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# Evolving International Collaborative Arrangements for Water Supply and Sanitation

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## INTRODUCTION

An estimated US\$10 billion is invested annually for water supply and sanitation systems in developing countries. Systemic inefficiencies in these global investments should merit the concern of sector planners. Recovering three per cent of the "losses" caused by inefficiencies in such sector investments, for example, could liberate \$300 million per year, or enough to provide basic water supply and sanitation services to some six million people (assuming low cost technologies costing \$50 per capita).

How can sector investments be made more efficient? We contend that improved collaboration among sector practitioners can make a major contribution to the better use of limited available resources. Such collaboration, or working together, can accelerate the sharing of experience, knowledge and new ideas among sector planners.

International collaboration concerning water supply and sanitation services is a relatively recent phenomenon. Initially, international agencies tended to concentrate on technological improvements, however, as understanding of sector complexities improved, attention began to focus also on the health, institutional and sociological aspects. This trend accelerated during the recently completed International Drinking

Water Supply and Sanitation Decade. Consequently there is a wealth of theoretical and practical information about how to provide more and better services efficiently. Unfortunately, current investment decisions do not always reflect current knowledge. There are, however, encouraging signs that increased collaboration among sector practitioners has resulted in significant gains in efficiency through the sharing of knowledge and ideas.

This article attempts to trace the evolution of international collaboration in this sector, with particular emphasis on External Support Agencies (ESAs). Hopefully this perspective will enable sector officials to appreciate the scope for collaborating to further improve programs providing people with water supply and sanitation services.

## EUROPEAN SUPPORT AGENCY SECTORAL COLLABORATION BEFORE 1980

European governments provided sectoral services (often limited in scope) in their overseas possessions throughout the colonial era. Religious missionaries helped develop small scale water and sanitation systems in developing countries. The first major non-sectarian organization to provide significant technical and financial assistance to the developing countries in medicine and public health may have been the Rockefeller Foundation of the U.S.A., from about 1913. The first bilateral ESA was the predecessor organization to the United States Agency for International Development, USAID, established in 1940

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**How can sector investments be made more efficient?**

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to provide technical assistance in the Americas. In order to protect the health of local populations, this organization included safe water supply among its programs, with a special corporation created in 1942 to coordinate and administer bilateral health programs [1].

International cooperation in public health — initially concentrating on quarantine regulations for communicable diseases — can be traced back to the first International Sanitary Conference in Paris in 1851. The first international health office was established in Paris in 1907. The League of Nations, founded in 1919, provided for multilateral consultations in many fields, including the prevention and control of disease [2]. The known linkages between water, sanitation and health must have resulted in consultations in our sector in those early international health organizations.

The World Health Organization (WHO) accorded priority to water supply and sanitation, as a vital ingredient to health, from its creation as a United Nations agency in 1948. Extensive technical assistance and training of sector personnel has been provided by WHO over the years, but the organization's most important contribution has been its continuous advocacy for health improvements through better water supply and sanitation services.

WHO provided the first global perspectives on the need for sector services in developing countries. A 1962 analysis of urban water supply conditions in 75 developing countries indicated that only about one-third of the urban population, and ten per cent of the total population, were supplied with piped water [3]. In 1970, WHO made the first attempt at a comprehensive global assessment of rural water supply conditions, which indicated that only 12 per cent of the rural population in 90 developing countries (excluding China) had reasonable access to safe and adequate supplies of water [4]. These reports of very low levels of service, and the implications on public health, doubtlessly contributed to the increased emphasis on sectoral support by other ESAs.

More substantial development assistance for water supply and sanitation began some thirty years ago, when international development banks began to finance sector projects. In 1961, the World Bank made its first loan for a water supply project in Taiwan, sixteen years after the Bank's creation. Also in 1961, the Inter-American Development Bank was created

and made its first loan for a water supply project in Peru. The Asian Development Bank's first loan for a sector project was to Malaysia in 1968 and the African Development Bank made its first loan for a sector project, in Uganda in 1966.

