became known as the Handpumps Project, and was managed by a dynamic and highly committed engineering visionary, Saul Arlosoroff. Arlosoroff, who had participated in the early World Bank research project, was a key member of the group now actively promoting a new vision of water supplies and sanitation worldwide under the 1981-1990 Water Decade banner. The extension of rural drinking water supplies to low-income populations was to become the keynote activity of the Decade. This project was a flagship within this thrust – and to a considerable extent was responsible for the new importance attached to rural water supplies programs, and the shape they began to take.

The primary purpose of the Handpumps Project was to test handpumps in the laboratory and under field conditions to see which ones worked and under what conditions. The key to the large-scale transfer of handpump technology into mainstream public health authorities and engineering institutions was perceived as the development of a range of state-of-the-art handpumps for different groundwater conditions, the development of strategies for installing and maintaining services based upon them, and the promotion of their standardized manufacture.

Unlike latrines, where costs and acceptability still posed problems, the arguments in favor of handpump technology for rural water supplies appeared unanswerable. According to contemporary estimates, safe water could be provided from wells equipped with handpumps for US\$10-30 per head, compared to US\$30-\$60 per head for *motorized pumps and standpipes*, and US\$60-\$100 for yardtaps. While consumer demand varied – a lot depended on the degree of water scarcity and the distance to the source – water was wanted by rural dwellers in a way that sanitation was not. In a country such as India, local political elections might be won or lost on the basis of water supply promises. There could be some cultural resistance to drinking groundwater instead of surface water, but in most rural areas of Africa and Asia – and certainly in places where water was short – handpump water was perfectly acceptable.

The Project started by focusing hard on the technology itself. Over five years, it carried out laboratory tests in the UK (at the Consumers Association Testing and Research Laboratory) and field trials in 17 countries to measure the performance of over 2,500 handpumps. Some 70 models were represented in the trials. At the end of this

process, a compendium of results on 42 models was published in *Community Water Supply: the Handpump Option*, a book that constituted the seminal text on handpumps for water supplies for low-income communities. Two new handpumps developed during the Project, with its support, were included in the volume: the Afridev, developed in Kenya for deepwell environments, and the Tara, a direct action pump developed in Bangladesh for use where the water table was just below the suction level.

Previous efforts to develop handpumps appropriate for community water supplies had started from the premise that old-style European models had broken down because they were insufficiently sturdy to withstand use by a whole village, as opposed to a farm or homestead. Such was the background of the success-story handpump to date, the India Mark II developed by UNICEF. In the early 1980s, the UNDP-World Bank Handpump Project came up with a somewhat different analysis. Their criterion for an appropriate handpump was that its design should fit it for Village Level Operation and Maintenance. The VLOM handpump should indeed be able to withstand wear and tear but, more importantly, it should be designed and manufactured in such a way that trained villagers could service and repair it, and act as managers of the service it provided. The India Mark II, however sturdy, was not designed for VLOM.

As with conventional piped water systems, maintenance and repairs of handpumps installed by government authorities almost invariably relied on centralized action. Teams of skilled mechanics operating by vehicle from district headquarters usually covered a

Kwale, Kenya: Community management in action

The Kwale District Water Supply and Sanitation Project in the southern coastal area of rural Kenya began with Sida support in 1983, originally to test Village Level Operations and Maintenance (VLOM) handpumps while providing 25,000 people with services. It quickly became clear that a special effort would be needed to develop pump O & M systems in partnership with local communities.

UNDP therefore decided to offer the services of its program for the Promotion of the role of Women in Water and Environmental Sanitation Services (PROWESS) to support the involvement of a Kenyan NGO, the Kenyan Water and Health Organisation (KWAHO). The involvement of local women was seen as key since their participation would be decisive in whether services were valued and used. KWAHO trained five women as extension workers and led community organization activity based on PROWESS participatory methodologies. Around 30 local women were trained as handpump caretakers.

The project was rapidly expanded to the rest of Kwale District. Things did not always go smoothly. But in time, a ground-breaking system of community organization was in place, -- 125 Water committees were established; all selected women as treasurers, and all collected water levies. By 1988, 70% had opened bank accounts. Pumps were functioning and being routinely mended with the use of the funds.

Kwale proved that community management of water supplies did work, especially where women were involved. It also showed that a lot of time and effort was needed to develop such a system, and that an NGO might be the most appropriate medium for fulfilling this part of the VLOM concept.

large area containing many hundreds of pumps. This was hopelessly inefficient; a crew might travel a long distance by truck with lifting equipment to raise a heavy pump mechanism needing a spare part costing a dollar or two. Given the areas they had to cover, response times of such teams even for minor repairs often stretched to several months. A sturdy pump that broke down rarely but was out of action for months when it did so provided a less reliable and less cost-efficient service than a pump which broke down more often but was capable of repair on the spot within days or hours.

The VLOM concept was a major contribution of the Handpumps Project to the development of a new conventional wisdom governing its water supply programs. Its inspiration was technical: to develop pumps and spares suited to decentralized maintenance. But the key conceptual leap was that of user participation in decisions concerning services and in their management. David Grey was the Regional Officer for East Africa and was instrumental in Kwale and in making the link between the technology and community management. This idea has subsequently invaded thinking about water resources in general.

If the community itself was to be primarily responsible for maintaining and operating its handpumps, it would have to be involved in service delivery from the outset. It would have to want the handpumps in the first place, and choose 'pump managers' or 'caretakers' from among its members; these people needed to be familiarized with the pump and made aware of maintenance requirements. VLOM expected the community to collect money to pay for repairs, and – in some cases – pump replacement; to know who to hire for handpump work and how much to pay them; it also required that spare parts were available, and that both spares and repair services were within a range the community deemed affordable.

In retrospect, the VLOM concept can be seen as the first step away from the idea that provision of engineered systems of water supply is a fundamental social right justified on grounds of public health, provided from the public purse – an idea on which most water supply provision in developing countries had been predicated up to that time. VLOM required that a new balance be struck between the responsibilities of public authorities and those of households and communities. Not only the handpump needed to be 'appropriate'; the service model surrounding it needed to be equally so.

The concept was, in part, ideologically driven, suggesting that villagers could and should take into their own hands the management of a service intended to benefit them. From an accountancy perspective, the concept was democratic and 'empowering,' dethroning the high priests of water and sanitation – the engineers –

and giving communities the capacity to control their own water-related affairs. From the accountancy perspective, VLOM also appealed to the need for cost-savings. It was an antidote to wasteful, non-functioning centralized repair systems and a way of achieving operational and financial sustainability.

If VLOM was to become a long-term reality, a local market – in pumps, spares, and skills – would have to develop around it. The Handpumps Project recognized this and took appropriate action. Handpumps available on the market – local and export – needed to incorporate VLOM criteria, and donors and recipient governments needed to understand the need to specify the use of VLOM products. Based on the results of the project's testing program, handpump manufacturers were encouraged to develop VLOM models. The project also helped a number of companies in developing countries to begin handpump manufacture and promoted in-country standardization and quality control. Donors began, at the project's prompting, to avoid providing countries with a wide range of incompatible handpump equipment and to insist on VLOM.

However, *The Handpump Option* concluded in 1987 that there still remained very few low-cost, durable and corrosion-resistant VLOM handpumps for lifts below 25 meters. Even if 'software' was now beginning to eclipse handpump 'hardware' in importance, the quest for improved VLOM pumps for all groundwater and social conditions went on. The Handpumps Project itself continued until 1991. Responsibilities for technology development were then transferred to the Swiss Center for Appropriate Technology (SKAT) under an agreement with one of the Program's principal sponsors, Swiss Development Cooperation.

LESSONS LEARNED

The key lesson learned during the appropriate technology phase of the Program was that identifying low-cost 'hardware' solutions to the need for safe water supplies and sanitation among the world's under-served populations was only the first step.

The availability of alternative technologies, and their endorsement by heavyweight players on the international donor circuit, did not necessarily lead to their enthusiastic acceptance by authorities in developing countries. Indeed, the resistance of the engineering establishment – especially given the incentives surrounding lucrative national and international contracts for high-tech installations and equipment – was deeply entrenched. Low-cost,

low-technology wisdom needed time to prevail. The approaches had to be heavily promoted to public health officials, engineers, politicians and potential private commercial partners.

Another change was the recognition that a 'system' which consisted of separate installations required a very different structure of operational management than one typically undertaken by centralized public health authorities. Communities would have to take on some measure of responsibility for repair and maintenance because this could not be done either practically or economically by centrally-based teams. Ideally, communities should be able to manage and pay for all minor repairs, and pay in part or in whole for major repairs and replacements.

This understanding led to another perception. If communities were to take responsibility for service maintenance, including the collection of levies for this purpose, they would have to feel a strong sense of need for the service. Whether they did so or not was usually connected to water scarcity and the time spent and the distance travelled to reach the natural source. The health benefits of safe water – effectively, engineered supplies from unexposed groundwater – were not well understood by most poor communities. However, improved health was the driving force behind water and sanitation development co-operation. Thus, the 'lesson learned' was that there was a great need for health and hygiene education. The cultivation of a desire for the better health that services could confer was thought to be the non-technical key to unlocking the puzzle of why so many community installations remained unused or broken down over long periods of time.

Other lessons learned concerned the evolving administrative structure of the Program itself. In 1983, an internal World Bank restructuring exercise led to the submersion of the Bank's water-related activity within urban development. This led to a less supportive administrative environment towards the Program, and a gap between the activities of UNDP-World Bank global projects, and the parameters within which the Bank conducted its own water- and sanitation-related activity.

To close this gap, an effort was made in the mid-1980s to bring the projects closer to the mainstream of Bank work. One means of so doing was to place more emphasis on the Program's field-based water and sanitation teams in Africa and Asia. These were increasingly used to help governments adopt low-cost approaches, develop the necessary policies and institutional frameworks, and enable sound investment opportunities to emerge. The teams worked with the Bank's own regional managers to plan World Bank investments in water and sanitation.

In the early days of TAG, there had been a strong intention to provide a bridge between low-cost water and sanitation services and large-scale investment, notably from the Bank. For various reasons – including the changed policy climate within the Bank – this objective had somewhat receded. The field-based teams were intended to renew their capacity to develop a 'project pipeline,' and to provide operational expertise and back-up services for such projects. This became a much stronger focus of the Program during the next phase of its development.

At the same time, it was decided to bring coordination of the various projects under one unified structure. By 1987, there were around 25 diverse global, interregional, regional and country activities. They varied from the placement of a technical advisor on a national scheme, to the International Training Network (see next section) and the Resource Recovery program previously mentioned, which was absorbed into the Bank. Consolidation would help rationalize a set of activities which had the common thread of investigating how better to serve the poor. The decision led to the formal creation in 1987 of the UNDP-World Bank Water and Sanitation Program under the management of Saul Arlosoroff.

This passage was one of several occasions in the Program's history when a case could be made that since its immediate task had been done – the development of low-cost technological approaches – its life should end. Such a case would have attracted support from those in the Bank who still thought that a pre-occupation with handpumps and latrines was cranky and just a bit irrelevant. But the moment for making such a case was not propitious. This was, after all, a flagship UNDP-World Bank enterprise for the International Drinking Water Supply and Sanitation Decade, and the Decade was not over.



EVOLUTIONS IN INTERNATIONAL THINKING

Throughout its duration, the UNDP-World Bank Program has been a barometer of international thinking regarding water and sanitation services for the poor. Its own activities reflect current thinking about how to increase service coverage to reach the target of 'Water and Sanitation for All,' and it has made an important contribution to the development of such thinking.

Soon after the Decade mid-point, WHO issued an overview of the achievements of the Water Decade during its first five years: one important advance was the collection of data in a standard form which allowed coverage progress to be measured. As far as the spread of services was concerned, there had been a major acceleration. But this had made little impact on the huge backlog of communities lacking basic water and sanitation services. Only in the context of rural water supplies had the number of people receiving new services - 715 million - managed to outpace growth in population.

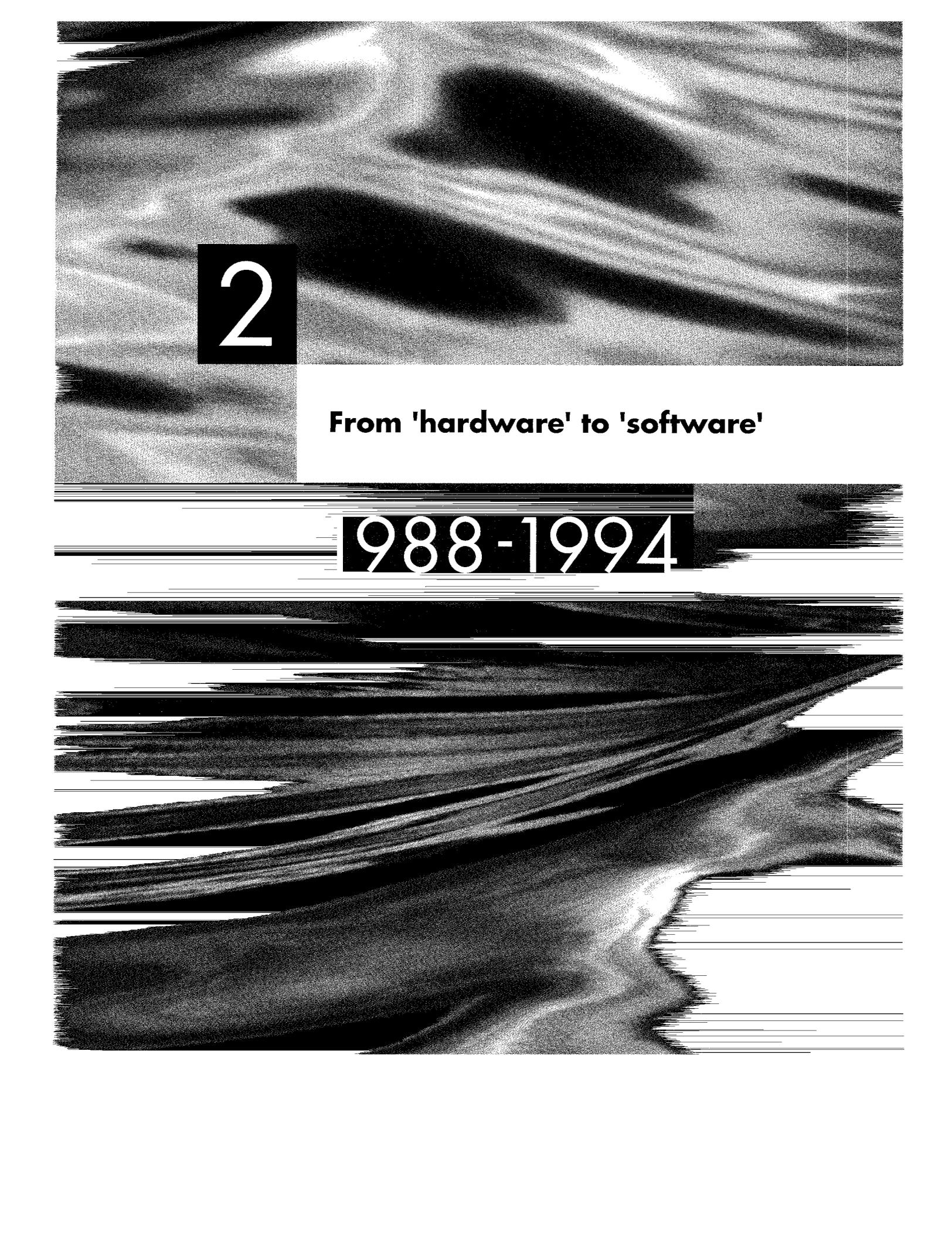
Although the Decade appeared to be falling short of its goal in quantifiable terms, it had borne important fruit - as commentators committed to the new water and sanitation vision persistently underlined. The experts had been forced to recognize that past policies had left a legacy of expensive and non-functioning systems all over the developing world which could not serve the poor. The importance of low-cost technological approaches was now recognized by the donor community and in more and more developing countries, even if the corresponding influence on large-scale project design and costs was yet to be felt.

