

[Third Global Forum : Barbados : 30 October
- 3 November 1995 : various papers
presented]

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Water Supply and Sanitation Collaborative Council
Geneva, Switzerland

June 1996

71 - WSSCC95 -15431

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- Note: some of the papers mentioned here are only available electronically through a link in Olib to the text in Word format**

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WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL

CONSEIL DE CONCERTATION POUR L'APPROVISIONNEMENT EN EAU ET L'ASSAINISSEMENT

To Participants of the Third Council¹
Forum held in Barbados

Tel: +41 22 791 3685
Ref: CCW/O/OA/1

31 May 1996

Dear Colleagues,

As agreed at the Third Global Forum of the Council in Barbados, please find enclosed two diskettes to provide the various papers presented at the forum. They are:

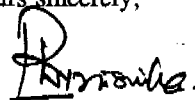
<u>Diskette 1</u>	<u>Document Name</u>
1. Promotion Of Sanitation Mayling Simpson-Hébert	PROMSAN.DOC
2. Water Pollution Control Richard Helmer	WATERPOL.DOC
3. Institutional And Management Options Frank Hartvelt	INSTITUT.DOC
4. Water Demand Management And Conservation Frank Hartvelt	INSTITUT.DOC
5. Services For The Urban Poor Ivo Imperato	URBANPO.DOC (Only Executive Summary. Awaiting full report.)
6. Operation And Maintenance Working Group José Hueb	OPERATIO.DOC
7. Global Applied Research Network In Water Supply And Sanitation (GARNET) Andrew Cotton	GARNET.DOC
<u>Diskette 2</u>	
8. Changes For The Better — Philosophy and Approach Ger Ardon, Hans van Damme	Paper not available
9. Gender Issues In Water Supply And Sanitation Wendy Wakeman	GENDER.DOC (Only Summary Report. Full Report will be provided to all participants independently by WB/UNDP/PROWESS.)

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¹Please note that a copy of this letter has been provided on Diskette 1 as COVER.LTR

- | | | |
|-----|--|---|
| 10. | Country Level Collaboration and National Sector Strategies
George Nhunhama, Patrick Kahangire | Awaiting submission of diskette. |
| 11. | Water Supply For A Rapidly Growing Population
— Taking A Resource-Based Approach
Malin Falkenmark | Hard copy provided to overcome difficulties with maps and graphs. |
| 12. | Water And Sanitation In The Caribbean
Arthur Archer | CARIB.DOC |
| 13. | Africa — A Continent in Crisis
Dennis Warner | AFRICA.DOC
(Transparencies only) |
| 14. | Decentralization In Urban Water Management In Mexico
Lilian Saade, Judith Thompson, Abbey Mpamhanga | DECENTRA.DOC
Awaiting submission of diskette from Mpamhanga. |
| 15. | Central & Eastern Europe and CIS
Helmut Weidel | CEES.DOC |
| 16. | Joint Monitoring Programme
Dennis Warner | JOINTMON.DOC
(Transparencies only) |
| 17. | Roles of the Community and NGOs
Paul Peter, Willem Ankersmit, Marc Lammerink | |
| 18. | Water Supply And Environmental Sanitation Services
Electronic Network For Developing Country Needs (WENDY)²
Ivo Imperato, Stephen Parker, Peter Odendaal, Chris Buckley | ELECTRON.DOC
Awaiting submission of diskette. |
| 19. | A Demand-based Approach: Making Large-Scale Rural Water
Supply and Sanitation Projects Work
Brian Grover, Bob Bodyell | RURALWSS.DOC |
| 20. | UNICEF WES Strategy
Gourisankar Ghosh | Paper not available |
| 21. | HABITAT II
Ivo Imperato | Included as Annex 2 in Third
Global Forum Report. |

Yours sincerely,



Ranjith Wirasinha
Executive Secretary
WSS Collaborative Council

²Now called INTERWATER



WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL

CONSEIL DE CONCERTATION POUR L'APPROVISIONNEMENT EN EAU ET L'ASSAINISSEMENT

All Participants at the WSSCC
Third Global Forum, Barbados

Our ref. CCW/O/N/95
Tel. (direct) +41 22 791 3685

4 June 1996

Dear Colleague,

Please find enclosed the following:

1. Letter of transmittal and a copy of the Report of the proceedings of the Third Global Forum of the Council in October/November 1995 in Barbados.
2. 2 diskettes in Wordperfect 5.1 containing the presentations in Barbados. (For protection the diskettes have been placed inside the Report).
3. A copy of Paper presented by Professor Malin Falkenmark on "Water Supply for a Rapidly Growing Population - Taking a Resource-Based Approach".
4. A copy of the letter of award to the Council from UNCHS on World Water Day 1996.
5. A note of appreciation on the contribution made by Mr Bryan Locke, Deputy to the Executive Secretary who completed his term with the Secretariat on 29 February 1996.

Yours sincerely,

Ranjith Wirasinha
Executive Secretary
WSS Collaborative Council

ENCLS. as stated



WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL
CONSEIL DE CONCERTATION POUR L'APPROVISIONNEMENT EN EAU ET L'ASSAINISSEMENT

All Participants at the WSSCC
Third Global Forum, Barbados

Our ref. CCW/O/N/95
Tel. (direct) +41 22 791 3685

4 June 1996

Dear Colleague,

1. Report on the Proceedings of the Third Global Forum in Barbados, 30 October to 3 November 1995

(a) General

I send herewith a copy of the above Report and in doing so I thank all those participants who took time to provide helpful comments, suggestions on the initial draft. I also acknowledge the work of our Chief Rapporteur, Mr Brian Appleton for a great piece of work in reporting and also in structuring the report to help the reader through a wide array of diverse activities.

We thank all those who attended the Forum for their active participation. We apologize for an error in the report on the total number of participants which should be 208 and not 235.

From developing countries	-	127
From external support	-	76
From Central & Eastern Europe	-	<u>5</u>
		208

Amongst the 208 participants were 27 from NGOs and 31 women recording increases of 64 percent and 35 percent respectively from the Second Forum in Rabat, Morocco.

My view is that this has been a very healthy mix of participants from developing countries and external support agencies with the critical mass of ESAs nearly intact. We missed the participation of the Asian Development Bank, the African Development Bank and in particular the Inter-American Development Bank in whose area of influence the meeting was held. They would benefit from the consensus views of the developing countries and the bilateral aid agencies on developmental issues of importance and in turn their participation would have enriched the discussions.

We are happy that we were able to have participation from the Central and Eastern European countries and thank the Austrian Government and Mountain Unlimited for making this possible. We now look forward to the participation of the European Bank for Reconstruction and Development at the next meeting.