In the 1970s, regional banks and funds in the Middle East and the Caribbean began operations with substantial support for sector projects.

With notable exceptions, most ESA support in the early years was for water supply projects. Emphasis on sanitation, still limited, is more recent.

Each of the ESAs active in supporting sector projects initially brought their own resources and perspectives to the sector. UNICEF, for example, concentrated initially on rural water supply projects, mainly using handpumps. The international development banks concentrated on urban water supply systems, emphasizing financial and management improvements, along with infrastructure. WHO emphasized the health rationale for improving sector services. Bilateral development agencies, many beginning their water supply activities in the 1960s, tended to concentrate on individual projects in specific areas of their preferred developing countries. Nongovernmental organizations (NGOs) were mostly working independently on small scale rural water projects. Collaboration between the various ESAs was very limited in those early years of sectoral activities, through the 1960s.

Why such limited international collaboration in this era? Individual ESAs had only modest experience and may not have fully appreciated the complexities in helping to provide sustainable water and sanitation services. Early results were not impressive, as simple transfers of technology from the home countries of the ESAs were not always successful. Project deficiencies caused the external support agencies to review their experiences and share them with other ESAs. Hence, collaboration increased.

WHO and the World Bank undertook a Cooperative Program in this sector in the 1970s. This program established a special unit to carry out sector surveys in developing countries, enabling governments and ESAs to identify priorities and prepare projects.

In 1973, the International Development Research Centre (IDRC) commissioned a report on the existing state-of-the-art in water supply and sanitation. This report highlighted the lack of experience with the application and adaptation of existing technologies to developing country situations. The report also stressed the need for research on a wide variety of

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## **Why such limited international collaboration in this era?**

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critical nontechnical topics. It recommended a 20-year program to bring improved water supply and sanitation to 95 per cent of the population in rural areas and recommended a Task Force to formulate an agenda for applied research and development [5].

Following this report for IDRC, representatives of major ESAs (UNDP, IDRC, OECD, WHO, World Bank, UNICEF and UNEP) met in Montreal in April 1974 to review how they could better address sectoral programs. They created an *ad hoc* working group on rural water supply and sanitation, which met periodically to promote coordination of sectoral activities among donor agencies. A proposal to create a more formal structure, including an independent secretariat, was not accepted and the group was eventually discontinued.

In 1976, the World Bank launched a series of water and sanitation research projects. The first project was titled "Appropriate Technology for Water Supply and Waste Disposal in Developing Countries." This research initiative, and those which followed, involved real and active collaboration between many multilateral and bilateral agencies and their partners in many developing countries.

The United Nations conferences drew attention to the low levels of water supply and sanitation in developing countries: that on human settlements (HABITAT) in Vancouver in 1976 and that on water resources in Mar del Plata, Argentina in 1977. This latter conference called for an International Drinking Water Supply and Sanitation Decade to redress the situation. No single UN agency had the mandate or resources to lead the Decade. Aware of the need to cooperate, those UN agencies with interests in the water supply and sanitation sector created the Inter-Agency Decade Steering Committee in 1978, with seven members initially (UN, UNDP, World Bank, UNICEF, WHO, ILO and FAO). UNDP provided the Committee Chairman and WHO the Secretariat.

In a London symposium in December 1978 on the theme of engineering, science and medicine in the prevention of tropical, water-related disease, a special working group stressed the need for professional collaboration between engineers and the medical profession. The group concluded that informal communications through existing professional institutions and organizations were more fruitful than more formal

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types of collaboration through government agencies [6].

A 1979 report commissioned by USAID produced a strong case for increased collaboration among ESAs. "Probably the single most important innovation that could be made for the International Drinking Water Decade is that all the agencies involved find an effective means of collaboration and coordination of their efforts. This is clearly needed at the country level, for example, in order to reduce or control the proliferation of different kinds of equipment. It also is desirable at the regional and global level in order to facilitate the transfer of ideas, training, technologies, manuals on procedure, lessons for experience and so on and to avoid unnecessary duplication of research and program development" [7]. We consider these insightful pre-Decade comments as valid today as they were in 1979.