In addition, extra resources had been found for water and sanitation within both the donor community and among recipient governments. The four main international players - the World Bank, UNDP, WHO and UNICEF - had entered an era of cooperation in water and sanitation (which the joint Program exemplified), and sector professionals from the developing world were also deeply involved.

At a series of meetings of the Water Decade Steering Committee composed of the big four UN donors, the elements of a new vision for water and sanitation were discussed. At a 1987 meeting in Interlaken, Switzerland, to which bilateral agencies, NGOs, and developing country governments were also invited, participants identified six priority areas for attention: strengthening the skills and capacities of public health engineering bodies; developing community financing mechanisms to recover costs; better balancing of inputs between water and sanitation, and between city centers and rural and poor urban areas; operation and maintenance, essentially via VLOM; community

participation and hygiene education, especially among women; and greater coordination and cooperation among the various players. These themes were to be taken forward and given more emphasis for the rest of the decade. It was also agreed at Interlaken that a Collaborative Council on Water Supply and Sanitation should be established; it met for the first time the following year.

As the Water Decade went on, out in the rural hinterland and in the squalid city perimeters of the developing world, many of the pumps, pipes and pits which needed to be constructed to bring 'Water and Sanitation for All' were beginning to appear.



2

From 'hardware' to 'software'

988-1994



From 'hardware' to 'software' 1988-1994

Although 'software' issues had come to the fore in the appropriate technology phase of the Program, its next phase saw a more decisive shift toward concern with institutional and service management issues, alongside attempts to demonstrate successful approaches on the ground.

The goal of the newly-consolidated UNDP-World Bank Water and Sanitation Program was stated in 1988 as: *'To increase the capacity of countries to deliver water supply and sanitation services to low-income groups, primarily with low-cost and community-based approaches.'* The strategy adopted by the Program was to test and demonstrate approaches on a small scale which could be replicated nationally, and to help institutionalize them. At the country level, the emphasis was on demonstration projects; at the global level, it was on applied research and dissemination of useful lessons from the Program's work.

KEY ISSUES

Sustainability

In 1987, the World Commission on Environment and Development (known as the Brundtland Commission) published a landmark report entitled '*Our Common Future*.' The Brundtland Report reactivated international debate – dormant since the early 1970s – on the environmental pressures facing humankind, and led to the 1992 Earth Summit in Rio de Janeiro. From the late 1980s onwards, debates on developmental activity were strongly colored by Brundtland propositions linking economic and environmental concerns.

The most important concept to emerge from the Report was that of 'sustainable development.' In its own words: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their needs.' In other words, developmental activity must in future be planned and judged not only against economic and social outcomes, but against 'sustainability' criteria. The idea was emerging that the earth's natural resources – air, soil, minerals, freshwater, forests – had an economic value independent of their marketable value which must be factored into their use. The interests of humankind demanded that a scarcity value and a protection-of-quality value be attached even to resources such as air and water which were nominally free.

The vocabulary of 'sustainability' was speedily adopted by development theorists and practitioners, including those concerned with water and sanitation. The need for services to be 'sustainable' became the new conventional wisdom. Essentially this meant that service spread and management should be cost-effective, taking into account constraints on the resource itself, and on the availability of financial resources.

The need to be tough-minded was reinforced by the knowledge that the investment resources needed to provide full coverage from public funds, given the rate of population growth and the economic setbacks many developing countries were facing, were never going to be available. Around \$10 billion was being invested in water and sanitation each year by the end of the Water Decade; but this was a small fraction of the amount needed to provide full service coverage. Water and sanitation systems would have to become more financially self-sufficient, even where they catered to low-income communities. 'Sustainability,' in short, required that people – even poor people – would have to make some financial contribution, at least to maintenance. 'Cost recovery' became the new watchword, bracketing sustainability and VLOM with savings.

At this time, low-cost water supply programs for people in low-income areas were still primarily legitimized as providing an essential basic service on grounds of public health, and therefore funded out of the donor-assisted purse in 'supply-led' mode. Where local communities made some financial contribution to upkeep or to stipends for pump 'caretakers,' this was usually peripheral to the economics of the scheme. It contributed to service maintenance and helped eke out constrained budgets. Now it was being argued that cost recovery (for O&M anyway) should be integral to scheme financing and was a central purpose of community management. The notion of 'sustainability' of services for the poor might owe something to environmental considerations, but its main inspiration was marketplace economics: people will pay for the upkeep of something they value. When they do not value it and will not pay for upkeep, installations deteriorate and therefore become 'unsustainable.'

Although tariffs and water rates are standard utilities' charges, in effect, the story of engineered water supplies and sanitation is one of major public subsidy. The idea that the costs of service for low-income communities should be partially or wholly recovered while subsidies remained in place for better-off, or politically influential, areas was, and remains, controversial. However, in the late 1980s the immediate problem was seen as an institutional one. How should community management and financing mechanisms be constructed? And what would be the modified role of the central public health engineering authorities?

Community participation and the role of women

From the early 1980s, an increasing amount of attention was given to the role of women in water supplies and waste disposal. In many parts of the world, women are the traditional providers of the household water supply – as of other household utilities, notably fuel. They are also responsible for disposing of household wastes, including children's faeces. Thus any instrumental role in service delivery to be assigned to communities must recognize the essential involvement of women. In fact, experiences such as that of Kwale, Kenya (see page 19) had demonstrated that women responded to the call for community involvement and management in a way that men frequently did not.

For many women in the developing world, water supply provision was a major pre-occupation, especially in water-short areas. Where water is drawn from streams or wells, women are invariably the water-haulers. The investment of time and energy, especially where pressure on local sources increases and water sources are further away, is a

significant drain on the household economy. Where water from natural sources is supplemented by informal vending or exchange, women have to find the means to pay for it. Only when serious engineering and property – pipes and pumps – enter the picture, do men normally become involved.

The initial demand for recognition of the role of women in water and sanitation pointed to the fact that since women governed the collection and use of water in the household, it was foolish and inequitable to ignore their opinions about the siting, acceptability, or management of installations. In some schemes where community involvement in supplies management was pioneered by training 'handpump caretakers' – in India, Sri Lanka and Kenya, for example – women caretakers were trained alongside men. This was partly to break time-worn molds by putting spanners into women's hands and giving them some engineering-related status; it was also a route to introducing water protection and hygiene *in the home*. Without changing household management of water and waste, no health impact from a new, engineered service could be guaranteed.

Since women were the water providers, they were more likely than men to be motivated to do whatever was necessary to obtain, and keep functioning, a more convenient and reliable water supply. Many projects – such as the one in Kwale – built on this reality. It was also true in the context of sanitation. In many parts of Asia, where female modesty carried a high cultural and religious value, loss of tree cover and high population density had made it more difficult for women to defecate in private. Going out beyond the community perimeter after dark or before dawn could also be unsafe. Thus, as participation by the community became increasingly emphasized in water and sanitation schemes, the role of women and their relatively high motivation and consumer demand grew in significance.

The recognition of women's role in development generally increased during the UN Decade for Women (1975-85). A number of special international initiatives were developed as part of the Women's Decade, including the UNDP program for the Promotion of the Role of Women in Water and Environmental Sanitation Services - PROWWESS – launched in 1983. This program, which was heavily supported by the Norwegian Government, developed methodologies for improving people's participation in water and sanitation programs and was pioneering both programmatically and as an advocate on behalf of women and water. Its experience in community participation and its methodologies and monitoring techniques were incorporated into many ground-breaking programs during the Decade and after.

Institution-building and human resources development

Progress made during the Water Decade had revealed that, although public health authorities in the developing world were willing to incorporate into their portfolios low-cost schemes for donor-funded rural water supplies, few were ready to transform their organizational structures accordingly. Most authorities were highly centralized bodies, not well-attuned to working with communities, or to developing a responsiveness to different social and economic situations. They were used to carrying out a master plan developed at the center and naturally resistant to losses of control over 'their' public works. In addition, engineers tended to be mainly interested in construction, for professional reasons and because of the financial opportunities they offered.

Independent of the need to provide appropriate training and orientation in low-cost technologies to sector professionals and engineers, there were other partners who needed to be enlisted in the new scenario. Local government authorities – councils and officials – needed to understand what was involved in running community water supplies and sanitation projects. So did NGOs and community-based organizations who might be involved in helping establish management and financing mechanisms. And then there were the beneficiaries – users – of schemes. They too were accorded a new role. No longer were they to be the passive recipients of services, but active partners in service management. So Water Committees or other types of user groups needed to be brought into existence and given technical and managerial skills.

The concept of 'participatory development' which laid as much emphasis on the organizational means of development as on the development product itself was developed by NGOs during the 1970s and 1980s. By the early 1990s, international donors had begun to accept this concept and to accord a new respect to the experiences and capabilities of NGOs. This was partly a reflection of the new importance attached to democratization in the post-Cold War world. It was also an acknowledgement that lack of involvement of local people explained the failure of many projects. The top-down, hierarchical structure typical of many governments was inhibiting the engagement of communities in activities intended for their benefit and thus seriously compromising their results. Until project beneficiaries became fully-fledged consumers, services of any kind were unsustainable. Participatory methodologies designed to activate community participation became the substitute for the long process of education and familiarization with active citizenship in organized civil society which most people in more developed societies automatically enjoyed.

In the World Bank, 'participation' was defined as 'a process through which stakeholders influence and share control over development initiatives, decisions and resources which affect them.' The important new idea was that all parties to a development project or service were stakeholders – not only their investors and managers. Throughout the development community, participatory methodologies were developed for use at the community level, to elicit information, build confidence and leadership, undertake service tasks, select project beneficiaries or sites, and monitor results. NGOs and community-based organizations were key vehicles for the promotion of participatory development. They in turn profited from technical advice and funds provided by the international establishment.

MAIN PROGRAM ACTIVITIES

The International Training Network (ITN)

During the Water Decade, utilization of low-cost technologies began to make significant progress. Combined with their development, there was a clear need to facilitate training in the countries concerned to enable the technologies to be absorbed into the engineering mainstream. In the early 1980s, the UNDP-World Bank Program had developed a number of materials intended for training purposes. Much of the TAG output was in the form of manuals on how to construct latrines and how to conduct surveys and other exercises. Training and information materials were prepared in many languages, and consisted mainly of slide-sound shows, films, and project preparation guidelines aimed at engineers and other water sector professionals, field staff, and NGO and government decision-makers.

These were seen as a foundation for a new venture initiated by the Program with support from bilateral donors: an International Training Network (ITN) for Water and Waste Management. The Network was launched in 1984 at a meeting of donors in Königswinter, Germany, convened by BMZ/GTZ, UNDP, and the World Bank. Full operations began under the management of Mike Potashnik in 1985, and the main phase of activity took place in the second part of the Decade.

The ITN's immediate objective was 'to strengthen the capacity of sector and educational institutions within developing countries to carry out training programs and other human resources development activities on low-cost water supply and waste management.' Wholesale education and training among sector professionals was well outside the scope and resources of the project as envisaged. Its purpose was rather to help teaching

institutions incorporate low-cost approaches in their public health engineering curricula, and to establish a network whereby they could exchange tools, experiences and information.

The task of identifying suitable local and regional institutions to act as ITN Centers and helping to plan and find financing for them was undertaken from Washington. Originally, the intention was to develop a network of 15 participating centers by the end of the Decade. These were to be relatively independent bodies, led by people with influence in the sector. Their task was to advocate state-of-the-art policies and to become focal points for knowledge on low-cost approaches.

Ultimately, seven participating ITN Centers became fully active: country Centers in Bangladesh, India, Ghana, and Philippines, and Regional centers in East, West and Southern Africa. These latter were respectively based in the African Medical and Research Foundation (AMREF) in Kenya, the Centre régional pour l'eau potable et l'assainissement à faible cout (CREPA) in Burkina Faso, and in the Department of Civil Engineering at the University of Zimbabwe. Both country and regional ITN Centers developed local networks with university departments and other appropriate institutions. Some developed 'twinning' arrangements with industrialized countries to ensure future funding. One of the most successful was the Center in Zimbabwe which became a flourishing, self-sustaining organization in due course [see box.]

The ITN was an idea ahead of its time. The centers and the International Network itself enjoyed support from donors, at first through the Program and later independently. UNDP was an important facilitator and donor, both from headquarters and through UNDP Country Offices. But expectations proved unrealistic, and an excessively uniform approach was applied which did not take account of local realities. The length of time required, and the difficulties involved in finding suitable host

Zimbabwe: Quality technical training in basic water and sanitation

The Training Centre for Water and Sanitation (TCWS) in the University of Zimbabwe, Harare, was established in 1989 with assistance from the Program. In addition to shorter courses and post-graduate training, it offered a four-month diploma course for government officials in Zimbabwe and neighbouring countries. The course was based on local realities and was much cheaper than attending an equivalent course in an industrialized country. The courses attracted new managers of community water supply programs as a result of Water Decade initiatives.

The TCWS grew from strength to strength, with financial support from UNDP and Norway. In 1993, the government started to decentralize water and sanitation activities to the district level, and the TCWS played an important role in helping create the necessary local planning and management systems. In 1994, it was established as an NGO, the Institute of Water and Sanitation Development, in a move to reduce external funding. The Institute has expanded its training activities and offers consultancy services to governments in the region. The regional UNDP-World Bank Water and Sanitation Program team has frequently worked in collaboration with the IWSD, notably during the PHAST initiative (see page 41).

institutions and getting centers up and running, were underestimated. Some governments in countries where centers were established gave initial pledges of support – for staff and salaries, for example – but subsequently failed to deliver. External financial support was intended to be of limited duration; five years was thought to be enough for the training transition. But the new importance attached to 'software' issues and recognition of their complexity meant that extra training issues and research needs were constantly emerging.

Undoubtedly, human resources development to build capacity for low-cost approaches in water and sanitation was critical and is still critical today. In the first major independent evaluation of the Program, undertaken in 1990, ITN shortcomings were fully explored but there was nonetheless a strong assumption that – with policy modifications and suitable staff support – the ITN and its participating centers had an important role to play. However, the support from Program headquarters never came. The criticism, both *from within the Program* and within the Bank, was too unrelenting. In 1994, support to the international network was phased out.