.../2

The Secretariat will make efforts to encourage the participation of the Commonwealth of Independent States at the next meeting.

It was acknowledged that the Third Global Forum was a further improvement on earlier Fora and additionally we are very happy that the sense of the gathering was that the Council has grown into a fraternity of "committed friends of the sector", with a mission.

(b) **List of Participants**

Despite our arrangements for obtaining the co-ordinates of all participants as early as possible to provide a list of participants with useful contact details, this proved to be difficult. We had to resort to many telephone calls and faxes to verify the contact details of many participants who had not provided the required information. Resulting from such efforts we now consider that the details provided in Annex 1 of the Report - List of Participants is nearly complete and accurate and would provide useful information to all of you.

(c) **Diskette on Presentations made at the Barbados Forum**

We stated that we would provide all participants with copies of the presentations made at the Barbados Forum on a diskette in Wordperfect 5.1. We have had difficulties in obtaining diskettes on all the papers presented. We are sending herewith the large majority of them in a diskette in Wordperfect 5.1.

If we are to do this again for the next Forum, I believe we can find ways to overcome the delays encountered this time. However, we would like an evaluation of this arrangement and in particular whether you have been able to print out the reports without difficulty. Any suggestions would also be welcome.

It is very important to have your comments.

2. **Acknowledgements**

(a) **Assistance Provided**

We thank the Government of Barbados for hosting the Forum and the Barbados Water Authority (BWA) in particular for leading the Steering Committee for the planning of the meeting and in managing the local arrangements. We thank all the government ministries and agencies in Barbados who willingly provided support to facilitate the organization and conduct of the Forum. A special word of appreciation and thanks is due to Mr Denis Yearwood, the Chairman of the Steering Committee and the General Manager of the Barbados Water Authority and to Mr Charles Marville also of BWA, the Chairman of the Local Organizing Committee and to his support team which was drawn from many agencies. They handled a very difficult and complex operation with dedication and untiring commitment. To the ladies who co-ordinated arrangements at the hotels, the conference centre, and the airport and the transport needs - a very, very warm thank you. They were great. The participants without reservation have carried home with them memories to cherish of a very friendly, patient and polite people, the Barbadians - thank you.

Thanks are due to the local offices of the external support agencies in Bridgetown who were associated and helpful before and during the Forum. I would like to make special mention of the Office of the Resident Representative of the United Nations Development Programme and in particular Mr Lee Farnum Badley who was most helpful in many ways. I do hope that you will continue your association through one of the Council's networks.

We thank the many who graciously worked as facilitators, rapporteurs, members of ad hoc committees, etc. The conduct of the Forum would not have been possible without their knowledge, experience and help. Particular thanks and acknowledgement are due to Dr Klaus Erbel of GTZ, Germany who was the Chairman of the Programme Committee for the Barbados Action Programme, the Chief Facilitator Mr Clifford Wang of Norway and the Chief Rapporteur Mr Brian Appleton.

While Cliff ably stepped in as Chief Facilitator, we would like to remember with gratitude and warmth our pioneer Chief Facilitator, Ms Sigrun Moegedal of Norway who could not spare the time to attend.

(b) **Intellectual Inputs**

It was generally acknowledged that the outputs of the working groups and networks were of very good quality and value. We are very indebted to the Co-ordinators and the members of the working groups for their commitment and effort which forms the foundation of our work.

We also thank the Managers of the Task Forces for their help and advice, in dealing with our administrative issues. Professor Malin Falkenmark's (Sweden) keynote address on "Water Supply for a Rapidly Growing Population - Taking a Resources-Based Approach" helped the water supply and sanitation professionals, largely our membership, with a greater appreciation of the larger issues of water (competing needs, rural/urban issues, planning and management priorities and imperatives) and the message that the management of land and water are inexorably connected. We were reminded that we in the water supply and sanitation sector play a very important and indispensable role but are a part of a larger complex which we can no longer not be related to.

Mr Arthur Archer (Barbados) in his address highlighted the issues of the Small Island States and how vulnerable the economies of such states are if water and the environment are not well managed. It was evident that the larger world should provide due attention to the needs of the small Island States and that these states provide interesting case studies as microcosms of the larger states.

We thank both of you.

We thank the others who presented statements on their programmes and strategies of global relevance. We appreciate that the World Bank is moving into helping large numbers of small communities with water and sanitation and for looking for ways to involve the stakeholders in decision making. We commend the UNDP/World Bank Water & Sanitation Programme in assisting the World Bank on this new path.

We congratulate UNICEF for taking a lead in involving all concerned including other UN agencies in formulating its water and environment sanitation strategy - good collaboration.

(c) **Financial Assistance**

Our grateful thanks are due to the following:

For financing participants from developing countries:

Government of Austria, Canadian International Development Agency (CIDA), Caribbean Development Bank, Danish International Development Agency (DANIDA), Finnish International Development Agency

(FINNIDA), Ministry of Foreign Affairs, France; Ministry of Economic Corporation, Germany (BMZ); Ministry of Foreign Affairs (MAEI), Italy; Ministry of Foreign Affairs (DGIS), the Netherlands; Swiss Development Cooperation (SDC), Swedish International Development Agency (SIDA), Commonwealth Science Council, UK; Overseas Development Administration (ODA), UK; Commonwealth Science Council, UK; Commonwealth Science Council, UK; UNDP, UNDP/World Bank Water Supply & Sanitation Programme, UNEP, UNICEF, WHO. Particular recognition is due to UNICEF, the Caribbean Development Bank, the Swiss Development Cooperation and CIDA.

A few developing countries financed their own participation and we thank them. I do hope that in the future more would finance their participation since the value of the Council's Forum and the activities of the Working Groups and Networks are gaining recognition. I shall be greatly assisted to have your views on this matter and on what action may be taken to make progress on this approach.

Our thanks go to NORAD (Norway) for continuing to finance the services of the Chief Facilitator and we thank SIDA for making the arrangements for the keynote address.

Financial assistance for Working Groups and Networks was received from the Government of Austria, Canadian International Development Agency (CIDA), the French Water Industry, the Ministry of Foreign Affairs (MAEI) Italy, Swedish International Development Agency (SIDA), Swiss Development Cooperation (SDC), the Overseas Development Administration (UK), UNDP, UNDP/World Bank Water Supply & Sanitation Programme, UNEP, UNICEF, and the WHO.