One of the keys to improved collaboration is the sharing of basic information. Two specialized ESAs which have facilitated and supported collaboration in this field are IRC in The Hague (originally the International Reference Centre for Community Water Supply) and the International Development Research Centre in Ottawa.

## COLLABORATION DURING THE 1981-1990 DECADE

Highlights of collaboration in the past Decade are summarized in this section. Most of these collaborative activities are continuing in the present decade. Following the 1977 World Water Conference, each country was supposed to prepare realistic targets and national action plans for improving sector services. On November 10, 1980 the General Assembly of the United Nations declared the period 1981-1990 as the International Drinking Water Supply and Sanitation Decade. Thanks partly to collaborative assistance from WHO and the World Bank, more than half the developing countries had prepared strategic sector plans by the start of the Decade. Many more plans were made and implemented as the Decade progressed.

The inter-agency Steering Committee of UN agencies was active during the Decade, meeting approximately twice yearly to improve information exchange among member organizations. This Committee expanded to include more than a dozen agencies but the most prominent were those who provided the major inputs to the sector: UNDP, UNICEF, WHO, and World Bank. The Steering Committee's activities over the Decade promoted collaboration and coordination, helping UN agencies to develop joint sector assessments and strategies.

UNDP provided a decade Coordinator, based with

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## Professional associations also facilitate collaboration

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WHO in Geneva, whose tasks included promotion of improved sector services. In dealing with various ESAs on sectoral programs, the Coordinator doubtless facilitated collaboration among them.

At the outset of the Decade, each developing country was encouraged to set up a national committee to plan and coordinate sector activities, with the UNDP Resident Representative designated as the Decade focal point for sectoral collaboration. The efforts and results of the various national committees and the UNDP focal point varied considerably. In a few countries there was active and effective collaboration but this was generally the exception, not the rule.

The World Bank and UNDP continued to develop a number of related research and pilot projects, namely:

- rural water supply handpumps;
- low-cost sanitation;
- resource recovery;
- international training network (emphasizing low cost technologies);
- project preparation units in Asia; and
- sector development teams in Africa.

As the Decade progressed, the six related projects matured and were gradually managed within a single program, known as the UNDP/World Bank Water and Sanitation Program.

These various projects were financially supported by UNDP and by ten bilateral ESAs. Up to 70 sector professionals were active with the Program, undertaking research, demonstration, training and sector planning activities in some 40 countries. Developing country nationals and their agencies were key partners in all such activities, which involved unprecedented collaboration at country, regional and international levels.

Collaborative sectoral efforts were facilitated by a dramatic increase in published information. Researchers in the UNDP/World Bank Program and elsewhere produced a torrent of books and articles. A technical periodical (*Waterlines*) was created by the Intermediate Technology Publications Limited, with support from IDRC, to circulate information on low-cost technologies among sector practitioners. Reference centres were established to help make the rapidly expanding information more widely available. The International Reference Centre in the Hague produced a newsletter to keep sector practitioners informed of current developments.

Professional associations of sector practitioners have

made significant contributions in the improvements of water supply and sanitation services in many countries. Practical collaboration in well established national associations usually includes:

- enhancing professional competence through publications and technical conferences. These meetings permit the exchange of information and experiences, as well as providing a social milieu to facilitate subsequent informal collaboration;
- setting of standards for equipment, testing procedures, training, and the like;
- promoting applied research on outstanding issues;
- encouraging coordination with related professional associations, both within the country and internationally, and
- lobbying the government to achieve policies, programs, and regulations to benefit the sector.