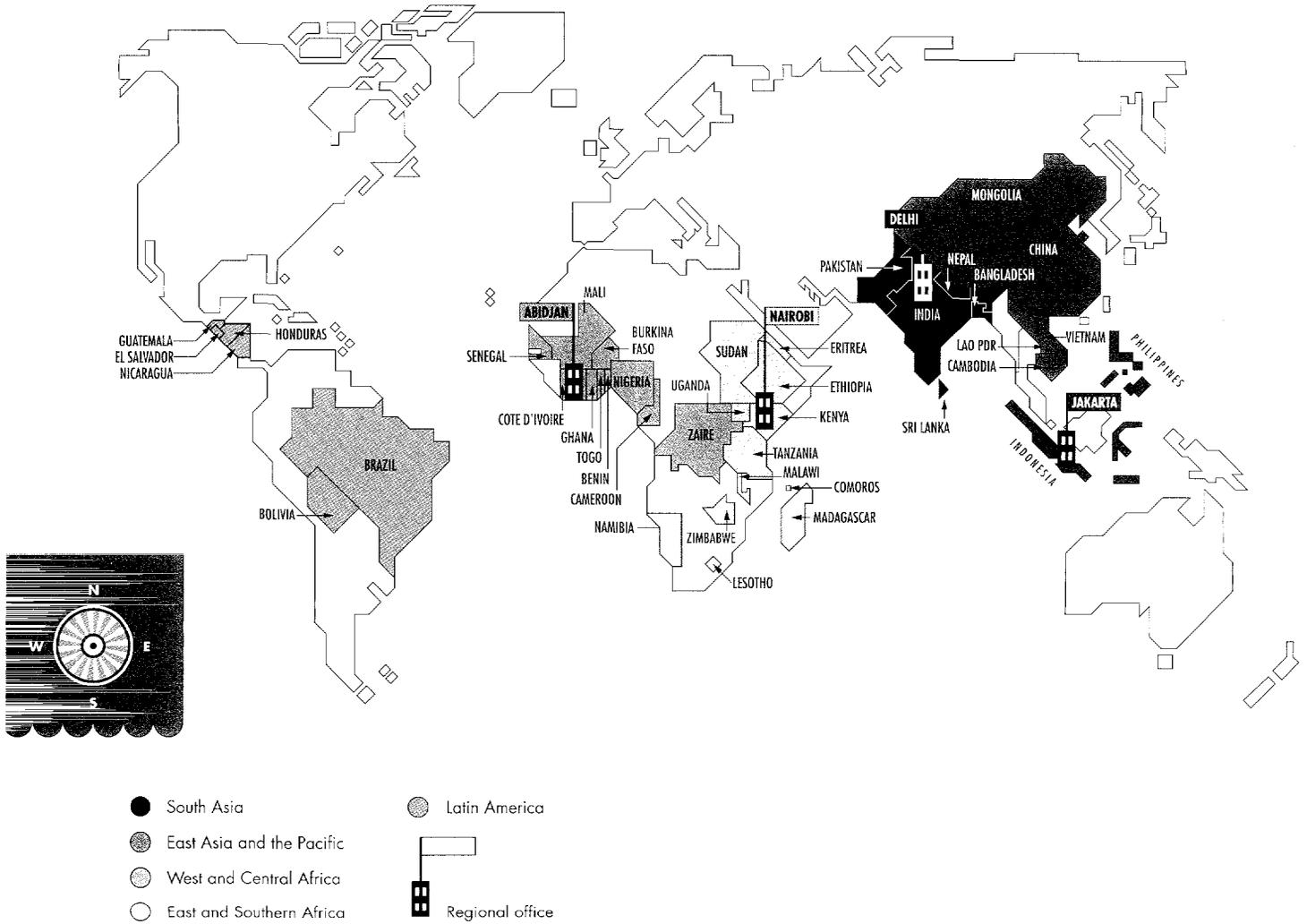
ITN Centers in several countries continued, and still continue, to function successfully, sometimes with technical support from the Program's regional teams. Some centers participate in effective networking arrangements at local or regional level and have become sources of information for each other and for the water and sanitation community as a whole. The Program maintains active links, but since the early 1990s it has turned to other vehicles and modalities for support in capacity building (see below).

'Scaling-up' and demonstration projects

Following its reorganization in 1987, the Program divided its activities between in-country efforts – promoted by field-based teams – and research, coordination, and synthesis of experience managed centrally in Washington. In 1988, the field-based teams, now evolve from the PPU's to Regional Water and Sanitation Groups in East Asia. Another was envisaged for Latin America.

The idea was to bring together in strategic locations – Nairobi, Abidjan, Delhi, and Singapore (later, Jakarta) – expertise previously scattered among separate projects. These multi-disciplinary teams, which included professionals from different backgrounds, were expected to help plug the many planning and implementation gaps between the promotion of low-cost approaches and their acceptance and implementation. Although any country within their region could seek their help, a select group of 15-20 low-income countries worldwide were designated 'countries of Program concentration.'

UNDP - World Bank Water and Sanitation Program: Countries of Activity by Region in 1991



The regional teams were intended to offer sector advice and help prepare major projects for funding from other sources. Within this preparatory activity, the teams were expected to stress 'software' elements: community participation, involvement of women, cost recovery, institutional capacity building and change. They were to act as a critical mass on behalf of these elements in policy development in public health engineering, and as technical advisors for large-scale projects. From this point on, the number of Program staff in the field – and the corresponding importance of the regional teams – grew in proportion to the size of the core staff in World Bank headquarters.

The teams built up contacts at all levels in countries of operation, and often played an influential role in re-orienting policy within the water and sanitation sector. By the early 1990s, some of the most committed and dynamic staff to have served the Program had moved to the World Bank, or to other international and national posts where they continued to promote Program ideas. This indirect support, most of it unquantifiable, has been an important and enduring contribution of the Program to activity in the water and sanitation sector.

As a more direct contribution to sector development, the teams were expected to implement pilot and demonstration projects. Such projects would feed into policy and institutional change. They would enable government and sector professionals to test approaches and see that what was being advocated actually did work on the ground. These approaches could then form the basis of large-scale – even national – programs. Technological viability might now be relatively well-established, but functioning systems of community management and financing were more theoretical than real. By 1988, ten demonstration projects (including those in Lesotho and Kenya, were underway, and a further 20 under preparation. Many were projects with which the Program had close associations; in a few cases the Program was the executing agency.

Pilot and demonstration projects were a step towards 'scaling-up'. In the late 1980s and early 1990s, much attention was given to the need to 'scale-up' services and programs. It was widely felt that there were too many small-scale examples of excellence in basic services delivery, and too few cases where this excellence had been capable of replication on an extensive, or national, scale. This implied that successful projects were of a singular, jewel-box variety and their excellence questionable since they could not be 'scaled up.' This school of thought believed that demonstration projects merely managed to keep discovering new things that needed testing and demonstrating and were inclined to become self-perpetuating.

This debate was taking place within the UNDP-World Bank Program as well; some Program staff believed that considerable time and resources could be absorbed by demonstration projects, and that its own resources could be better spent in sector development and facilitation of major World Bank lending. Demonstration projects, however, did offer the very intimate involvement with activity on the ground for which there is no real learning alternative. They also provided experiential knowledge which could be synthesized by the Program for world-wide dissemination.

1. Kumasi, Ghana: new-style urban sanitation

A UNDP-funded demonstration project in Kumasi, Ghana provides an example of a Program activity which helped define principles later accepted for widescale application. The project was for improved sanitation. Before any plan was developed, a team from the Kumasi Metropolitan Authority conducted an in-depth survey of consumer preferences and their willingness to pay for different options, including sewerage, septic tank WCs and VIP latrines. Conducted in 1989, this was the first comprehensive study of its kind undertaken in a developing country.

Kumasi, a city of 600,000, was the second largest urban center in Ghana and one of the largest market centers in West Africa. Living conditions were very crowded: most households lived in single-story apartment buildings built around courtyards; 90% lived in one room and the average household had 4.6 members. Incomes were very low and housing very poor. Most people's water supply came from a common courtyard tap for which a charge was paid to the municipality.

There was virtually no sewerage in Kumasi. Nearly 40% of households used the public latrines scattered about the city, for which a charge was made per visit. Most of the rest of the population either used communal WCs in their buildings, emptying into septic tanks in the courtyard; or had bucket latrines, emptied into nearby streams and rubbish dumps. All these systems required payment to cleaners and operators, however noxious the results. Kumasi, it transpired, was spending US\$1.50 a head per year for the removal of human waste. However, only a small proportion – 10% – was properly removed, the rest being deposited in streams or left to decompose and fly about as dust in the city environment.

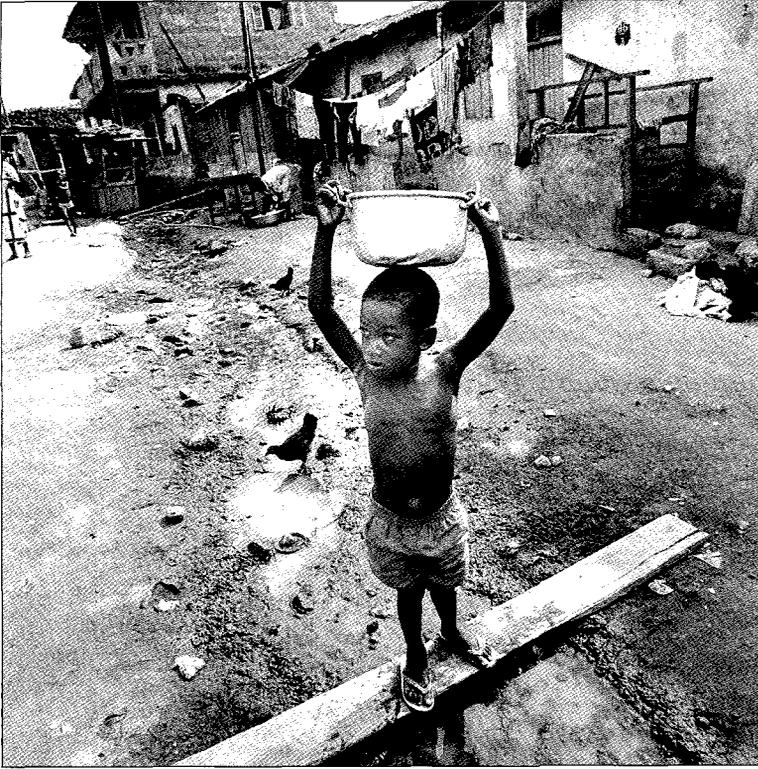
Although this constituted an extraordinary public health hazard, most people were more concerned with questions of privacy and convenience than with hygienic risk. The survey showed that most households were willing to pay more for improved sanitation than they

were currently paying for their existing system. It also showed that VIPs could be the sanitary unit of choice. Half the respondents were happy to pay the same amount per month for a VIP latrine as for a WC connected to a sewer. The costs of the pan, the unpredictability of water bills and the state of Kumasi's water system weighed against the WC.

This survey was important for a number of reasons. It confounded on-site sanitation skeptics with its positive attitudes towards VIPs, it made consumer preference the basis for the subsequent Kumasi sanitation plan; and it allowed knowledge about demand to be built into the economics of the scheme in such a way as to make cost recovery and 'sustainability' more likely. The subsequent program set

up a system of credit for tenant groups to allow them to construct VIPs for their apartment blocks. It also managed to shift ownership of the public latrines into private commercial companies, who ran them more efficiently and cost-effectively than the previous neighborhood party political committees.

Another important aspect of the survey was that it pioneered the use of contingent valuation (willingness to pay) methodology for low-income areas in developing countries. By so doing, it helped to move thinking away from supply-led analysis i.e. 'these people are unserved so they need and want water and waste facilities,' towards establishing effective demand as



a starting point. Willingness to pay surveys are now a standard ingredient of pre-feasibility studies.

2. Nigeria: the RUSAFIYA project

The largest demonstration project set up by the Program was based in Northern Nigeria, home of a previous VLOM handpumps testing project. Known as RUSAFIYA, an acronym in Hausa for water, sanitation and health, the project began work in 1988 and represented the biggest Program undertaking of its kind to date. The US\$4 million investment from UNDP and the Governments of

Netherlands and Norway was expected to demonstrate a workable VLOM program model, and pave the way for two World Bank-financed projects scheduled to start in 1992, costing US\$400 million.

The project turned out to be less of a demonstration – except of what will not work – than a testing-ground for unsubstantiated theory. The intention was to serve around 500 rural communities with water supplies using boreholes and handpumps. The systems would be community managed, with support from local government. But for the political reasons that often mar program planning, these 500 communities were spread between five states, each vast in size and population. In each state, one Local Government Authority (LGA, equivalent to a district) was designated as a project site. This meant that they were very far-flung for administrative purposes, and there was little uniformity in settlement patterns, hydrogeological conditions, social mores or farming livelihoods.

The principal difficulty in achieving the model to which RUSAFIYA aspired was the pattern of top-down service provision in Nigeria. This pattern exemplified paternalistic and authoritarian values entrenched in the traditional political culture. Service delivery was normally supply-led and provided free of charge. Decisions about siting depended not on community consultation but on the authorities' view of where services should go. Once provided, they were centrally managed and maintained. To work against this grain was far more difficult than anticipated. Lack of organizational capacity and skills, and – above all – lack of a conducive mind-set in LGAs and communities themselves, meant that extension workers' mobilization activities led practically nowhere—certainly not toward effective community management and financing mechanisms.

The dispersed nature of the project meant that energy and resources could not become sufficiently focused to build a critical mass behind activities in any one area. The private sector, therefore, had no incentive to supply spare parts or repair services. Instead of careful monitoring systems, there was almost a blind faith that, since it contained all the fashionable ingredients – participatory activity, focus on women, VLOM handpumps, user fees, local government support – the model would work. And the upcoming World Bank investments for which this was supposedly paving the way put pressure on project managers and staff to deliver outputs, not to draw back and consider how to readjust when things went wrong.

The RUSAFIYA model sought to bring about a series of transformations: of the role of government from provider to promoter of community-based schemes; of the role of communities from

passive recipients to managers of self-generated service initiatives; and of the role of the private sector from contractors for government schemes to local suppliers for consumer groups. None of these transformations occurred. A key stumbling-block was the refusal by communities to pay for their water and sanitation services. This stemmed less from lack of means than from mistrust of government. There was also a failure to establish demand in the communities before their selection, and too ready an assumption that they would 'come round' following persuasion. Unfortunately, the extension agents were insufficiently motivated and inadequately trained to win the communities' confidence.

A case study of the project, undertaken in 1991-92, identified inherent flaws in the design of RUSAFIYA stemming from faulty assumptions about what LGAs and communities were able and willing to do. The case study findings had a profound effect on Program thinking (although it remained unfinished and unpublished). The main, and painful, discovery was that implementing a participatory approach to rural water provision was extremely complex and required considerable time and resources, especially when the prevailing political and cultural climate was antipathetic. In 1993, the RUSAFIYA team was reconstituted into a water and sanitation NGO. The World Bank-assisted projects for which the project was meant to prepare the way were shelved.