(d) **Assistance in Kind**

Assistance in kind have been provided by WHO, HABITAT, UNICEF, UNDP, the International Water & Sanitation Centre (IRC), the International Association on Water Quality (IAWQ), Water, Engineering & Development Centre (WEDC), Centro di Ricerca Febbraio '74 (CERFE), UNDP/World Bank Water Supply & Sanitation Programme, particularly in co-ordinating different activities of the Council such as Working Groups and Networks. Our grateful thanks go to them. The IRC additionally provides information on Council activities through its Newsletter.

Last but not least Mrs Margaret Catley-Carlson for the time she has devoted to the Council, for being an excellent Chair and also just herself to all of us. And to the Population Council, the agency that employs her (and she heads) for allowing her the time to help the Council and to her personal assistant Mr Tim Thomas, who has always been a willing and friendly anchor when Margaret has been on the move.

3. **Council and KWAHO Receives Award**

We are very pleased to inform you that the Council received an international award on World Water Day '96 from UNCHS (responsible UN Agency this year for World Water Day '96) with the citation "For its innovative approach to foster international cooperation through broad-based partnership of all stake-holders, promoting safe water and adequate sanitation for all". The award was made in Beijing by the Vice Premier of China. I felt very honoured to accept it on behalf of the Council. We are very proud to receive an award after only 4 years in operation.

On the same occasion a long standing member of the Council, Kenya Water for Health Organization (KWAHO) also received an award. Our congratulations to KWAHO and to its Executive Director, Mrs Margaret Mwangola, the energetic driving force behind KWAHO.

4. Communication Plan for the Council

The Council has produced through its Working Groups and Networks, during the past two bienniums, many messages and tools for dissemination. They have now to be tailored in form and language to the different audiences - policy/decision makers, managers, operatives and the public.

There is also much more that the sector can derive through the arrangement of the Council and the mechanisms it adopts, i.e. the Forum, the Working Groups and the Networks. The Council is now ready to make itself more known, in the countries and within the agencies concerned. A good communication plan/strategy is a critical need of the Council.

We have recruited a Consultant, Mr Richard Reid (ex-UNICEF) to prepare a communications plan/strategy for the Council. He will be contacting a wide cross-section of the Council's membership for views and advice. We expect to have his report in June 1996 to present a proposal for a Communications Plan.

5. The Global Water Partnership

This was an initiative of staff concerned of the World Bank and UNDP. Both organizations were moving into the larger water field and in particular into integrated water resources management. The UNDP/World Bank Water Supply and Sanitation Programme which has had much relevance and value to the membership of the Council, had to fit in or run the risk of funding difficulties from the parent organizations. There was some concern that in doing so the Programme which was already thin in the field would also have to assume responsibilities for water resources. With time, the initiative grew to embrace others and be termed the Global Water Partnership (GWP). It finally came into being under that title, in Stockholm in December 1995 with the Swedish International Development Agency (SIDA) providing the Secretariat. It is hoped that the UNDP/World Bank Water and Sanitation Programme will remain in tact and benefit from the umbrella of the GWP and particularly in relation to more funds from the World Bank and UNDP, which was the initial need. More information could be obtained from Mr Brian Grover, the Manager of the UNDP/World Bank Water Supply & Sanitation Programme. The Collaborative Council will continue its close association with the UNDP/World Bank Water Supply & Sanitation Programme and by virtue of this relationship, also with the GWP.

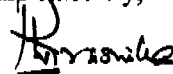
6. The World Water Council

As you would remember, we had a special Group Session in Barbados on this topic. Subsequently I addressed a letter to a fair cross-section of our members to ascertain their views. No clear picture emerged on whether we should join or not and if we do join, in what capacity? In the meantime Margaret was invited to become a member of the Interim Governing Board of the WWC. Margaret weighed the position and of course wanted to obtain a better and clearer impression of the World Water Council. She therefore recently attended a meeting of the Interim Governing Board of the WWC on a non-committal basis. Based on her discussions, she will be making a recommendation to the members of the Collaborative Council for their consideration, on the association we may have with the proposed WWC. I await her communication on the matter.

I understand that the Founding Committee on the WWC is moving ahead with the establishment of the World Water Council.

With my very best regards,

Yours sincerely,



Ranjith Wirasinha
Executive Secretary
WSS Collaborative

Draft



Gender Issues
in Water Supply and Sanitation

**Gender Issues Mandated Activity of the Water Supply and
Sanitation Collaborative Council**

**Summary Report for consideration at the Barbados
Meeting of the Council**

30 October - 3 November 1995

*Working Group Coordinator
Ms. Wendy Wakeman, UNDP-World Bank Water and Sanitation Program/PROWWESS*

Summary Report

1. Introduction: The Mandated Activity on Gender Issues

- 1.1 At its meeting in Oslo in September 1991, the Water Supply and Sanitation Collaborative Council (WSSCC) identified gender issues as one of seven priority issues to be addressed by working groups. Accordingly, a working group on gender issues was formed, with the UNDP-World Bank Water and Sanitation Program/PROWESS and INSTRAW as lead agencies. Members of this group joined the other groups, to facilitate the incorporation of gender issues into other groups' work. Members also prepared the *Gender Issues Sourcebook for Water and Sanitation Projects*. This document was presented at the 1993 Rabat meeting of the Council, along with a report on the status of gender concerns in the products of the other groups. It was decided that the working group could transform into a mandated activity. Its tasks would be to continue to monitor the work of other groups, to publish and widely distribute the first sourcebook, and prepare a second sourcebook focusing on the policy level.

2. The Gender Issues Sourcebook for Water and Sanitation Projects

- 2.1 The first sourcebook, on gender issues at the project level, has been published by the UNDP-World Bank Water and Sanitation Program/PROWESS and widely distributed. A questionnaire was distributed to elicit feedback on the document, and the answers will be summarized here. Overall the first sourcebook was found to be very useful. Respondents stated that they utilized the document particularly during project planning and monitoring. Some mentioned that the book was a bit long; a bit daunting upon first glance, but on closer inspection a very practical tool. Suggestions mentioned included expanding the training section and tailoring the initial framework more to the water and sanitation sector.

3. Gender Issues at the policy level

- 3.1 Gender issues were mentioned among the guiding principles set forth at the 1992 *Dublin International Conference on Water and the Environment*. The topic of gender in fact informs and enriches the other three principles, which cover: water as an economic good, management at the lowest appropriate level, and water as a finite and vulnerable resource. Following the principles includes determining what people (consumers) want and are willing to contribute towards, and involves facilitating their participation in project decision-making concerning types and levels of service and operation and maintenance. Men and women often have different roles and motivations concerning sector activities, and recognizing these distinctions when determining what communities want and when designing O & M can increase chances for project sustainability.
- 3.2 As is well known, women and men often have different sector roles. Women are in many cases the collectors of water and manage it at the household level. Thus they may have stronger incentives (more intense preferences) than men concerning new, more convenient systems. They may benefit the most, as the time they spend collecting water may be substantially reduced. As a result they may be more willing to contribute toward building and maintaining new systems. Recognizing and incorporating these gender distinctions can therefore help determine preferences more precisely and arrange for facilities and O & M which more closely mirror the community context. This can help ensure that facilities will be the ones users want and will maintain.