Professional associations also facilitate collaboration at the international and regional levels. The International Water Resources Association (IWRA) deals with all aspects of water management, whereas the International Water Supply Association (IWSA) concentrates on water supplied through pipes. Established in 1947, IWSA was mainly European in origin. IWSA created its Committee for Cooperation with Developing Countries early in the 1970s. During the Decade this was replaced by the IWSA Foundation for the Transfer of Knowledge, set up to assist corporate members in newly industrialized and developing countries.

The best established regional sectoral organization may be the Inter-American Association of Sanitary and Environmental Engineering (AIDIS), which organizes a major technical conference every three years. A newer, similar association is the Union Africaine des Distributeurs d'Eau (UADE), which currently includes representation from roughly half the countries in Africa. Water supply associations also exist for countries in the Asia/Pacific region and in the South-Central and West Asia regions.

International collaboration can also be effective at the subregional level. For example, organizations providing services in Central America, Panama and the Dominican Republic coordinate their activities in a regional association known by its Spanish acronym CAPRE.

Throughout the Decade, national and international conferences, frequently organized with WHO assistance, brought sector professionals together to share their experience and ideas. A surprising degree of consensus emerged on the fundamental issues retarding progress in the sector and on the "global approaches" required to meet Decade goals.

As the Decade progressed, ESAs outside the UN system improved their collaboration in the sector. The German Ministry of Economic Cooperation and

WHO organized a donor conference at Koenigswinter in October 1984. The following year (May 1985) the Development Aid Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) met in Paris to review sector progress at the middle of the Decade. The DAC meeting concluded that the past efforts of donors had not been coordinated, resulting in recipient countries often being confronted by contradictory approaches by donors. It was agreed that country level coordination was needed between donors and recipients. This meeting further concluded that donor agencies should develop guidelines reflecting strategies agreed between them. ESAs were encouraged to exchange information on their strategies and principal programs. This advice was soon taken.

The Swiss Development Corporation (SDC) and WHO convened a consultation of sectoral representatives from ESAs in Interlaken in October 1987. Multilateral and bilateral ESAs attended, as well as representatives from several NGOs, plus observers from developing countries, some 56 people in total. This landmark meeting achieved consensus on a framework for global consultation and proposed a Collaborative Council.

The Collaborative Council of ESAs was formally established at a consultation in The Hague in November 1988. The Council set for itself the following overall objective: "To maintain Decade momentum beyond 1990 and accelerate the provision of water supply and sanitation services to all, with emphasis on the unserved rural and periurban poor, by using a coordinated programme approach." UNDP provided the Council Chairman (the Decade Coordinator) and WHO provided the Secretariat (as for the Decade Steering Committee of UN agencies).

Temporary working groups of ESA members of the Council accomplished specific assignments dealing with applied research, communication of information, and financial policies. Despite the enhanced collaboration, however, immediately measurable results were modest. The Collaborative Council decided at its 1989 meeting in Sophia Antipolis, France, to evaluate initial accomplishments, assess future needs for collaboration and suggest necessary improvements in the Council for the decade ahead. Consultants were engaged to offer independent advice. Their report [8] was considered at the special meeting of the Collaborative Council in New Delhi in September 1990. Important adjustments were agreed, based on the consultants' recommendations.

The Collaborative Council's revised mission is to enhance collaboration among developing countries and ESAs, so as to accelerate the achievement of sustainable water supplies, sanitation and waste management services for all people, with special emphasis on the poor. Council membership was expanded to

include sector professionals from developing countries as well as from ESAs, reflecting the understanding that the countries themselves need to direct sector activities, calling on ESAs for appropriate support. The Council agreed to concentrate on regional and global activities rather than in-country activities. It was agreed that the Council will be headed by a part-time Chairperson, with a small Secretariat provided by WHO. Regular global meetings are to be held approximately every two years.

An evolving tool to facilitate sectoral collaboration is CESI, the Country External Support Information system. Created by WP in 1985 (with initial support from UNDP and from Germany), CESI aims to outline progress within the sector for each developing country towards national sector strategies. Sector activities including those of cooperating ESAs are catalogued so that sector planners, inside and outside the country, can be easily informed. CESI also facilitates the monitoring of programs within the sector.