3. Bolivia: a 'scaling-up' success

The accumulation of experience from numerous countries and lessons learned during the Water Decade paid dividends in a Program venture which began in 1991 as a pilot project in the Bolivian Department of Potosi. The idea – as in Nigeria – was to design and test new demand-led strategies for delivering community-based water supply services to the rural population, and to use these lessons to prepare a national program. In Bolivia, the objective was achieved. The project was known as Yacupaj, meaning 'for the water' in Quechua; it cost US\$2.8 million, mainly provided by the Netherlands government, and was implemented in four provinces. The nationwide program it led to was launched in 1993.

Before the Yacupaj pilot project, the basic premise of all Bolivian water supply and sanitation projects for the poverty-stricken *campesinos* of the Altiplano was that their demand for water was so low that they would not pay for services. Service delivery was supply-led. Based on general health and poverty indicators, *target* communities for pumps and latrines were selected by officials and expected to be grateful. The Yacupaj project set out to prove that an

approach capable of reaching more *campesino* households more economically was practicable; that stakeholder and ownership patterns could be structured quite differently and services could be more sustainable if the basic premise was turned on its head.

During the first phase of the project, staff focused on developing rules for project implementation: criteria for selecting communities; technological design criteria for installations such as pumps, pipes, and latrines; the financial policy – costs, prices, and contributions; and a structure for operations and maintenance responsibilities. The idea of the rules was to present families and communities with options – about alternative systems to choose from and what their management and costs would entail – within a technically and financially feasible, and replicable, service framework.

Many communities in the Altiplano are very small – with only 50 – 250 inhabitants – isolated, and occupy difficult terrain. The project therefore grouped communities in sub-regions; sub-regions were then selected for services according to level of demand, the presence of institutions to build upon, and technical feasibility. Within a selected sub-region, all communities could participate if they accepted the project's financial policy and assumed responsibility for long-term O & M. The technical options they selected had to be within their technical and financial reach. The financial policy required that communities contribute to investment costs and cover maintenance; it envisaged that the communities would bear 50% of the overall investment.

The PHAST Initiative

One of the issues to come to light during the Water Decade was that the anticipated health impacts of water and sanitation projects -- in many minds their *raison d'être* -- could be very elusive. Participatory activity with communities became an important means of translating accessibility to services into positive health gains, especially for women and children.

In 1993, the Program joined with WHO to launch the PHAST -- Participatory Hygiene and Sanitation Transformation -- Initiative. PHAST was an adaptation of the SARAR methodology previously developed by Dr. Lyra Srinivasan and PROWESS colleagues. SARAR stands for: Self-esteem, Associative strengths, Resourcefulness, Action-planning and Responsibility. It relies on training extension workers and developing graphic materials or 'tool-kits' in situ so that they reflect local cultural and physical characteristics.

PHAST can be used with groups to bring out their existing knowledge of health and hygiene practices, and make behavioral adaptations on the basis of new understanding. During 1993 and 1994, PHAST was tried out in Botswana, Kenya, Uganda and Zimbabwe. In a Review Workshop, participants reported positive experiences in changing hygiene behaviors and construction of latrines.

In Uganda, the PHAST methodology was tried out in Katwe, a very difficult urban site where renters had no incentive to improve poor environmental sanitary conditions. In time, four community groups were set up. Within a few months, latrines had been built, drainage improved and garbage collection instituted.

Information about the PHAST methodology has been widely disseminated by the Program including manuals and a video. Many agencies are adopting PHAST for use in training.

In each of the three Yacupaj provinces, the project worked with an intermediary organization responsible for implementation. In two provinces, this was an NGO, and in the third, a regional development project. Special staff were appointed by the intermediaries and trained to impart community organization skills to rural promoters: teachers, health workers and community leaders. Participatory activity had a clear objective. It helped communities determine their priorities, choose between technological options, and acquire the skills to manage and maintain pumps, pipes, taps and latrines. Many chose gravity-flow systems; and although they expressed a desire for household connections, they started out with public standpipes because that was what they could afford.

By 1994, the Yacupaj project had provided services for one-third of the 115,000 people eligible to participate. Among those that had not done so, water and sanitation was not a priority in the overwhelming majority of cases; they were content, at least for the present, with their current source of supply. Project evaluations carried out in 1994 and 1995 showed that 90% of the water systems provided, and 82% of the latrines, were functioning and that communities had financed and carried out repairs. In 80% of cases, communities carried out the repairs themselves.

In 1993, the Bolivian government asked the World Bank to fund a large rural water and sanitation project, *Proyecto de Saneamiento Basico Rural* (PROSABAR). The total investment costs were \$46 million. From the outset of the Yacupaj project, a coordination unit in La Paz had been set up to support national sector policy development and to apply lessons from Yacupaj at the national level. The PROSABAR project was therefore able to draw heavily on its strategies especially the use of intermediary NGOs for implementation and their use of community participation techniques to facilitate consumer choice and ensure service sustainability. Many of the staff who had trained and worked on Yacupaj were taken on by PROSABAR, and field workers from the Yacupaj intermediary teams worked with NGOs in the new project areas.

For Yacupaj graduates, the need to develop and strictly apply a framework of rules was one of the biggest lessons learned. Within this context was the need for flexibility and adaptation. At several stages during Yacupaj implementation, the teams had revised their model – introducing new technical options and even changing financial policies. No longer was there an assumption that piloting and demonstration would lead to a tidy blueprint for service delivery in low-income areas which could then be replicated ad infinitum. A constant process of adaptation in a program was not an indication

that the planners had got it wrong, but a necessary component of all successful programs – especially those that aspired to be truly consumer-driven.

The promotion of participatory activity

In 1990, the Program entered into a much closer relationship with UNDP's PROWWESS program set up in 1983. The senior PROWWESS planning and evaluation officer, Deepa Narayan, joined the Program staff in Washington, and PROWWESS advisors began to work as members of the regional teams in East and West Africa. This led to an increase in Program activity in developing and applying participatory methodologies, emphasizing the involvement of women.

Many demonstration and large-scale projects with which the Program was associated – including garbage collection in Bamako, Mali, appraisal of water and sanitation needs in the slums of Chittagong, Bangladesh, and community mobilization in Potosi, Bolivia – benefited from PROWWESS involvement. The key lessons from these and other experiences were documented in a PROWWESS publication: *Tools for Community Participation*. This manual was aimed at providing trainers with the means of teaching extension workers how to forge effective working partnerships with village people. Building a cadre of effective trainers was another PROWWESS priority. A series of regional, national and local workshops were held in Africa and in other parts of the world to apply participatory methods and refine them for the local context.

The need for community involvement in water supply and sanitation schemes and for women's role to be respected were increasingly being recognized in sector rhetoric, and these principles were acknowledged in all the international post-Decade statements. But there were still major problems to be overcome. 'Bottom-up' approaches which began with community mobilization were very difficult to incorporate into large-scale service extension programs. Intermediary organizations – NGOs and community-based organizations – normally operated, by their nature, intensively in geographically confined locations. Government services, as already noted, rarely had the outreach or orientation which equipped them for this function. Given this reality, how were large-scale projects to be designed in such a way as to accommodate participatory techniques? Many in the water and sanitation establishment also remained skeptical as to whether the time, energy, and investment required up-front for user mobilization were strictly necessary or justified.

In 1991, under the Program's auspices, PROWESS began an extensive study into whether user participation measurably increased success in water and sanitation project outcomes, and if so how it could be encouraged. The study exhaustively explored data from evaluation reports of 121 rural water supply projects in 49 developing countries. It concluded that user participation did play a significant role. Sustainability of services, economic benefits, percentage of the target population reached and environmental benefits all increased in proportion to the level of user participation.

The study also concluded that participation could and should be factored into large-scale project design. This required a fundamental



shift from centralized ownership of systems to local ownership and control. And approaches had to cease to be supply-driven, and become instead demand-responsive. Large-scale projects could be designed with a built-in commitment to demand-responsiveness, the study insisted; but there was no standard model for doing so. Flexibility, adaptation and short planning horizons were essential, with on-going monitoring and evaluation to help re-direct activity when needed.

Towards the end of the Program's second decade of activity gender and participation issues became increasingly mainstreamed within the Program's full range of activities. Since the early 1990s, participation and

gender have been seen as central to all Program activity. But this has not precluded the development of further special initiatives as the next generation of issues surrounding these key twin themes emerges. The questions: 'what works' and 'how' can never be definitively answered.

Synthesizing the lessons from the Water Decade

As the Water Decade drew to a close, the key participating agencies – the World Bank, UNDP, UNICEF and WHO and bilateral donors – were keen to reach a consensus around key lessons learned and the principles to be applied in the next generation of projects.

The UNDP-World Bank Water and Sanitation Program played a very important part in this process. In September 1990, UNDP with Program support organized the Global Consultation on Safe Water and Sanitation for the 1990s, hosted by the government of India in New Delhi. This consultation was attended by some 600 participants from 115 countries, and its product, 'The New Delhi Statement,' was subsequently endorsed by the UN General Assembly.

The Consultation offered the opportunity for governments and the international community to recommit themselves to the goal of 'Water and Sanitation for All,' extending the time limit to the end of the century. There was a special commitment to equity, to 'some for all, rather than more for some.' During the Decade, more than one billion people had gained access to safe drinking water for the first time in their lives, and 750 million had replaced a bucket or a walk in the woods with something more discrete and hygienic. But despite improvements in rural water supplies, there were as many urban and rural dwellers without services in 1990 as there had been in 1980. With all the extra investment and effort, service expansion was barely keeping pace with population growth.



To existing developing world constraints of economic setback, population growth and rapid urbanization were now added two others: growing environmental degradation, and the rising costs of water supplies, especially in water-short parts of the world. The challenge of providing basic services for low-income areas was becoming more acute. However, the overall feeling within the sector was surprisingly positive. There had been such progress during the Decade in identifying the key ingredients of new approaches that the missionary and visionary spirit in water supply and sanitation was more alive than ever.

The New Delhi Consultation turned out to be the first in a series of post-Decade forums in which a consensus crystallized about where the water and sanitation sector should go; that consensus effectively overturned the 'old order' in public health engineering thinking and practice. No longer were water and sanitation services regarded as an unqualified social right, to be met from the public purse without thought given to economic and environmental constraints. The effective spread of services, including to the poor, required an entirely different set of stakeholder and partnership relationships.

One of New Delhi's own contributions was a new vision regarding the role of government. The Consultation agreed that, *in the future, government should do less to provide services, and instead enable other institutions – public and private – to deliver and run them.* This did not mean that government's role would be less significant. It would not need to finance and build on the same scale but it would need to do all the things that ensured that services could be supplied. This included national sector policy development, creation of implementing bodies, regulation and price-setting, provision of technology options, planning, training, and monitoring sector performance.

The New Delhi Consultation was a high point in Decade collaboration. The Program had made an important contribution to the 'lessons learned' activity of the Decade, in its substantive field-based activity, in bringing together a group of donors to pursue new approaches to reach the poor, and in providing a platform from which a common international agenda in water and sanitation could be pursued. The Collaborative Council on Water and Sanitation created as a result of the Interlaken meeting in 1987 was transformed into a body representing all stakeholders so as to pursue to post-Decade agenda and spur new thinking. The Council, whose secretariat was based in WHO, included international organizations, bilateral donors, developing country representatives and NGOs. The Program was expected to make an important contribution to several of its working groups, and a PROWWESS Program member was the convenor of the group on gender.

Other new mechanisms for international networking and exchange were in the offing but the Program's own future role in the post-Decade setting was unclear. Some influential voices in the World Bank seemed to believe that, with the Decade's conclusion, the need for a torch-bearing programmatic enterprise had been exhausted.

LESSONS LEARNED

As the era of 'hardware' development gave way to the era of 'software,' the key lesson learned was the one demonstrated in Nigeria: creating functional systems of community management for water and sanitation was extremely complex. The holy grail of a formula which could be applied in any political, economic, physical, or socio-cultural setting had to be abandoned. The new approaches needed extra time and investment, involvement of intermediary organizations which could work with communities to help them develop skills and capacities, and a responsiveness from formal institutions which still often appeared to be lacking.

Meanwhile in the early 1990s, the Program itself went through a difficult time. Among its arbiters, one school of thought felt that the whole purpose of the Program was to pioneer and proselytize, maintaining an independent capacity to experiment, and to badger donors, governments and lending institutions – especially the World Bank – in the interests of the poor. Another felt that if it was to survive at all, it must move much closer to the Bank's own program, providing technical assistance through the regional teams in the field, and policy and research support at the central level. This school of thought was able to cite the billions of dollars of investment – not only from the World Bank but from other external sources – in water and sanitation schemes in which the Program was involved as proof of the scale of the impact on the sector as a whole. UNDP – facing resources cutbacks – tried to persuade the Bank to make a stronger financial commitment to the Program. But the Bank was unwilling and its financial future remained in doubt.

Following the first major evaluation of the consolidated Program in 1990-91, an intensive review to define priorities for the rest of the 1990s was set in motion. In 1992, it published a document entitled *Improving Services for the Poor: A Program Strategy for the 1990s*. According to this, the goal of the Program remained unchanged – to assist developing countries in improving poor people's access to sustainable services. (This did in fact indicate a change: an emphasis on *facilitating* access rather than on *delivering* services.) There was decidedly less emphasis on demonstration, and much more mention of capacity-building, institutional reform, and disseminating lessons and knowledge.

In a key passage, it stated: 'In the coming years, the Program will focus on improving the process through which large-scale development initiatives are formulated and implemented – helping to build a systematic learning process into water and sanitation

programs, including those supported by the World Bank.¹ The school of thought that wanted to bring the Program closer to the Bank's lending activities was in the ascendant. The new idea was to bring a process of 'structured learning' into programs with strong human capacity-building and sector reform ingredients.

For all the debate concerning the Program and its future, the international evolution in thinking also had an indirect influence on its continuation. Under the influence of the consultation process which followed the Decade, and the new importance attached to environmental sustainability, water issues were continuing their rise up the international agenda. In 1992, the World Bank focused on Environment and Development in its *World Development Report* in preparation for the Earth Summit in Rio de Janeiro; the publication included a chapter on Sanitation and Clean Water which was very influential. John Briscoe, its author, was head of the World Bank Division into which the Program was soon to be moved.

With its poverty focus and special experiences with low-cost, community-based water and sanitation approaches, a Program with the joint imprimatur of the World Bank and UNDP still had a lot to offer. But there were some who thought that it needed some re-definition in the post-Decade world to ensure that it undertook value-added activities unobtainable from other players in the water and sanitation world.

EVOLUTIONS IN INTERNATIONAL THINKING

By the 1990s, the scope of the international debate concerning water had dramatically expanded. From the Water Decade's emphasis on public health, the focus opened out to a wider concern with the management and use of water as a part of environmental protection and sustainable development. The consensus surrounding the lessons learned during the Decade began to merge with a wider consensus embracing water resources management generally. Global concern with water scarcity and water pollution was growing, and economic and environmental issues, along with good governance, private sector participation, and other elements of the post-Cold War development paradigm, began to assume more importance.