3.3 Gender issues at the policy level in the water and sanitation sector need to flow from these principles enunciated at Dublin. Actions taken should be part of a sensible, overall sector policy. Gender variables, along with other social issues such as ethnic group, religion, and class, can provide the sociological underpinnings which help fit a demand-based, participatory approach to a particular geographical setting. It is the task of sector agencies to find efficient and effective ways to do this, to have aspects of sector policies which address this, and to find simple ways to operationalize it.

4. Sourcebook for Gender Issues at the Policy Level

4.1 As requested, a second sourcebook, focusing on the policy level, has been written. Some of its main elements will be summarized here. It presents ideas, methods, and experiences concerning the incorporation of gender issues into policies. It is not a manual or handbook; it does not presume to give instructions on Gender and Development (GAD). Rather it discusses concepts, agencies' history with GAD policies, methodologies used, lessons learned, etc. The document starts with an introduction to gender issues at the policy level, and then summarizes the GAD policies of a number of agencies as well as GAD within sector policies. Methods or "instruments" agencies have used to operationalize policy are described, along with examples from experience. As training is often considered important, it is discussed in a separate chapter. The final section draws conclusions and points toward work to be done in the future.

4.2 Caroline Moser has stated that "Policy-making is the process of social and political decision-making about how to allocate resources for the needs and interests of society, concluding in the formulation of a policy strategy."¹ Policy relating to gender issues in the water and sanitation sector therefore concerns what should be done about gender issues in the sector. It should state what the goals are and what needs to be done to achieve these goals. It should suggest how gender and other social variables can be incorporated so as to improve project sustainability.

4.3 Concepts from the New Institutional Economics (NIE) can help us understand gender issues at the policy level. A two-part definition of NIE was proposed by Davis and North.² It examines both the institutional environment and institutional arrangements. The former is the set of fundamental political, social, and legal ground rules that form the context in which organizations operate. The latter are the arrangements between organizational units, the mechanisms through which these units interact. Although the NIE analysis is usually applied to the study of economic organization, this approach and its related concepts can be useful when assessing the formulation and implementation of policies in development organizations.

4.4 With this analytical framework, one can look at the rules or procedures agencies have to operationalize their policies. Do rules or procedures exist, are they followed, and do they achieve the intended policy results? One can also look at the incentives produced by the rules and the institutional environment. Do the rules and the environment provide

¹Moser, Caroline, *Gender Planning and Development, Theory, Practice and Training* (USA: Routledge, 1993, p.6)

²Cited in: Williamson, Oliver E., "The Institutions and Governance of Economic Development and Reform", in *Proceedings of the World Bank Annual Conference on Development Economics, 1994* (USA: The International Bank for Reconstruction and Development, 1995, p. 174)

incentives for staff to implement gender-related aspects of policy? Are there disincentives? For example, if gender is treated as a marginal issue, staff will not have much of an incentive for working on it. One can examine the costs to staff and others of implementing a policy. Have rules/procedures been well-designed; that is to say, are they easy to follow? Or are they cumbersome and time-consuming. If a policy is relatively clear and easy to implement, there may be more of a chance that it will be successful.

- 4.5 The types of institutional arrangements an agency has will have a great impact on the chances of success of a particular policy. Which units of an agency have main responsibility for a policy? Do they have the resources (financial and human) to carry out their job? Do units who need to work together have appropriate incentives to do so? Is gender mainstreamed into the work of an organization, or handled by a small unit with insignificant resources and influence?
- 4.6 As noted above, two chapters of the sourcebook summarize the GAD policies of several agencies as well as their gender policies in the sector. There is not space here to describe them, but a few comments can be made. Many agencies have evolved from WID to GAD policies. They have also often changed from welfare approaches to efficiency ones. The former treated women as passive beneficiaries, assisting them in their traditional roles as mothers. The latter recognizes women's involvement in other roles such as that of income-earners, and seeks their participation in projects so as to increase project sustainability.
- 4.7 UNIFEM and INSTRAW are the two UN agencies with an explicit focus on women's issues. Other UN agencies, bilaterals, governments and NGOs have also promoted GAD. Many organizations created WID or GAD units, many of which were poorly resourced. Some have tried to mainstream gender issues by putting GAD "focal points" into various parts of their organizations. A dilemma is that by having small, separate GAD units, gender issues can be marginalized. However, in many cases when it is "mainstreamed" into the work of the organization by making everyone responsible for it, it disappears.
- 4.8 Agencies have used a variety of methods or "instruments" to operationalize their policies. The adequacy of many of these has not been properly evaluated and remains to be seen. Many have developed guidelines for incorporating gender issues into projects. These have often gone unused. Trainings are held, both for gender issues specialists and for non-specialists. Seminars and workshops are utilized to present findings and debate future directions. Research has played an important role. An assortment of analytical methods have been made available, including different types of gender analysis. Resources may also be considered a means for implementing policies. Without adequate staff and budget, little can be accomplished. Institutional arrangements are another method: agencies have set up WID bureaux, appointed WID focal points, etc. Organizational procedures are another technique. A study by Rounaq Jahan indicates that more important than WID units are "...the definition of mission, resources, commitment and accountability measures to ensure agency compliance."³
- 4.9 The sourcebook chapter entitled "Examples from Experience" uses a case study method to examine the implementation of gender aspects of policy. Projects in Bolivia, the Philippines, and Tanzania are discussed, implemented by bilaterals, NGOs, and a UN agency and governments.

³Rounaq Jahan, *The Elusive Agenda: Mainstreaming Women in Development*, University Press Limited and Zed Books (USA, 1995, pp. 41 - 42).

Programs have not always lived up to expectations concerning the incorporation of gender issues. Policy statements highlight the importance GAD can have for project sustainability, but this often seems to be forgotten when projects are carried out. A small project implemented by an NGO in the Philippines appeared to have greater success; perhaps this was partly due to the smaller size, which made a focus on participation and gender easier to implement. In the Philippines context there was also government support for gender issues, helping to create a positive institutional environment. In Tanzania, one inhibiting factor was the lack of coordination of donor agencies and sector ministries regarding approaches to GAD. Thus insufficient or inappropriate institutional arrangements across agencies were a variable.