Nongovernmental organizations (NGOs) have long been providing support for water supply and sanitation services. NGO activities in the sector have traditionally been small scale and locally concentrated. As sector practitioners came to realize the importance of community participation during the Decade, the strengths and experiences of NGOs, particularly in community motivation and organization, were increasingly appreciated by other ESAs.

Several larger NGOs began to interact with other ESAs through the Collaborative Council. In parallel they began to form stronger networks among themselves. By the end of the Decade, embryonic regional groups of sectoral NGOs had been created in Africa and in Asia. An international meeting of NGOs active in water supply took place in Montreal in June 1990, leading to a statement of NGO principles, the Montreal Charter [9].

UNDP and the Government of India organized a global consultation on safe water and sanitation which took place in New Delhi near the end of the Decade in September 1990. Leading up to this major event were regional consultations, at which Decade results and lessons were reviewed. These 1990 regional meetings in Abidjan (Africa), Manila (Asia), and San Juan (Latin America and the Caribbean) brought together sectoral leaders from developing countries and from various ESAs active in each region. Practical collaboration improved at several levels, between the countries themselves and between ESAs, including the regional and international development banks. Furthermore, sector leaders from within the developing countries began to play increasingly active leadership roles in these meetings, in contrast to previous international sector meetings which were often planned and dominated by the ESAs.

Some 600 sectoral experts from 115 countries re-

viewed the results and experience from the 1981-1990 Decade in the New Delhi Consultation. Many of the participants, from ESAs particularly, but also from many developing countries, had been increasing their collaboration throughout the Decade. These prior experiences contributed substantially to the impressive degree of consensus achieved at New Delhi on how to accelerate efforts at improving sector services in the 1990s.

The theme of the New Delhi Statement captures the philosophy of the global consultation. "Some for all rather than more for some" implies deliberate efforts to concentrate on providing basic services to the hundreds of millions of people presently unserved. Conventional technologies and approaches need to be modified by:

- substantially reducing the costs of service, through increased efficiency and the use of low-cost, appropriate technologies; and
- mobilizing additional funds from existing and new sources, including governments, donors and consumers.

Four guiding principles were recommended in New Delhi:

- Protection of the environment and safeguarding

### An evolving tool to facilitate sector collaboration is CESI

of health through the integrated management of water resources and liquid and solid wastes.

- Institutional reforms promoting an integrated approach and including changes in procedures, attitudes and behaviour, and the full participation of women at all levels in sector institutions.
- Community management of services, backed by measures to strengthen local institutions in im-

Table 1. Developing country needs for sector services, 1990-2000.

	Population Not Served in 1990	Expected Population Increase 1990-2000	Total Additional Population Requiring Service by 2000
	Millions		
<i>Water Supply</i>			
Urban	243	570	813
Rural	989	312	1,301
Total	1,232	882	2,114
<i>Sanitation</i>			
Urban	377	570	947
Rural	1,364	312	1,676
Total	1,741	882	2,623

Source: Report A/45/327 of the Secretary General of the Economic and Social Council to the UN General Assembly, July 1990.

plementing sustainable water and sanitation programs.

- Sound financial practices, achieved through better management of existing assets, and widespread use of appropriate technologies.

### FUTURE COLLABORATION: CHALLENGES AND OPPORTUNITIES IN THE 1990s

Despite progress made in the past Decade, roughly one person in three in the developing world did not have a reliable supply of safe drinking water in 1990. Still more lacked access to sanitation. UN estimates, shown in Table 1, indicate that population in these countries will increase by almost 900 million in the 1990s, with two thirds of this increase occurring in urban areas. In consequence, more than two billion additional people will need sector services by the year 2000.

Added to this formidable task is the challenge of sustaining existing facilities, many of which are currently providing unreliable service.