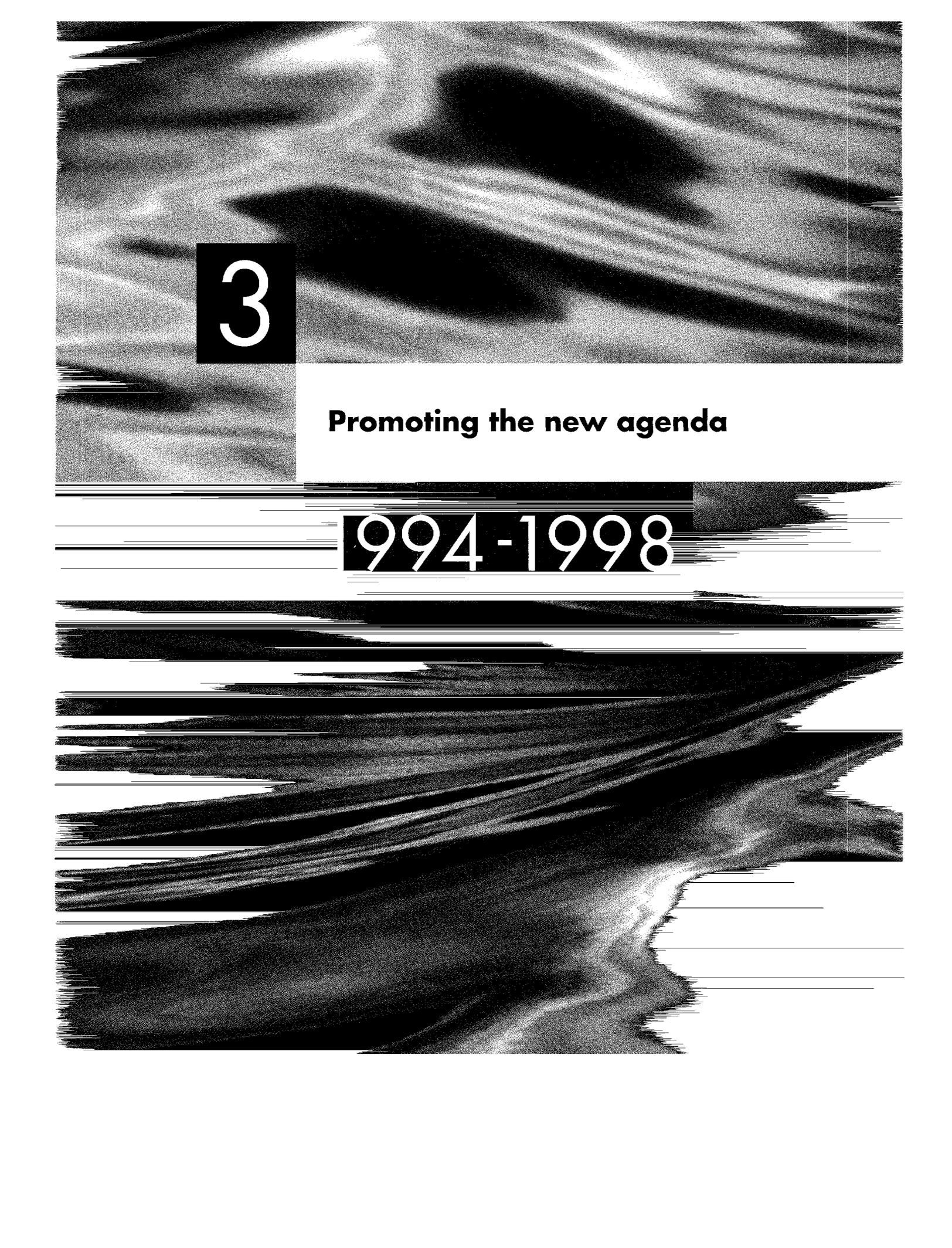
The core principles of the new consensus were most succinctly articulated at the International Conference on Water and the Environment, held in Dublin in January 1992 in the run-up to the Earth Summit. They were expressed as follows:

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

The need to protect the world's finite supply of fresh water and to use it efficiently and equitably in the service of humankind was also the subject of a Chapter in Agenda 21, the key document of the 1992 Earth Summit. Among the areas for action identified were the improvement of drinking water supplies and sanitation, and ensuring sustainable water supplies for cities. Also called for were integrated management of water resources, protection of water quality, and managing water for food production. A holistic approach was emerging in which food security, appropriate technology, reduction of subsidies, decentralization of decision-making, user participation in services, and reform of institutions and regulatory frameworks all played a part. Thus, concepts first developed for public health were now being adopted for the entire range of water-related programs.

These principles and action areas were subsequently endorsed at the post-Rio Ministerial meeting on water and sanitation at Noordwijk in the Netherlands (1994). Not all were universally agreed upon; there was strong resistance from some developing countries to the idea that water should be regarded as an 'economic good' – an unpopular notion where people think of water as quintessentially free, and where engineered supplies have traditionally been used as a political bargaining chip. Decentralization of services is also a hard case to argue in countries where the weaknesses of the legislative and administrative regime mean that irregularities and commercial exploitation are difficult to control. However, the principles had been greeted with a broad rhetorical consensus, at least internationally, and there was a stated determination to put them into effect.

As the 1990s proceeded, water maintained its position on the international political high ground. However, operationalization of the new consensus lagged well behind discourse on policy. There was still a long way to go before the principles so carefully formulated would be widely translated into practical action on the ground.



3

Promoting the new agenda

994-1998



Promoting the new agenda 1994-1998

By the mid-1990s, a paradox faced the water and sanitation community. On the one hand, there was a remarkable degree of unanimity around the new agenda in water and sanitation: the issues to be addressed and the appropriate policy responses. On the other hand, the performance of the sector in developing countries remained very poor. In the words of an internal World Bank memorandum on the future of the Program by Curt Carnemark, Chief of the Supervisory Division: 'It is as though everyone is agreed on what ought to be done, but no one does it. The challenge is to move beyond slogans and hopes to effective implementation.'

What role could the Program play in addition to its existing advisory and program partnership work – to help resolve this dilemma?

KEY ISSUES

The central issue in water and sanitation was, indeed, how to move beyond rhetoric to implementation. Vast numbers of the poorer inhabitants of the developing world were still without services. According to the WHO/UNICEF Joint Monitoring Programme, rural water supplies coverage had grown from 50% to 70% between 1990 and 1994, while urban water coverage had remained static at 82%. But sanitation coverage had actually declined, from 67% to 63% in urban areas and from 20% to 18% in rural areas. More than one billion people were still without proper water supplies, and almost three billion defecated in the open air or in unhygienic facilities.

The growing urban sanitary crisis

The extraordinary pace of urbanization in the developing world and the increasing strains to which the urban habitat was being subjected were once more becoming an international *cause célèbre*. After a long period in which rural water supplies remained at the top of the water and sanitation agenda, urban sanitation again began to arouse concern. In ever-expanding slums and squatter settlements, epidemics of major life-threatening proportions were crises simply waiting to happen, and in some cases they did. In 1991, a devastating cholera epidemic broke out in Peru and subsequently spread throughout most of South America; in 1994, an outbreak of plague prompted a panic exodus from the Indian city of Surat and a major international health scare.

Extensive review of urban infrastructure programs, notably by the World Bank, revealed that many municipal water authorities in developing countries were grossly inefficient and wasteful of scarce supplies. Population growth and changing living standards were causing water consumption and waste output to rise dramatically, putting extra strain on services. Public utilities could not keep up. Leakage and mismanagement were rife. On average, authorities were charging their water and sewerage customers only 35% of recurrent costs. A vicious circle had developed in which services were so poor that they could not recover their costs, and the income generated so low that the services could not be improved. Every time a city had to undertake a new engineering scheme to replenish its water supply from another source, unit costs typically doubled. Under these circumstances, what chances had the urban poor for any extension of service delivery in their direction?

This analysis played an important part in the development of sector thinking. It appeared to demonstrate once and for all that, in the developing world, endowing public bureaucracies with exclusive

authority for installing and operating water supply, drainage and sewerage works was simply not going to work. They were neither motivated nor empowered to function cost-effectively. The standard pattern of water and sanitation services would have to be reversed, and responsibility re-conferred on individuals, households and private entrepreneurs. In the case of the poor, that responsibility had never actually been lost. They had been forced to supply themselves, paying water vendors, scavengers, and nightsoil removers up to 100 times the rates paid by municipal mains users – with disastrous health outcomes for themselves and other city dwellers.

During the 1980s, a handful of 'activist technicians' had begun to confront the squalor and misery endured by the inhabitants of relatively poor and cramped neighborhoods of certain developing country cities. The best-known of the sanitation experiments they pioneered is the Orangi Pilot Project in Karachi, Pakistan. Under this innovative scheme, 90% of the households in the largest squatter area of Karachi (with 900,000 people) organized themselves to plan, build and pay for household drains and connections, while pressuring the Karachi municipality to provide primary and secondary sewers. This scheme was a widespread inspiration for others, and for thinking in the sector as a whole. It showed that when motivated and organized, communities could build and manage systems more cheaply and effectively than classic public health bureaucracies.

Orangi was not the only example of urban communities, via entrepreneurial and committed leaders within or in association with NGOs, taking steps to resolve their sanitary crises. There was also the example of the urban sanitation program in Kumasi, Ghana with which the Program had long had close associations; and that of a low-cost 'condominial' sewerage system pioneered in Recife, Brazil. Condominial sewerage, suited to certain common types of housing layout, linked groups of houses directly with the main sewer, cutting down significantly on the number of street sewers and thereby reducing construction costs. More recently, an enterprise has come to light in Malang, Indonesia, whereby 1,000 households were supplied with small bore sewerage under an entirely self-financed, home-grown initiative. The 'activist technician' who set up this scheme quite independently of any project or external funding previously drove a mini-taxi for a living. He joined the City Sanitation Office in 1989 and has since replicated his approach elsewhere in the city. The initial system has functioned efficiently and without subsidy since 1987.

These examples suggested that there was not any one technological or organizational response to the mounting urban sanitary crisis: on the contrary. Whatever claims were put forward for 'condominial'

sewerage or for 'on-site' systems, the evidence all suggested that what was needed was creative and entrepreneurial flair, and a flexible approach to programming. One important principle was the same as for water supplies: it was vital to pay attention to users' preferences and what they were willing to pay, offering a menu of options from which they could choose. Another was that sanitation services could be unbundled into discrete parts – such as household services and trunk connections – and different stakeholders and service providers take responsibility for different components.

Capacity building

The theme of strengthening institutions and developing human resources *had been important ever since the advent of low-cost approaches*. But the full parameters of such approaches were still not universally understood or fully absorbed by officials at national and sub-national levels. Even as they grappled with new concepts, the administrative and engineering establishment in most developing countries still lacked information, knowledge, skills and experience. In other words, their 'capacity' – in understanding and in execution – was weak.

The idea that weak capacity accounts for much development failure, and that what is needed is to build it up, has recently become prominent in development thinking generally. The poor results of many projects are often explained by the fact that the organization which takes over administrative responsibility for service delivery following construction turns out not to have sufficient human resources, skills or technical expertise to run them. It may also be inappropriately structured or confined within a legislative framework which hampers efficiency. 'Capacity building' has become the term now used to describe the process of institutional expansion, improvement and reform needed at all levels – from national to local – to make services work effectively.

In 1991, a UNDP symposium in Delft, the Netherlands, defined the concept of capacity building for water and sanitation activity and articulated a strategy for applying it at the country level. The concept embraced three areas in tandem: the creation of an 'enabling environment' via policy, legal and regulatory frameworks; institutional development, including community participation; and human resources development, including training and education. The novelty of this approach to capacity building was the breadth of its scope, and the idea that all areas should be addressed in a mutually reinforcing framework.

This turned out to be another landmark post-Decade meeting, acknowledging the importance of the capacity building process for service and resource sustainability. The symposium agreed that the

process should be country-driven, continuous, and apply to all water-related bodies and agencies, professional, non-professional, formal and informal. Capacity building could be aided by certain tools: comprehensive water assessments; policy and institutional reforms to re-allocate functions and bring in private entrepreneurs; education to develop new skills and up-to-date thinking; the use of communications strategies and the media; and improvement of the knowledge base. A second UNDP symposium in 1996 reviewed experience with the new concept and lessons learned. Its relevance was confirmed, and tools and approaches were further refined.

Demand-responsive service provision

The concept of capacity building was itself uncontentious. The much more controversial issue was: Capacity building for what? An entirely new rationale for service delivery was emerging, one with major implications for institutions, policies, human resources development and regulatory frameworks within the sector.

The most revolutionary principle established as part of the new consensus agreed at Dublin in 1992 was that water should be seen as an economic good. Not only did this principle encompass the idea that water had an environmental and a productive value; it suggested that the basic human need for safe water to drink



could no longer be regarded as a sufficient criterion for providing an engineered supply. According to the principle, the need for any system of water provision that placed an engineered construction or a technological device between the user and a water source – stream, spring, lake or aquifer – should be expressed in terms of effective demand or 'willingness to pay.' Only if people attached to it a quantifiable value which could be factored into costs would there be any kind of guarantee that an engineered service would be sustainable – and sustained.

For decades, survival and health criteria had been *the* unchallenged justification for the spread of water and sanitation

services. The fear of epidemic in crowded and dirty environments, especially of cholera and other life-threatening diarrheal infection, had legitimized sanitary expenditures on grounds of the risk to the population as a whole. This same logic had underwritten investment in public health engineering first in industrialized and then in developing countries. When the Water Decade was launched in 1981, its purpose had been presented unequivocally as the reduction of water- and waste-related sickness in the poorer parts of the world.

During the Decade, there was considerable debate over whether the provision of water supplies to low-income communities actually made any marked impact on their health. In many cases it did not do so, mainly because water-related behaviors did not change. Water from the pump might be safe, but it often became bacteriologically contaminated between pump and household or in household storage containers. Some analysts concluded that the volume of water used in the home – for washing and cleaning – was more important for health than water quality.

Volume rose significantly only if the source was very close to the point of use. Others emphasized the pointlessness of supplying water without environmental sanitation – still frequently ignored.

The health rationale for supply-led solutions continued to dominate sector thinking – and still dominates much thinking today. When the concept of community management was first introduced, any lack of enthusiasm among recipients was put down to their unfortunate ignorance of dirt and germs – to be dealt with by a strong dose of health and hygiene education. Studies subsequently showed that, indeed, when hygiene education was introduced alongside services, water and waste-related behavior were more likely to change and the impact of services on health to be greater. But while education could *make an impact on service use and impact, it rarely created demand* for the service in the first place. Demand for a service depended more on water scarcity and distance from a source – convenience – than perception of its health-related quality.

By the 1990s, it had become clear that the success or failure of low-cost water and sanitation programs was principally determined by consumer demand. Where there was local demand for an engineered service, a program would have much more chance of succeeding if it tailored its facilities in terms of cost and service level to local consumer realities. If it achieved the fit, handpump parts and latrine pans would begin to appear in the local market – as has happened, for example, in Bangladesh. Where demand was not strong, a program might try to develop it. In either case, the emphasis should be on marketing a product or range of

products – latrine pans, sewerage, pumps, standpipes, septic tanks. Associated health education campaigns would focus on using the new amenities in such a way as to improve personal and family health. In time, gains in health as well as convenience and status would help boost or entrench demand.