- 4.10 Training has been an important part of many agencies' approaches to incorporating GAD. On-the-job training, learning by doing, is of course the ideal strategy. Agencies have also had specific trainings, both to hone the skills of gender specialists and to inform other staff about gender issues. Training is generally given more to headquarters staff than to field-based staff. The impact of training is usually not assessed.
- 4.11 Analyzing gender within the policy context is a fairly new endeavor, particularly from a sectoral perspective. Much work remains to be done. The challenge is to find efficient and effective policy instruments for incorporating gender so as to promote project sustainability. This is a task Collaborative Council members are well-placed to undertake.

5. Review of Other Working Groups

- 5.1 Members of the Gender Issues Mandated Activity joined the other groups to assess how gender issues were being incorporated. The sanitation group refers to women in its TOR, stating that there is a need for "...tools that will empower the poor, esp. women, to articulate their desires and express their demand." Gender was included in the indicators in the draft paper of the group. The draft summary report of the group mentions gender in a few places. On page one, lack of a gender focus is listed as one of several problems in the sector, and the need for a gender-sensitive approach is included in the guiding principles of Annex A. If this group continues after Barbados, it would be useful to have a gender specialist at every meeting.
- 5.2 The group on applied research was not continued as such; its work carried on in the form of GARNET (the network on applied research). GARNET publishes a newsletter, and has asked for input on gender issues. The group focusing on services for the urban poor has been concerned with the diffusion of its previous work (reported on at the Rabat meeting of the Council). This work did include statements regarding gender issues. The documents prepared by the O & M group did not initially include gender issues, but are being revised to do so. The Institutional and Management Options Group talked largely about privatization and utilities. The members spoke to a lesser extent about institutional options in peri-urban and rural areas. In these settings NGOs, extension agencies, cooperatives, and small scale enterprises were mentioned as was the issue of gender.

6. Activities of Gender Group Members

- 6.1 Members of the Gender Issues Mandated Activity have been involved in various related efforts since the Rabat meeting. A few will be highlighted here. The IRC and UNDP-World Bank Water and Sanitation Program/PROWESS joined together to produce GENPACK, a basic reference shelf of ten documents and one video. It can be ordered from the IRC.

The IRC has been conducting regional workshops on gender issues, and with the UNDP-World Bank Water and Sanitation Program/PROWESS and UNICEF produces an annual abstract journal on women, water and sanitation.

- 6.2 In the Philippines, members from the International Training Network have integrated sessions on gender into water and sanitation trainings and assisted other organizations with this topic. INSTRAW and UNICEF have planned a one-day workshop on women, water and environmental sanitation for the NGO Forum held concurrently with the Beijing Fourth World Conference on Women. INSTRAW has also conducted a variety of trainings and revised its training package *Women, Water Supply and Sanitation*.

7. Recommendations

- 7.1 The future of the Gender Issues Mandated Activity was discussed at the October 1994 meeting of core group members. By the time of the Barbados meeting, the Gender Group will have been in operation for four years. It was felt that, as Collaborative Council groups and mandated activities are not meant to last forever, the activity could come to an end at this time. Instead an informal network could be maintained, issuing a brief information sheet on a regular basis. This would highlight the latest sector news on gender and other social issues. Items mentioned in the info. sheet could be used by network members in their newsletters (for example, the IRC and UNICEF ones).
- 7.2 Much remains to be learned about effectively and efficiently incorporating gender issues into demand-driven, participatory projects and into sector and agency policies. Agencies are encouraged to continue to explore this subject, and to disseminate lessons learned. With no Gender Issues Mandated Activity in the future, the topic of gender in other groups' work cannot be assessed as it has been in the past. Instead, the Collaborative Council could appoint individuals to cover gender and other social issues in the work of future groups.

8. References

- 8.1 This summary report is necessarily brief. A variety of literature exists on this topic. The two sourcebooks produced by the Gender Group contain comprehensive reference lists. In particular, for more information on gender issues in WSS the following documents can be consulted:

- INSTRAW, *Women, Water Supply and Sanitation* (Italy: INSTRAW, DTCO, and ILO-Turin Centre, 1991).
- IRC, *Gender in Community Water Supply, Sanitation and Water Resource Protection: A Guide to Methods and Techniques* (The Hague, The Netherlands: IRC, 1992).
- Wendy Wakeman, *Gender Issues Sourcebook for Water and Sanitation Projects* (USA: UNDP-World Bank Water and Sanitation Program/PROWESS, Collaborative Council's Working Group on Gender Issues, January 1995)
- Christine van Wijk and Eveline Bolt, *Women, Water and Sanitation: Annual Abstract Journal* (The Hague, The Netherlands: IRC, PROWESS-UNDP/World Bank Water and Sanitation Program, and UNICEF, 1991 - 1995)

Gender WGR.
2nd copy

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FACSIMILE COVER SHEET AND MESSAGE

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July 20, 1995

Dear Colleagues,

Subject: Summary Report of the Gender Issues Mandated Activity

Attached is the draft summary report for the Gender Issues Mandated Activity. Please fax me your comments by Thursday, July 27.

Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Wendy".

Wendy Wakeman
Coordinator

Collaborative Council Gender Issues Mandated Activity



Institutional and Management Options

- **IMO Working Group of the Water Supply and Sanitation Collaborative Council**

**Report for Consideration at the Barbados Meeting of the Council
30 October - 3 November 1995**

Volume 1: Executive Summary

- ***Working Group Coordinator***

Mr Frank Hartvelt, United Nations Development Programme

1. Introduction

At its Global Forum in Rabat in 1993, the Collaborative Council agreed to create a Working Group on Institutional and Management Options with specific reference to water demand management. The Working Group proceeded according to the following terms of reference:

- Identify, assess and document a range of case studies from both developing and developed countries. These case studies would serve as models from which lessons can be learned for replication and adaptation under various conditions prevailing in developing countries. Criteria for case studies would need to be developed together with processes to make use of them. Case studies could range from public/private utilities to community managed water supply and sanitation facilities and from water production to distribution management. Specific attention should be paid to policy issues.

As part of the Rabat Action Program, it would also

- Review the desirability and feasibility of creating a global network facilitating exchange of ideas, experience and expertise among institutions and sector professionals. Existing networks will be examined in the process.

Two seminars were held. Participants presented a variety of case studies at the first one in Louveciennes, France, in June 1994, where discussions focussed on private sector participation. At the second seminar in Montréal, from 5 to 7 June 1995, deliberations also covered the option of community and user-provided water supply and sanitation services.