### More than two billion additional people will need sector services by the year 2000

Even if sector planners adopt the philosophy and guiding principles of the New Delhi Statement, sectoral resource requirements are staggering in financial and human terms in the years ahead. These quantitative challenges are being complicated in many areas by increasing competition for limited supplies of fresh water. Available water is increasingly scarce, and becoming increasingly polluted.

These challenges cannot be met without unprecedented collaboration, nationally and internationally, by new coalitions of partners. Such collaboration must ensure that available resources are maximized and used effectively and efficiently.

Decade experience has caused increasing recognition that governments will have to change their roles and become promoters rather than providers of sector services. This revised role for governments was specified in the 1990 regional consultations and in the New Delhi Statement. The communities and their local institutions will have to assume greater responsibilities for delivering better services, with governments setting overall policy and providing strong enabling support. This evolution means that ESAs

will likewise have to reconsider their philosophies, roles and strategies.

Global sectoral strategies that were enunciated widely in the 1980s were developed in large measure by the ESAs, particularly the larger ones, based on their extensive experience. Yet the ESAs collectively provided the minor portion of the roughly US\$10 billion invested annually in the sector, and will probably finance a declining share of overall future investments. While national governments learn to support sector programs developed increasingly by local communities, ESAs will have to provide more demand driven assistance to development partners, including national authorities, local governments, private sectoral organizations and local NGOs.

There is clear evidence that sector programs are becoming more demand driven: this will happen sooner or later in most countries. In turn this will lead to increasing democratization in the sector, starting with the communities themselves. Governments increasingly have to be responsive to the needs of sector beneficiaries. ESAs in turn should be ready to support requests enunciated by the communities and through the national authorities in each developing country. In other words ESAs should become more attentive listeners to potential beneficiaries in their dialogue with their development partners.

NGOs are likely to be increasingly important in the sector. Their ability to influence policy will probably be a major contribution, along with their demonstrated competence in mobilizing community resources. Strengthened NGO networks should enhance the NGOs' roles in affecting sector policies. Hopefully the larger NGOs will be interested in participating in large scale sector programs, utilizing their collective experience from smaller pilot projects, as UNICEF consciously expanded with their rural water supply programs in many countries in the 1970s [10]. Other ESAs — particularly bilateral agencies and development banks — will need to find pragmatic ways to work with NGOs in sector programs.

Many of the sectoral concepts now regarded as standard and incorporated in the New Delhi Statement, such as the use of low-cost technologies and the inclusion of women in project management, emerged during the 1980s from the research and pilot projects of the UNDP/World Bank program and other external support agencies. These concepts should be implemented at regional and national scales, with

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### **One important initiative already under way is the Inter- national Training Network**

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ESAs providing substantial support as policies of national governments evolve. The World Bank has a major responsibility in this regard, both as the initiator of many of these policy proposals and as the largest single provider of external financial support in this sector.

Building institutional capacity will remain a paramount challenge in developing countries. All ESAs have roles to play in supporting human resources development and institutional strengthening. National professional associations have great potential capacity in this regard, so ESAs must seek practical measures to assist in the strengthening of such sectoral organizations. To avoid duplication, collaboration between ESAs and these associations will be essential.

One important initiative already under way is the International Training Network (ITN). Initiated in the 1980s under the UNDP/World Bank Water and Sanitation Program, nine ITN Centres now operate in the developing countries. Even more importantly, some 160 outreach stations exist, such as universities, often in countries adjacent to the ITN centre. For example CREPA (Centre regional pour l'eau potable et l'assainissement) is based in Burkina Faso and has outreach stations in 14 other countries in West Africa. Established with the intention of being largely independent from the UNDP/World Bank Program, the ITN centres have shown great initiative in entering twinning arrangements in industrialized countries. Each ITN centre has developed its own curriculum, but all focus on training sector personnel in practical measures to provide water and sanitation services to the poor.