Government departments and international donor organizations are not used to marketing products, but rather to setting service delivery targets and working to reach them. Unlike bureaucracies, markets cannot be made to function according to a predetermined administrative plan. So any program looking to cater to, or develop, a consumer market around water and sanitation facilities would have to be flexible enough to allow for a process of learning and growth. Subsidy need not be eliminated entirely, especially for initial construction. But it should not be at a level which precluded local market development. As in the Yacupaj project in Bolivia in which 50% of service costs were met by communities, when the existing range of products did not meet with consumer satisfaction, alternatives – gravity flow systems as well as pumps, pumps suited for household use, latrines constructed from different materials – had to be introduced.

The emphasis in demand-driven approaches would be on making decisions based on community preferences as far as system types and siting were concerned; and on the expression of the community's 'willingness to pay' for a given service level. Providing a menu of options that in price, appeal and technology matched the potential market was the challenge that programs had to meet. To those who demurred, arguing that the poor could not afford to pay and should not have to pay for a natural resource essential to survival and health, it was counter-argued that, at present, the poor often did pay for water, at rates much higher than those charged by well-run low-cost services. And if, at present, a spring, river or traditional well met their own sense of need, building them a system they did not want even after its benefits had been explained was wasteful. In time they might see things differently. In the meantime, hygiene education would enable them to make surface water safe to drink and protect its quality.

The Program and the World Bank's Water and Sanitation Division invested considerable effort in developing the principles and ground rules planners would need to operate an effective 'demand-based approach.' Four general rules were identified. First, not every community in a project target area should be regarded as eligible for services; to become eligible it had to seek improvement. Second, decisions about installations and service levels should be made by communities on the basis of options

submitted and their cost implications. Third, cost-sharing arrangements should be spelled out. And fourth, emphasis must be placed on sustainability – who would own installations, manage them, and pay for their upkeep in the future.

MAIN PROGRAM ACTIVITIES

The Program Strategy for the 1990s, elaborated in 1992, set out a triad strategy for the Program's work:

- *To support sustainable investments; to assist large-scale projects to introduce, monitor and adapt approaches which would allow low-income communities to gain access to services based on their own demand and managed with their participation;*
- *To build national and local capacities within a process that strengthened sector policies by introducing policy reform and institutional change in favor of a supportive environment for community-based approaches; and*
- *To disseminate lessons and knowledge derived from Program activities systematically to partners, other programs and external support agencies, within countries, regionally and globally.*

A large amount of Program activity in its countries of concentration continued to be devoted to developing sector policies. This often involved sector studies, leading to the establishment of national water and sanitation strategies and action plans – as in Nepal, for example. The Program also continued to assist in the design and implementation of projects supported by the World Bank and other donors. Many activities – participatory training programs and workshops, support of training networks, dissemination of gender tool-kits and participatory methodologies – were directed specifically at capacity-building at all levels. Regional and in-country teams also helped build sector coordination by working with government agencies and local organizations on specific projects.

A key Program priority has become the promotion of demand-responsive approaches. Despite the growing body of evidence – from Bolivia and from many other programs – that services conforming to demand were more likely to be sustained, putting the approach into practice continues to be problematic in many settings.

In some countries, water and sanitation authorities are still pursuing traditional supply-led service provision with some

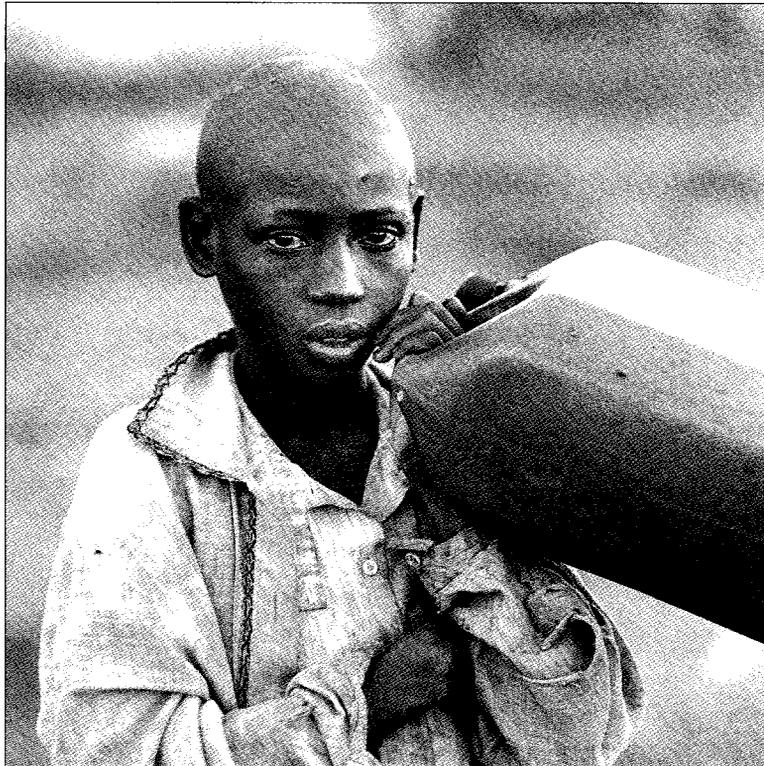
participatory elements and some devolved O&M, essentially as add-ons. A classic example of the approach gone wrong is a program where the government authorities construct installations, and then – without familiarization, training or community consultation of any kind – instruct the communities that they are responsible for service maintenance, then disappear. This kind of misapplication of the approach is typical in countries where the political and cultural environment is highly authoritarian and unsympathetic to flexible programming and devolution of decision-making.

However, evidence suggests that steady progress is being made. The revolutionary change required in thinking and practice cannot occur overnight.

Structured learning

In 1994, the Program began to put more emphasis on what it described as 'structured learning' and 'strategic supervision.' This was the Program's response to growing awareness that arrival at a consensus about what *should* be done had not so far meant that it *was* being done – at least not on the scale required. Structured learning was aimed at giving the Program a more rigorous means of learning and documenting 'what works,' and being in a position to disseminate useful lessons.

Structured learning required that the hypotheses upon which the design of any project is based should be identified at the design stage, and subsequently reported against so that success and failure could be analyzed systematically. 'Strategic supervision' would complement regular project monitoring within the same framework. The principles on which the project is based would be monitored as it was in the process of implementation, so as to provide for critical review and a change of course when needed. These two sets of parameters would permit the performance of similar projects to be compared across different regions and countries.



As part of the emphasis on learning, three filters were devised against which any proposed project should be assessed before the Program became actively involved. These were as follows:

Project characteristics: The project should provide a vehicle for learning lessons that are likely to have a national and international application in other water and sanitation projects. They should also be based on a flexible and adaptive design that enables course correction and learning throughout implementation.

Project environment: The project should have the potential to affect future service delivery and sustainability in the country. The responsible government authorities should support the learning approach, and be prepared to apply lessons learned to future water and sanitation projects.

Project location: The project should be located in one of the Program's countries of concentration so that the strategic supervision necessary to ensure that learning and adaptation occurs, and is effectively documented, can be put in place.

Not all projects supported by the Program managed to incorporate and administer these filters, particularly the first demanding that each should be a vehicle for learning. One project that did incorporate the structured learning approach was the Community Water Supply and Sanitation Project (CWSSP) in Sri Lanka. From its launch in 1993, the project established indicators, data collection systems and monitoring mechanisms which allowed for regular assessment of progress. This enabled the project staff to review rules and procedures and adapt to lessons learned. Instead of perceiving setbacks as black marks against performance, project staff created a culture of learning and flexibility among all stakeholders: government, partner organizations and communities.

Several adaptations were made in project design as a result of continuous assessment. Originally, an assumption was made that communities could only afford very simple technical options and would be happy with basic levels of service. Partner organizations undertaking community mobilization guided communities in this direction. However, it transpired that people in rural communities were willing to pay five times as much for water-points serving between one and five households than for water-points serving twenty households. Technology options were correspondingly broadened.

The original financial policy also needed amendment. The cost-sharing plan envisaged that, if a community wanted a higher-cost service option, the level of subsidy provided would be correspondingly higher. But it was found that the larger level

of subsidy led communities to select the higher-cost option on that basis alone. Thus a universal subsidy ceiling across all technology options was introduced to allow them to make a more practicable decision.

The Sri Lankan CWSSP showed that – with the right kind of technical and information support – communities could organize themselves and choose the type of system they want. Of the 170 schemes subsequently analyzed, 163 were completed at costs below the original estimates. Where they had a stake in the project and control over resources, communities could be highly creative in finding means of lowering costs. The project's revised community contribution came to US\$9.4 million, instead of the original US\$2.5 million. Throughout phased scaling up of the project to ever-expanding target areas, structured learning continued to provide the feedback needed to define the appropriate roles of users, the public and the private sectors in the delivery of sustainable services.

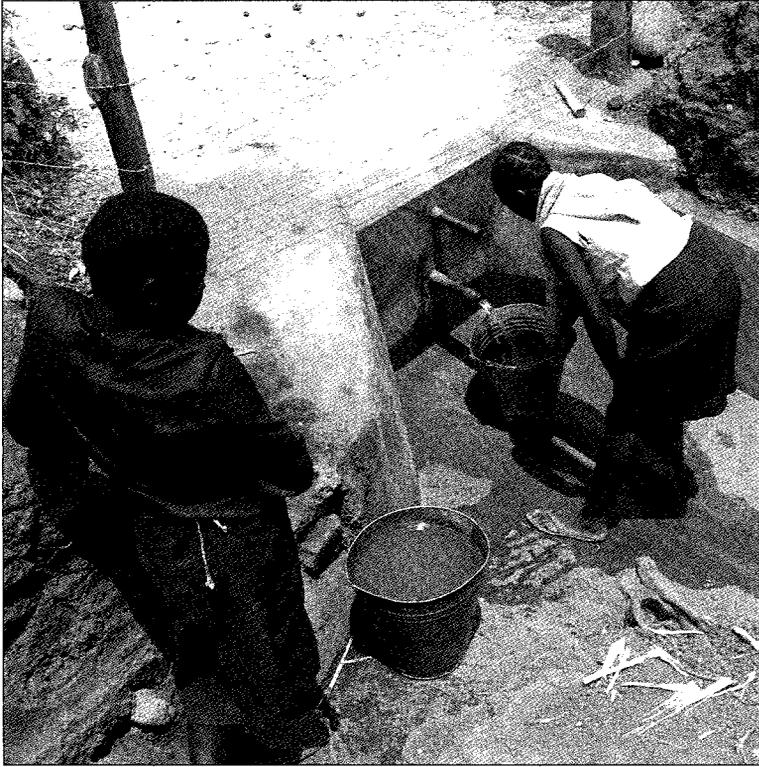
Urban sanitation

From the early 1990s, the Program began afresh to consider how to concentrate more of its energies on the growing urban sanitary crisis. At a variety of workshops and regional meetings, the Program brought together a number of donors, research and training institutions, consultants and NGOs to consider how to move forward. There was still a need to demonstrate the effectiveness of nonconventional, flexible and demand-led approaches. In 1997, the Program produced a synthesis of experience to date entitled *Towards a Strategic Sanitation Approach: Improving the Sustainability of Urban Sanitation in Developing Countries*. Its author was Albert Wright, one of the engineers responsible for the pioneering work in Kumasi which had led to the adoption of a US\$28 million strategic sanitation plan for the entire city.

The need to develop and share knowledge has led to a proposal for an international Urban Environmental Sanitation Network, to be created by the Program. Partners would feed results from their own program activity and research into the Network, which would encourage joint planning and training activities.

The promotion of the private sector in urban service provision – as operators of services, contractees for maintenance, and collectors of water dues – is another context in which the Program is taking new initiatives. Even in slum and squatter areas where inhabitants are poor and consumer capacity very limited, private sector involvement in services is an idea which can be useful. The

challenge is first to gain an understanding of how populations meet their needs for water and waste disposal, and then build on rather than replace what already exists. It may be best to regularize – or provide a regulatory framework for – an existing informal water and sanitation system. NGOs may take on an entrepreneurial role, underwriting activities until a community's own financing capacity has developed. Private artisans can be trained in latrine manufacture or bio-gas technology and helped to get started in business. Community development projects can be geared towards savings, credit and income generation, which can then be spent on environmental sanitation for which there is often a high motivation in crowded urban areas.



To develop approaches around these ideas, the Program is undertaking research into the provision of services by small-scale entrepreneurs – the alternative providers on whom many poor communities are obliged to rely. Informal providers and small-scale entrepreneurs are often regarded as scalpers and robbers because they provide water or waste disposal at the real cost of the service instead of at highly subsidized rates. But the services they provide are unquestionably demanded, and in many cases provide cost-effective solutions for particular market niches. The inadequacies of public services provide them with their opportunity; but their

operations are often unregulated and illegal. More understanding is needed of how informal systems operate, and how to develop new types of relationships between formal and informal providers.

Demand-responsiveness: the Global Study

Over the 20 years since the UNDP-World Bank Water and Sanitation Program's inception, there has been a radical overhaul of policies and principles guiding external investment in rural water supplies. Accepting the principle that water should be seen as an economic as well as a social good, has required that far more attention be paid to

consumer demand in designing and managing services. This has meant that project planners need to establish rules and procedures that enable demand to be expressed and encourage efficient and effective choices to be made. Many external funding agencies, including the World Bank, are now trying to build these elements into their rural water supply co-operation. However, the rules and procedures guiding projects are not always consistent, and the degree to which program processes are sufficiently flexible for consumer demand to dominate investment decisions varies widely.

The Program therefore decided to undertake a global study to learn more about demand-responsiveness in action, and to see whether it did actually correlate – as so frequently claimed – with higher service sustainability. The study was carried out in 1996-97 by field-based teams in six countries: Benin, Bolivia, Honduras, Indonesia, Pakistan and Uganda. The teams included researchers from NGOs and universities, and the projects examined included at least one World Bank-funded project in every country; installations serving 125 communities altogether were covered. Data on 11 indicators were collected in every case, six of which focused on the communities' role in implementation, and five on project performance.

The study found that employing a demand-responsible approach at the community level significantly increased the likelihood of system sustainability. However, it also found that even projects which have adopted this approach tend to apply it inconsistently. In some instances, communities were not properly informed about their expected role in cost recovery or given a chance

Community Water Supply and Sanitation Conference

Demand-responsiveness as the starting point for community water and sanitation services was the theme of an international conference held in Washington in May 1998. More than 350 people attended, representing over 80 countries and a wide range of stakeholders, nationalities, institutions, donors, and professions.

The purpose of the conference was to allow participants to share their experiences with implementing demand-responsive approaches, identify the difficulties encountered, and map out the road ahead.

The themes of the conference were organized around 'key messages'. These included the need for flexibility in project design, incentives for stakeholders, appropriate community financing mechanisms, information-sharing, means of identifying community demand, selection of technical options based on demand, eligibility of communities for services, and the many institutional implications of these requirements.

Among the concerns expressed by participants were the need to avoid marginalizing the very poor by basing service access on demand; the slow pace of service delivery based on demand; the incentives needed to persuade government institutions to abandon supply-led approaches; the difficulty of overcoming distrust for government felt by communities.