Working Group members represented a variety of interests and experience, from community-managed water supply systems to big water companies, which certainly generated a wealth of case studies and ideas.

The Working Group's secretariat was based in UNDP's Science Technology and Private Sector Division (STAPSD). It consisted of Frank Hartvelt, Deputy Director of UNDP-STAPSD (coordinator) and Piet Klop, Land and Water Use Engineer (secretary).

2. Products

The Working Group reviewed a large **body of case studies** illustrating various institutional and management options in extending more efficient water supply and sanitation services. Under its auspices, a second publication presents **13 case studies on the 'French experience'** in public-private partnerships. In addition, special **presentations** were delivered on public-private partnerships, the process of privatization and institutional frameworks for community water supply and sanitation.

The discussion of case studies and presentations resulted in a consistent **categorization of institutional and management options** and their key elements in the form of a matrix. Two other diagrams, depicting the progressive stages in private sector and community participation

in providing water supply and sanitation services were developed to facilitate informed decision-making on these options.

In addition, two papers on demand management were commissioned, one being a general overview, the other proposing a step-by-step **strategy for urban water demand management**. The Working Group also produced a background paper on the **potential of electronic networking** for improved access and intensified exchange of information.

It is believed that through its consultations and products the Working Group has contributed to a better understanding of institutional, management and demand management issues.

3. Summary of Discussion

This section presents the highlights of the discussions the Working Group had at its two seminars. Abstracts of the cases cited are included in the Main Report, Annex I.

Option A Public ownership and operation by enterprise or department

A key element in extending efficient water supply and sanitation services by governments is the decentralization to autonomous agencies. This, it was emphasized, requires resources and resolve for regional and local capacity building. Many countries are re-organizing their public water and sanitation institutions, and are implementing various managerial reforms. EMOS Santiago, for example, decided to separate its regulatory and operational functions and the Hyderabad Water Supply and Sewerage Project introduced systematic staff performance reviews.

If water supply and sanitation services are to become financially self-sustaining at the lowest appropriate level, cross-subsidies should be kept to a minimum. Yet, the Umgeni Water Board demonstrates that affluent suburban districts are prepared to cross-subsidize capital investments in rural water supply and sanitation upstream, thereby controlling erosion and pollution.

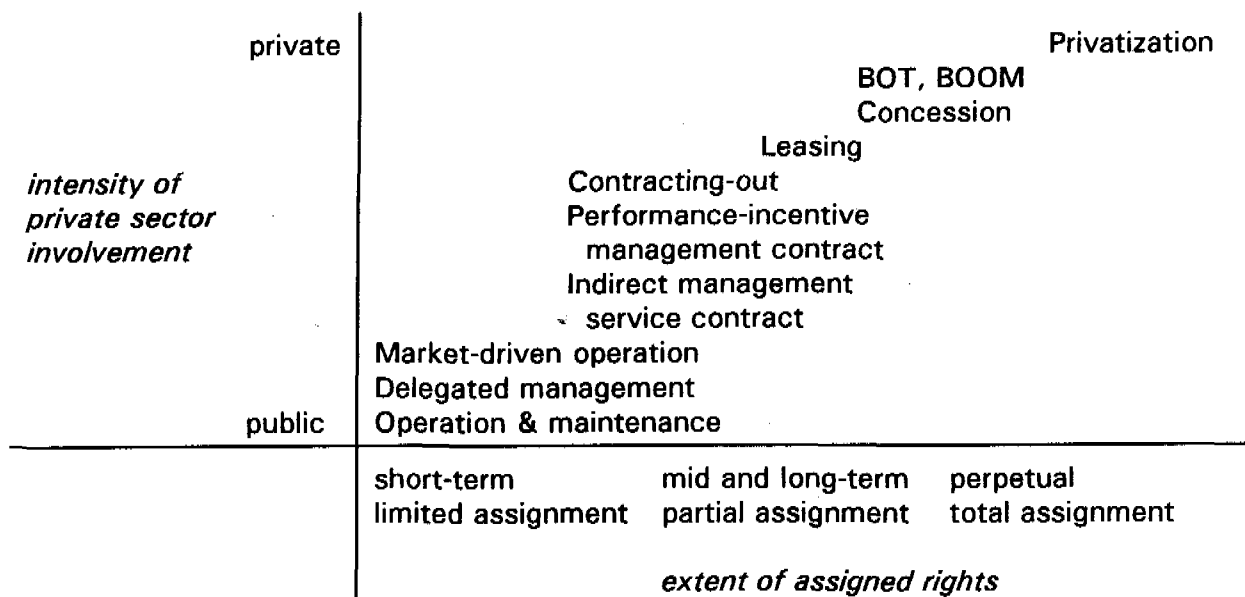
According to several Working Group members, governments are bad entrepreneurs. Others, however, cited examples of well-functioning public water and sanitation services and urged not fixing what is not broken. Private sector and community participation in the provision of water supply and sanitation services are generally favored though, in order to raise investment capital, increase (financial) efficiency and reduce dependency on erratic support policies and politics.

Option B Public ownership with operation contracted to the private sector

Option C Private ownership and operation with regulation

It is argued that options B and C really belong to a single category. There is a progressive range of public-private partnerships, varying in the degree of private financial and managerial involvement, and in the length of time over which rights are conferred, see figure 1 below. Full privatization (implying the transfer of ownership of the infrastructure) is but one option of maximum and permanent private sector involvement.

Figure 1. Different stages in private sector involvement



Public-private partnerships thrive in an 'enabling environment' of political stability, sound overall economic policies, effective legal and regulatory mechanisms, well-developed capital markets and financial institutions, a sizable and competent private sector, and informed and vocal water user groups. This implies a well-defined overall water policy. Some Working Group members raised questions as to the applicability of these options in countries where such an enabling environment, with all its checks and balances, does not yet exist.

Knowledge of the value of assets, consumers' willingness to pay, the level of unaccounted-for-water and other system statistics is essential in successfully engaging the private sector. Indeed, as several case studies make clear, it is the availability of information (through regular system audits) that raises private sector interest, induces competition and facilitates regulation.

Investment and exchange rate risks must be assessed and alleviated: in Guinea and Côte d'Ivoire it is the private operator who bears all technical and commercial risks, while the government redresses exchange rate fluctuations. Some working group members expressed their concern as to the reduced regulating power and capacity of the government of Côte d'Ivoire.

Turning a service aimed at continuity and equity into one driven by efficiency and profit raises many questions and concerns, especially on the implications of higher water rates for the rural and peri-urban poor. It appears advisable to separate welfare considerations from the commercial management of the services. The English experience suggests that privatization indeed boosts investments and service performance. Profitability and affordability, however, are real issues: with company stocks and executives' salaries, real prices have soared (33% over four years).