The dynamic situation in the water supply and sanitation sector in developing countries in the 1990s makes it impossible to predict how collaborative arrangements will unfold. Sector officials have consistently emphasized that collaboration which provides the most tangible results is that which takes place at the country level. One lesson from the past Decade is that no single model for such collaboration (such as reliance on a specific focal point or sector coordinator) can be generalized and applied in all countries. Many different models for in-country collaboration need to emerge. For sustainability national authorities must take the lead and strong ESA support will often be appropriate to help coordinate such national and regional collaboration.

During the past Decade, most ESAs have discovered the need for, and benefits of, increased collaboration between themselves and with the developing countries. The Collaborative Council is still in its infancy, trying to develop mechanisms to make cooperation in this sector more efficient at the regional and global levels. With the agreement to include in its membership representatives from all constituencies involved in providing sustainable sector services, the Council

has the potential to be instrumental in achieving major progress in the years ahead. In this respect, having developing country representatives on the Council is a significant step forward. The future effectiveness of the Collaborative Council will depend on several factors, particularly its leadership and the secretariat.

Collaboration is never easy. Good communications are a prerequisite. Collaboration takes time, talent, resources, persistence and, above all, goodwill. It also requires pragmatism, so that planned systems and procedures can be adjusted to take account of the realities of experience.

Hopefully sector leaders from developing countries and from ESAs in the 1990s will possess the necessary qualities to collaborate effectively. If they do not, resources will be wasted and people will suffer — particularly the poorest people, those millions most in need of water supply and sanitation services.

## REFERENCES

1. McJunkin, F.E., "Community Water Supply in Developing Countries: a Quarter-century of United States Assistance," Office of International Health, United States Public Health Service, Washington, DC, U.S.A., 1969, 85 pp.
2. Acheson, M.A., "The Chadwick Centenary Lecture — A Review of Two Centuries of Public Health," *Journal of the Institute of Water and Environmental Management*, London, Oct. 1990, pp. 474-483.
3. Dietrich, B.H., and J.M. Henderson, "Urban Water Supply Conditions and Needs in Seventy-five Developing Countries," World Health Organization Public Health Papers, No. 23, Geneva, 1963, pp. 14-15.
4. Twenty-fifth World Health Assembly, "Community Water Supply Programme: Progress Report to the Director-General," Document A 25/29, World Health Organization, Geneva, April 1972, p. 4.
5. Burton, I., E. Maystre, and Y. Idelovitch, "Technology Assessment and Research Priorities for Water Supply and Sanitation in Developing Countries," report to IDRC, Ottawa, Nov. 1973.
6. Pescod, M.B., "Report of Working Group on Professional Collaboration," *Progress in Water Technology*, Pergamon Press, Oxford & New York, Vol. 11, Nos. 1/2, 1979, pp. 464-464.
7. Burton, I., "Policy Directions for Rural Water Supply in Developing Countries," *A.I.D. Program Evaluation Discussion Paper No. 4*, Bureau for Program and Policy Coordination, U.S. Agency for International Development, Washington, DC, U.S.A., April 1979, 43 pp.
8. Cosgrove, W.J. and A. Frih, "Evaluation of Collaboration of External Support Agencies and the Future of the Collaborative Council," July 1990, 28 pp. plus 2 annexes.
9. "The Montreal Charter on Drinking Water and Sanitation," adopted at the Montreal International Forum — NGOs Working Together, Montreal, June 1990.
10. Beyer, M.G., "The Wet History: Water Supply and Environmental Sanitation in UNICEF, 1946-1986," *UNICEF Wet Monograph No. 2*, UNICEF, New York, Dec. 1986.

## Objectives

The principal objectives of the International Water Resources Association are:

- to advance water resources planning, development, management, administration, science, technology, research, and education on an international level;
- to establish an international forum for planners, administrators, managers, scientists, engineers, educators, and others who are concerned with water resources; and
- to encourage coordination and support of international programs in the field of water resources, including cooperation with the United Nations and its agencies, and other international and national organizations, in activities of common interest.