In evaluating the conference, many participants admitted that it had enabled them to appreciate for the first time the full dimensions of demand-responsive approaches, and the importance of community participation for service sustainability. Many resolved to rethink or re-design policies, and pass on what they had learned to colleagues and clients.

to express preferences about systems. Inconsistencies in applying the approach were heightened when a large number of intermediaries – NGOs, private contractors, project staff themselves – were involved in implementation. And sustainability was higher when households themselves, rather than their notional representatives such as elders or traditional leaders, took a prominent role in community consultation.

The study also found that training – both of household members and of water committees – played an important role in sustainability. This finding implies that even where there may be a high demand for water, communities need to be thoroughly taught how to operate and repair the system and know what to expect of it. Health education programs affect how highly they value the system and therefore improve their willingness to keep it in good order. The capacity to do so is strongly affected by whether a community organization such as a water committee exists and is charged with the responsibility for management.

Even in demand-responsive projects, construction of systems often rests in the hands of non-responsive agencies. Communities which have no way of holding government agencies or private contractors accountable for decisions jointly reached or for poor construction lose trust in cost-sharing arrangements. Willingness to pay drops dramatically when people have no control over how their contributions are spent, or cannot see a direct connection between what they are paying and the construction or maintenance of the installation itself. Where links are vague or insufficiently explained, communities experience levies as a general tax rather than as a price paid for a given level of service.

Overall, the study was important in providing definitive evidence of the links between demand-responsiveness and sustainability. But it also indicated that very few projects worldwide were yet managing to implement an approach which fully met demand-responsive criteria. Much promotional work remained to be done among all kinds of stakeholders to progress beyond rhetoric and superficial tinkering with project design to authentic strategies for demand-led programming.

LESSONS LEARNED

During the post-Water Decade period, a new agenda had emerged for water and sanitation activity in the developing world. Its emergence had been prompted largely by raised environmental consciousness and fears concerning water scarcity and pollution but its shape had been developed under the influence of lessons learned during the Decade about policies and practicalities for

expanding service coverage to reach the poor. The UNDP-World Bank Water and Sanitation Program had helped develop both the agenda, and – because of its own multipartnership character – the consensus surrounding it.

However, its own role in taking the agenda forward had taken time to clarify. There was a world of difference between 'helping governments deliver services to low-income areas' – the original Program mission – and 'helping create capacity within communities and governments so that low-income communities can gain access to services' – the mission deriving from the new agenda. In the former case, it was possible to be instrumental, guiding policies and projects in certain directions, whether in the hardware or the software context. In the second, the role could not by definition be instrumental; it had to be that of advocate, facilitator, offerer of options, proposer of methodologies, developer of 'tool-kits,' analyzer, networker, and communicator of ideas. If these proposals and analyses were not taken up, or taken up more rhetorically than practically, how was Program performance to be judged?

Repeatedly, it had been pointed out that there was no one model for projects: 'what worked' had to be discovered locally then adapted and refined during project implementation. Much more was required than simply saying: there must be software alongside hardware. The more emphasis was placed on demand-responsiveness and decision-making at the lowest appropriate level, the larger the number of variables influencing the 'success' or 'failure' of interventions in different hydrogeological, socio-cultural, economic and political settings. Therefore, as the era of software developed, the harder it became to identify common indicators from which to learn lessons and the more difficult it became to synthesize experiences and institute a 'structured learning' process for international application.

In 1995-96, the Program underwent its second major evaluation. The Evaluation Team recommended without qualification that the Program be continued and expressed approval of the many contributions it had made towards poverty-focused programming. There was still a strong case to be made for an autonomous international Program whose main locus was at field level, which drew upon a team of highly regarded sector professionals, and which could use its World Bank and UNDP imprimatur to assist the process of policy and institutional transition at national level.

The evaluation also identified certain areas of concern. It had found that many projects the Program supported had insufficiently adopted the demand-responsive approach and were still merely 'adding-on' elements of community participation and consultation. It

also noted that there were weaknesses in the systematic learning process the Program had set as a major objective. The Global Study on Rural Water Supplies represented one effort to develop a learning-focused research agenda for the Program. Another was subsequently developed: a Participatory Learning and Action initiative in 14 countries to determine the relationship between participatory and gender-sensitive approaches, demand-responsiveness and service sustainability. But many difficulties remained in finding effective ways to gather, synthesize and disseminate useful experience as well as to measure whether the Program was successfully promoting the new agenda in water and sanitation at national and sub-national level.

The evaluation led, among other things, to a review of the Program mission. In 1996, a revised mission statement was adopted, as follows: *The Program helps poor people gain sustained access to improved water and sanitation services.* The Program's strategy was also revised, to place more emphasis on demand-responsiveness and devolution of decision-making to the lowest appropriate level. Capacity building was now seen as central to all Program activities, within a framework containing three strategic objectives: strengthening sector policies, supporting sustainable investments, and learning and communicating lessons. A communications strategy was developed to assist the latter. The 1998 strategy document acknowledges that networking, information-sharing and exchange of best practice via the full range of contemporary information technology will become increasingly important international functions of the Program in years to come.

The outcome of the evaluation was thus a reinvigoration of the Program. The exercise also reinforced the Program's links within the international water and sanitation community and its own internal and external networks. In its report, the evaluation team stated: *'the Program has been transforming itself while helping to transform the sector ... It should continue to evolve in response to changes in the environment, thus setting an example in the sector of continuous improvement.'*

EVOLUTIONS IN INTERNATIONAL THINKING

In the past two years, water-related issues have again reached an increased level of prominence in international debate. The UN General Assembly Special Session of 1997, called to examine progress on environmental issues and sustainable development since the 1992 Earth Summit, passed a resolution calling for heightened action in water-related activity on the basis of the new

agenda. In 1998, an inter-Ministerial Conference on Water and Sustainable Development took place in Paris, and a preparatory meeting in Harare, Zimbabwe, as a lead up to a Special Session of the UN Commission on Environment and Sustainable Development (UNCED) on water resources management and development in New York.

Yet another indicator of the new political importance attached to water came with the establishment of the World Water Council (WWC) in 1996 after two years of planning. The Council acts as a think-tank to promote awareness at all levels, including the highest decision-making level, of critical water issues and their relationship to environmental sustainability. The WWC held its first 'World Water Forum' at Marrakesh in March 1997. In August 1988, the Council announced a new project to develop a long-term vision on water, life and the environment or world water vision.

In August 1996, a new international networking organization – the Global Water Partnership (GWP) – was set up with support from UNDP, the World Bank, SIDA, and other bilateral donors to move the new agenda forward strategically. The GWP is not a program rather a networking body for the many international, bilateral and NGO organizations involved in supporting water resources development and management, including water supplies and sanitation. A Technical Advisory Committee of experts identifies problem areas and a Financial Support Group matches them with potential solutions and sources of funds. It was assumed from the GWP's inception that, as a key partner organization, the UNDP-World Bank Program would make an important contribution both in feeding information to the network, and in carrying out activities designated by the GWP to aid the public health engineering sector specifically.

As the 20th century draws to a close, demands on the world's finite supply of fresh water pose threats to a natural resource whose use in domestic supplies and sewerage has to compete with other important uses – agricultural, industrial and environmental. Water resources management requires an integrated approach, with neutral mechanisms to moderate competing and conflicting demands. As consumption rises along with rapid population growth and changing lifestyles, the need for cost-effectiveness, efficiency and equity in water management becomes more pressing every day. The international community has warned of real prospects of serious disputes within and between states over water in the not-too-distant future.

As pressures grow, the political visibility of water issues is bound to increase. Within the debates over water sharing, water scarcity and water pollution, it will become ever more important that voices

continue to be raised on behalf of 'Water and Sanitation for All' – the slogan which set off the international quest in which the joint UNDP-World Bank Water and Sanitation Program has been involved since its inception. The ongoing effort to develop practical and cost-effective systems capable of serving the consumer needs of low-income people must continue. So must the attempt to change the course of public health engineering, dethroning 'supply-led' approaches in favor of 'demand-driven' ones, but without losing sight of the basic right of all humankind to sufficient safe water and sanitation to ensure survival and a minimum quality of life. In this context, the UNDP-World Bank Water and Sanitation Program and its field-based teams will continue to stand for and advocate vital principles, whatever the wider resource-based dimensions of the new debate.

THE FUTURE

During the course of the 20 years since the international Water Decade was declared and the embryonic UNDP-World Bank Water and Sanitation Program came into being, there has been a major transformation in the worldwide water and sanitation picture. This transformation concerns the resource itself and environmental awareness of its limitations, as well as changes in policies and practice regarding its collection, disbursement and use.

Even in water-abundant countries of the industrialized world, there has been a dawning realization of the value and vulnerability of water, and awareness that a guaranteed, unlimited, high-quality, cheap supply cannot be taken for granted. But the picture in water-scarce countries of the developing world is much more serious. Around 230 million people live in 26 countries classified as water-deficient, mostly in the Middle East and Sub-Saharan Africa. Several major urban centers already face water shortage and pollution crises. And millions of the world's poorer families still lack access to an adequate supply of water or a safe method of sanitation.

When in the late 1970s, a major international effort was set in motion to meet humanity's 'basic needs' for food, shelter, water, sanitation and other essentials for a minimum standard of life, problems and solutions seemed straightforward. The principal gap as far as water and sanitation services was concerned was the lack of practical and affordable models. But research and development into appropriate 'hardware' soon led to the recognition that 'software' issues were as, or more, important and considerably more difficult to address.

Water and sanitation coverage by region 1990-1994									
	1990 (population in millions)					1994 (population in millions)			
	Total pop	Pop served	Pop unserved	% coverage		Total pop	Pop served	Pop unserved	% coverage
GLOBAL									
Urban water	1389	1145	244	82	1594	1315	279	82	
Rural water	2682	1342	1340	50	2789	1953	836	70	
Total water	4071	2467	1584	61	4383	3268	1115	75	
Urban san	1389	936	453	67	1594	1005	589	63	
Rural san	2682	536	2146	20	2789	505	2284	18	
Total san	4071	1472	2599	36	4348	1510	2673	34	
AFRICA									
Urban water	201	135	66	67	239	153	86	64	
Rural water	432	153	279	35	468	173	295	37	
Total water	633	288	345	45	707	326	381	46	
Urban san	201	130	71	65	239	131	108	55	
Rural san	432	99	333	23	468	112	356	24	
Total san	633	229	404	36	707	243	464	34	
LATIN AMERICA AND THE CARIBBEAN									
Urban water	314	282	32	90	348	306	42	88	
Rural water	126	64	62	51	125	70	55	56	
Total water	440	346	94	79	473	376	97	79	
Urban san	314	262	52	83	348	254	94	73	
Rural san	126	42	84	33	125	42	83	34	
Total san	440	304	136	69	473	296	177	63	
ASIA AND THE PACIFIC									
Urban water	829	689	140	83	955	805	150	84	
Rural water	2097	1108	989	53	2167	1690	477	78	
Total water	2926	1797	1129	61	3122	2495	627	80	
Urban san	829	513	316	62	955	584	371	61	
Rural san	2097	379	1718	18	2167	332	1835	15	
Total san	2926	892	2034	30	3122	916	2206	29	
WESTERN ASIA									
Urban water	45	39	6	67	52	51	1	98	
Rural water	27	17	10	63	29	20	9	69	
Total water	72	56	16	78	81	71	10	88	
Urban san	45	31	14	68	52	36	16	69	
Rural san	27	16	11	60	29	19	10	66	
Total san	72	47	25	65	81	55	26	68	

Source: World Health Organization, Water Supply and Sanitation Collaborative Council, and United Nations Children's Fund, Water Supply and Sanitation Sector Monitoring Report, World Health Organization, 1996.

During the Water Decade and in its immediate aftermath, 'software' was regarded as encompassing human resources development and training, health and hygiene education, and participation of communities, and of women in service O&M and management. By 1992, when the Dublin principles were articulated, the range of issues regarded as critical was much broader, more far-reaching and profound than implied by the simple addition of 'software' to 'hardware'. Nothing less than the creation of a new order in water and sanitation was required, driven and accompanied by a transformation in attitudes and practice from top to bottom of the public health and engineering establishment.

Each phase in the story of cooperation in water and sanitation has thrown up a new and seemingly more complex generation of challenges. At the same time, experience has led to refinements of understanding regarding how people meet their basic water and sanitation needs and what they might welcome as an improvement. In spite of the huge distance that has been travelled and the many accomplishments along the way, project development today is an infinitely more complicated affair, addressing many more issues in much greater detail, than was even remotely envisaged 20 years ago. Ultimately, this is because the provision of services is no longer seen as a construction job to be hired out to the most cost-efficient contractor, but as a contribution to the economic, social and human development of people, including their skills, knowledge, and organizational capacity. The success of these processes – not the technical perfection of systems – ultimately decides whether services are used, are sustainable, and have an impact on health and quality of life.

The key conceptual shift to have taken place is the substitution of the notion of 'beneficiaries' of services with that of 'consumers' of services. Where services are consumer-driven, demand has to have reached a point where there is significant public appreciation of the value of services – for convenience, health and quality of life reasons – and an understanding by consumers of what they can and cannot afford, how the services they select work, and how their providers and managers are performing. How to create demand, and match service provision to it in a transparent and accountable fashion, without losing sight of the basic human right to share in a resource conferred by nature, remains the overwhelming challenge to practitioners in the water and sanitation field.