Working Group members cautioned against replacing a public monopoly with a private one. Other concerns pertained to the disparity in expertise and power between a local government and a multinational water company, which may not be inclined to invest in indigenous water sector capacity building. Partnership negotiations should include the issues of staff re-training, re-employment and dismissal.

Financial efficiency does not necessarily equal resource efficiency. The objective of managing water demands may conflict with the option of private sector participation: where revenues and profits primarily depend on the volume of water sold to **non-metered** water users, private system owners or operators may not be interested in reducing leakage, installing meters or promoting water saving devices. Remuneration based on reductions in unaccounted-for-water, improved public health or higher coverage would provide better incentives for efficiently meeting and managing the demand for water (and sanitation).

Public desperation and private haste should not be allowed to dictate the terms of a partnership (ref. Lessons from Buenos Aires and Caracas). It is equally important that governments do not lock themselves into some radical and long-term form of private sector participation. A transparent approach of gradually increasing its scope and duration is advocated instead. Thus, to prepare for private management, governments need to commercialize their water sector (something they also have to do when granting effective autonomy to public agencies). External support agencies, the World Bank in particular, can lend credibility to this process, monitoring its transparency and providing impartial advice.

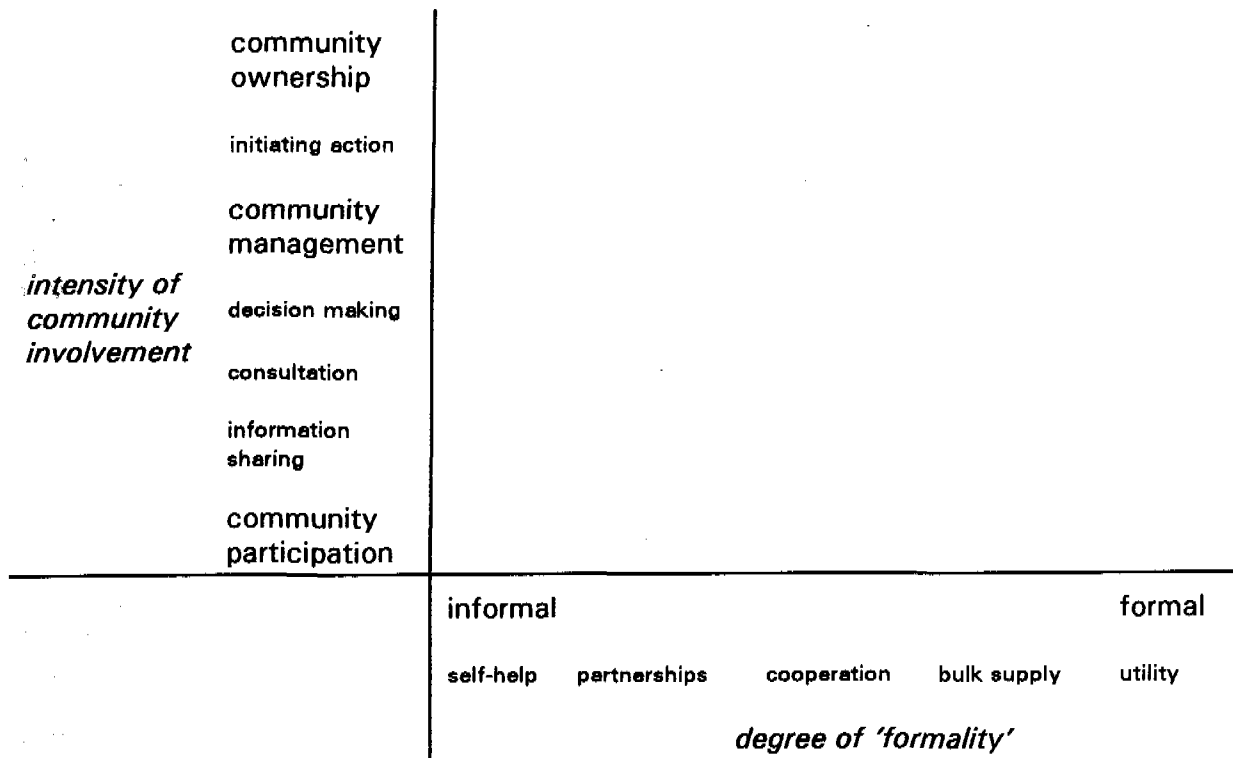
Obviously, private sector participation is no cure-all. Critical is the presence of a strong and competent regulating mechanism, to safeguard the continuity, equity and quality of water and sanitation services. That is not to say that regulation should be a top-down, heavy-handed affair: competition is a powerful regulating mechanism. Vocal water users groups help regulate companies that have a long-term interest in preserving their reputation. In France it is at the ballot box that voters (water users all) hold their politicians accountable for the quality of the service and the underlying regulating arrangement between the local government and the operating company.

Much of the 'privatization' debate evolves around urban utilities, i.e. large-scale piped water supply systems. What, however, is the relevance of the above in rural and peri-urban settings, with point source water supplies? The question whether and how the private sector can be enticed into investing in water supply and sanitation for the rural and peri-urban population has not yet been examined in depth.

- Option D Public ownership with operation delegated to communities**
- Option E Community ownership and operation**

Figure 1 presents the different types of private sector participation. The successive stages in intensifying community involvement can be presented in a similar way:

Figure 2. Different stages in community involvement



Critical ingredients in these options are a government that is committed to decentralizing its responsibilities, and communities that actually want to manage or control their water and sanitation services. It is the effective demand, i.e. the level of service people are willing to pay for, that should rule the choice of technology as well as the institutional and managerial arrangement. Another principle is that service improvements should follow, not precede, community initiatives. Non-governmental organizations have an important stimulating and mediating role to play.

Matching the service level with the willingness to pay, communities' responsibilities in contributing (in cash or in kind) to capital and operation and maintenance costs are to be negotiated and agreed upon. This can be a difficult and lengthy process: with government subsidies winding down, people may be asked to pay more for the same or a lower level of service. In Peru attempts are made to overcome people's reluctance to pay by cutting defaulters' electricity supply.

Governments should provide the right incentives, for instance by making clear that poorly managed community systems will not be bailed out. Technical and institutional support on the other hand was strongly advocated. In the United States a network of national water associations offers exactly that kind of assistance.