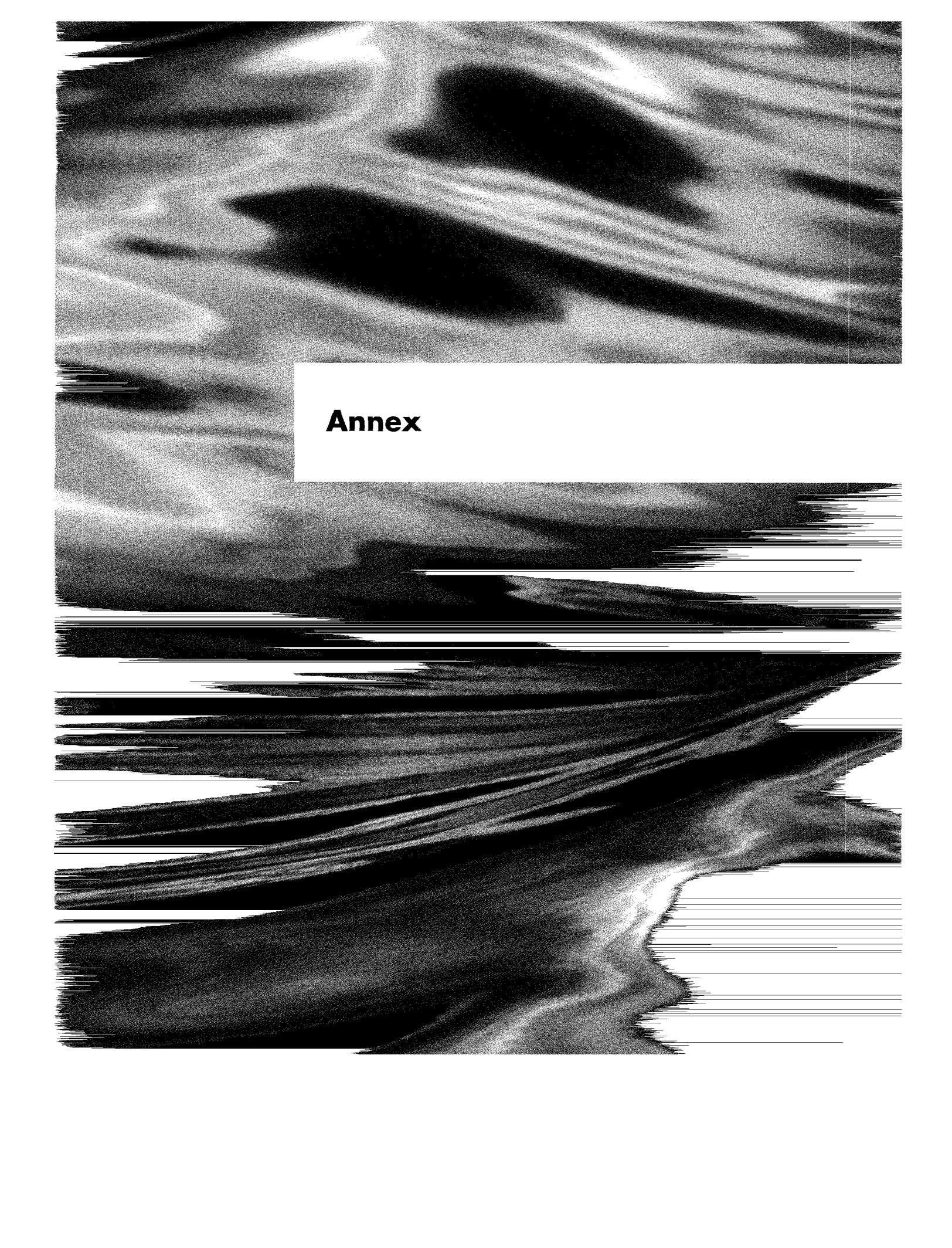
The UNDP-World Bank Water and Sanitation Program has been in the vanguard of understanding and addressing each successive generation of challenges in water and sanitation services for poor communities over the last two decades. It is well-placed to take

forward the contemporary mission fostering the necessary transformation to demand-responsive, consumer driven approaches. The new order in water and sanitation may have been defined conceptually, but there is still a long way to go before it has been fully absorbed into policy and practice throughout the developing world. The heightened visibility water resource issues now enjoy has immense potential for generating new resources and political will but without repeated advocacy for approaches that serve the poor, their needs are easily marginalized and overlooked. To be effective, such advocacy has to be based on a sound practitioner knowledge derived from 'structured learning.'

This role is one of many advocated for the Program in the future; but it seems to be that in which the Program has the clearest comparative advantage. The existing Program strategy – the triad approach to capacity building, based on strengthening sector policies, supporting sustainable investments, and learning and communicating lessons – is already proven to be effective. It is well suited to playing a lynchpin role in piloting, advising, advocating, experimenting, and refining demand-responsive approaches in all their dimensions and institutional implications.

Whether it becomes as closely identified with the demand-driven approach as it was in the 1980s with the community handpump and the sanitary latrine, or in the early 1990s with participatory techniques, time alone will tell. But whatever directions it pursues, the Program will continue to represent within its hybrid nature a mixture of autonomous missionary zeal and formalized mainstream respectability. On the one hand, it has pioneered, experimented, pushed and moved new approaches, having an influence beyond its resources. On the other, it has helped pave the way for, and implement, major large-scale investments, using its UNDP-World Bank imprimatur as a critical badge of status. The combination of maverick and bureaucrat, for all its built-in dichotomy, has been a source of strength and creativity.

In the spirit of partnership it represents, the Program has offered and will continue to offer a unique example of international cooperation to advance the cause of water and sanitation for the poor.



Annex

Annex

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UNDP-World Bank Water and Sanitation Program Management Team 1978-1998

World Bank Water and Sanitation Chiefs

1978-83	John Kalbermatten
1983-86	Michael Cohen
1987-92	Curt Carnemark
1992-94	John Blaxall
1994-96	John Briscoe
1996-present	Vincent Gouarne

Water and Sanitation Program Managers

1987-89	Saul Arlosoroff
1989-90	David Grey (Acting)
1990-92	David Howarth
1992-94	John Blaxall
1994-95	Bruce Gross (Acting)
1995-present	Brian Grover

Project Managers/Key Staff

Technical Advisory Group

1978-84	Richard Middleton
1984-85	Geoffrey Read
1985-87	Carlo Rietveld

Handpumps

1980-87	Saul Arlosoroff
1987-89	David Grey

Resource Recovery

1981-85	Charles Gunnerson
1986-89	Carl Bartone

International Training Network

1984-87	Michael Potashnik
1987-90	Willie Barreiro
1990-92	Piers Cross

PROWWESS/Gender and Participation

1991-93	Deepa Narayan
1993-96	Wendy Wakeman
1997-present	Bruce Gross

Field Staff/Regional Team Leaders

West and Central Africa

1982-85	Philip Owusu (PPU)
1985-89	Gunther Heyland (SDT)
1989-92	Alain Locussol (SDT)
1992-95	Alain Mathys (WSP)
1996-present	Mathewos Woldu (WSP)

East and Southern Africa

1982-86	Tauno Skytta (PPU)
1986-88	Lars Rasmusson (SDT)
1989-92	John Blaxall (WSP)
1992-94	Gunnar Schultzberg (WSP)
1994-96	Tore Lium (WSP)
1996-present	Jean Doyen (WSP)

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1989-92	Tauno Skytta (WSP)
1992-94	Peter Lockery (WSP)
1994-97	Robert Boydell (WSP)
1997-present	Piers Cross (WSP)

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1992-95	Robert Boydell (WSP)
1995-present	Jerry Silverman (WSP)

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1995	Philippe Auffret (WSP)
1995-present	Alain Mathys (WSP)

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Program Timeline

Safe Water 2000 Conference, New Delhi, India

- The UN-sponsored Global Consultation on Safe Water and Sanitation for the 1990s analyses lessons from the Decade at its end-point.

PROWESS integrated within the Program

- The UNDP inter-regional project for the Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWESS) is integrated into the UNDP-World Bank Program.
- The Program begins to publish *Tool-kits* for incorporating community participation and gender into water/sanitation activity. These issues gradually mainstreamed.

Second Program Strategy

- New Program strategy, to enable low-income communities to access water/sanitation services according to their own demand, rather than operating in supply-led mode.
- The strategy emphasizes *structured learning* with the idea of collecting systematic data to allow it to evaluate what works, and how.

1992-1994 Regional teams strengthened

- The Program increasingly devotes more of its resources to the regional teams based in East and West Africa, East and South Asia, and sets up a new team in Latin America.
- Demonstration projects have mixed outcomes; but a pilot project in Bolivia leads to a demand-led national rural water and sanitation program funded by major external donors.

Second major Program evaluation

- In the context of the proposed establishment of a Global Water Partnership, another independent evaluation of the Program is set in motion.
- The evaluation supports the Program Strategy, and its focus on capacity building, support for sustainable services, and the structured learning process; but finds that the Program's capacity to distill lessons learned and disseminate them is inadequate.

Global Study on Sustainability in Rural Water

- A major study is undertaken to synthesize the Program's experience in a wide range of countries in implementing rural water supply and sanitation.
- The study evaluates the link between demand-responsiveness and sustainability, showing that the latter depends on the former; but finds that the supply-led approach is tenacious.

- The Conference adopts policies on environment, health, institutional reforms for integrated approaches and women's participation, community management and financing.

First major independent Program Assessment

- The Program undergoes a major assessment exercise in the light of the new challenges presented by the development of the post-Decade international agenda.
- The Assessment finds that the Program is helping operationalize the 'new agenda' in water supply and sanitation and promoting investment in alternative approaches.

SKAT takes over handpump development and promotion

- The Program hands over its legacy of knowledge in handpump development to the Swiss Center for Appropriate Technology (SKAT)

Communications, knowledge and information exchange

- To improve its capacity to collect data and disseminate lessons learned, the Program develops and implements a communications and information exchange strategy.

Urban Environmental Sanitation

- In the light of rapid urbanization in the developing world, the Program re-focuses on urban environmental sanitation as a key issue and begins to build capacity.
- The Program also begins to focus on private sector-public partnerships, particularly in relation to small-scale urban entrepreneurs in water and sanitation.

Community Water Supply and Sanitation Conference, Washington

- Conference hosted by the World Bank to enable practitioners and policy-makers from around the world to share experiences in implementing demand-responsive approaches.

Water and Sanitation Sector Timeline

Safe Water 2000 Conference, New Delhi, India

- The UN-sponsored Global Consultation on Safe Water and Sanitation for the 1990s analyses lessons from the Decade at its end-point.

First Global Forum of the Water Supply and Sanitation Collaborative Council, Oslo, Norway

- The Council agrees to focus on improving performance in seven areas: country level collaboration, urbanization, O&M, applied research, information management, communications, and gender.

International Conference on Water and the Environment: Development Issues for the 21st Century, Dublin, Ireland

- The Conference sets out four key guiding principles for water-related activity: (1) Water management of requires an integrated, holistic approach; (2) Water is an economic good and its value should be respected; (3) Stakeholder involvement is essential to sustainability of services; (4) Women play a central role in domestic water management which needs to be taken into account. The new approach envisages a facilitating, rather than a do-all, role for government.
- The Dublin Principles, as they have since been known, have provided the basis for all water-related policy discussion and development co-operation during the 1990s.

Drinking Water and Environmental Sanitation: Implementing Agenda 21, Noordwijk, The Netherlands

- An inter-Ministerial meeting focuses specifically on how to promote and implement the new approach to water and sanitation services articulated at Dublin and Rio.

Global Water Partnership

- The GWP is set up with a Secretariat in Stockholm to support integrated approaches to sustainable water management consistent with the Dublin and Rio principles.

World Water Council

- The first World Water Forum is held at Marrakech.

International Conference on Water and Sustainable Development, Paris.

- Conference hosted in Europe underlines the increasing importance attached to the need for urgent action to conserve and manage global water supplies effectively, without losing sight of the need to provide access to services for low-income groups.

- The Conference adopts policies on environment, health, institutional reforms for integrated approaches and women's participation, community management and financing.

- The WSSCC subsequently meets every two years to pursue these and other issues: in 1993 (Morocco), in 1995 (Barbados), and in 1997 (Manila).

The Earth Summit: the UN Conference on Environment and Development, Rio de Janeiro, Brazil

- At the Earth Summit, protection and management of water resources are recognized as an integral part of the debate on environment and sustainable development.
- UNCED and its key document, Agenda 21, emphasize water's importance as an environmental resource and an economic good, and recognize the need to facilitate access to basic services within an overall water resources management framework.

- The new approach views water as a scarce resource, whose management must be based on both equity and demand; and on the participation of users, including women, in service choice and delivery. The new approach does not meet universal approval from developing countries, and will clearly take time to be fully absorbed.

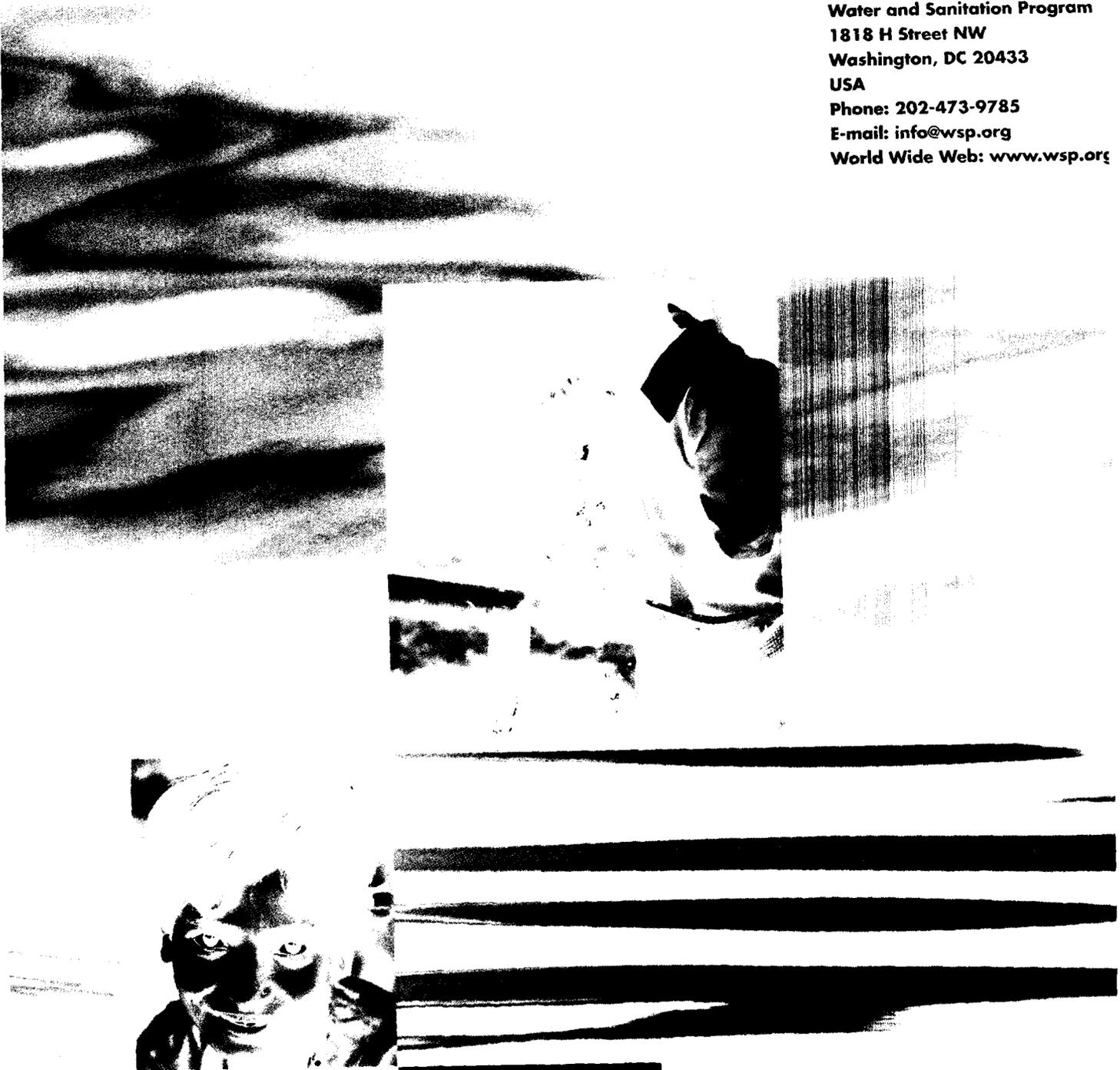
World Water Council

- The World Water Council is set up to develop a long-term vision for water, and to promote awareness of water issues at the most senior political and decision-making levels.

Community Water Supply and Sanitation Conference, Washington

- Conference hosted by the World Bank to enable practitioners and policy-makers from around the world to share experiences in implementing demand-responsive approaches.

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