Delegating responsibilities requires decentralizing the means to effectively manage and control water and sanitation services. Communities must be allowed managerial and financial autonomy, and be recognized as legal entities. Adequate credit and money deposit facilities

are a principal requirement. Community development requires intensive and sustained organizational activity, the pace of which should not be set by physical targets. The point was made that local institutions should be developed with elected, or at least accountable community representatives.

On the government side it is the anxiety and resistance among staff that a transfer of 'their' power may generate that needs to be taken seriously. It is important to have the laws, rules and regulations in place before delegating responsibilities and means. Governments will have to adjust to new, enabling roles. One is to safeguard the coherence and consistency in overall water resources planning and management.

Water and sanitation are important, but hardly people's only concerns and possibly not quite enough to sustain a community organization. That is why in many cases water committees were formed under general community organizations. Baroda, India, is a case in point. On the other hand, successful water associations like the one in Kitui-Pumwani, Kenya, generate sufficient income to be able to diversify into other community investments, creating employment opportunities. Also, they often hire specialist labor to perform tasks like water selling for example, thereby increasing accountability.

The 'community option' obviously requires capacity building resources and resolve, too. In Togo, for example, 25% of the available budget went into training of all project participants (government staff included).

Ultimately, the aim is to increase coverage and cost-effectiveness, while protecting the water resource. Flexible approaches should allow communities to find appropriate technical, institutional and managerial solutions. It is only later that their implementation could possibly be organized on a regional basis. Lacking 'prefab' solutions, all parties concerned should engage in 'structured learning' and adjust their designs accordingly.

Matrix

Next page's matrix is an attempt to bring a degree of order to the variety of institutional and management options.

B. J.
- Trabajo del libro - *Alvarez*

Principles Involved in Institutional and Management Options

<p>principles of 'Dublin' and 'Delft'</p> <p>principal options</p> <p>exemplary case</p>	<p>enabling environment</p> <ul style="list-style-type: none"> ● comprehensive understanding ● legal and regulatory framework ● water as economic resource (efficiency) ● water as social good (equity) 	<p>institutional development</p> <ul style="list-style-type: none"> ● subsidiarity ● coordinating mechanisms ● participation 	<p>human resources development</p> <ul style="list-style-type: none"> ● extension ● training ● performance incentives ● managerial reform 	<p>financing</p> <ul style="list-style-type: none"> ● investments ● revenue enhancement
<p>(A) public ownership and operation by enterprise or department</p> <p>EMOS S.A. Santiago</p>	<ul style="list-style-type: none"> - separation of operational and regulatory functions - consistent operational policies (water rates etc.) - creation of tradable property rights 	<ul style="list-style-type: none"> - public development cooperation owns 98% of stock - limited involvement local governments and communities - private sector participation through service contracts 	<ul style="list-style-type: none"> - with increased profitability more funds to HRD - salaries competitive with private sector 	<ul style="list-style-type: none"> - fixed and variable charges related to fixed and variable costs - direct instead of cross-subsidies to the poor
<p>(B) public ownership with operation contracted to private sector</p> <p>Buenos Aires and Caracas</p>	<ul style="list-style-type: none"> - ample information on value of assets and costs of operation - political support, consensus among interested parties - flexibility in negotiating details of contract 	<ul style="list-style-type: none"> - participation of multilateral agencies and independent consultants for transparency and credibility 	<ul style="list-style-type: none"> - government-paid lay-off program 	<ul style="list-style-type: none"> - relatively high pre-concession tariff allowing for lower rates later - mechanism to alleviate investment (exchange rate) risks
<p>(C) private ownership and operation often with regulation</p> <p>The English Experience</p>	<ul style="list-style-type: none"> - developed capital market 	<ul style="list-style-type: none"> - environmental oversight on catchment-basis 		<ul style="list-style-type: none"> - sharp increase investment - regulating office sets 5-year price caps - 33% real price increase over 4 years, high profits
<p>(D) public ownership with operation delegated to communities</p> <p>Togo and Malawi</p>	<ul style="list-style-type: none"> - long lead time for pre-implementation community development - integrated approach: teams of social worker and sanitary engineer 	<ul style="list-style-type: none"> - specific village development committee positions for women - collaboration between ministries of Works and Health - maintenance organizations with specialized committees 	<ul style="list-style-type: none"> - instituted training of extension agents, village committees, specialists: 25% of budget - refresher courses for ministries' staff 	<ul style="list-style-type: none"> - capital costs by government, routine O&M by communities
<p>(E) community ownership and operation</p> <p>Murugi Mugumango, Kenya</p>	<ul style="list-style-type: none"> - detailed set of rules - water society and ownership formally acknowledged by government 	<ul style="list-style-type: none"> - managerial and technical assistance by NGO and ministry - executive and regulatory responsibilities separated - all connections are metered, progressive rates - high reconnection fee 		<ul style="list-style-type: none"> - starting capital raised by pioneer members - higher contribution from late-joining members - commercial framework

'Dublin' is the International Conference on Water and the Environment, held in Dublin, Ireland, in 1992.
 'Delft' refers to the UNDP symposium 'A Strategy for Water Sector Capacity Building' that was held in Delft, The Netherlands, in 1991.

4. Demand Management

The prevailing scarcity of water and capital to cope with the growing demand in the urban sector of the developing countries enhances the significance and potential of water demand management. Implementation of a step-by-step strategy would lead to a comprehensive program promoting substantial water savings thus enabling governments to extend and expand urban water supplies at low marginal costs. Demand management programs may include a variety of instruments in order to achieve the decrease of water wastage and irrational use at home, and at the commercial and industrial sub-sectors, as well as saving of irrigation water in the gardens, parks and urban-related agricultural activities near or within the city limits.

Demand management deals with the emerging problems of water utilities having 40-60% and even higher levels of unaccounted-for-water. This problem undermines management and utility functioning efforts. Case studies clearly show the ability to decrease unaccounted-for-water toward the 15-20% levels and reduce wastage in the domestic and commercial sub-sectors by 20-25% through leak repair, metering, reduction of thefts, and retrofitting by the private sector or the utility staff.

Irrigation efficiency increases through the application of appropriate techniques. This leads to substantial increases in yield and income per unit of water, thus releasing large quantities of water from the agricultural sector for municipal and industrial usage.

Industrial demand management efforts promote water savings, lowering of water pollution levels, encouraging energy and raw material savings and as well as reuse of sewage effluent. Interestingly, recent developments have shown that exchange of fresh water used for irrigating for treated sewage effluent have become a feasible option to deliver additional fresh water quantities to the cities at much lower costs than those associated with the execution of the next water project, in many cases from remote and polluted resources.

A comprehensive demand management strategy calls for the use of policy, legal, economic/financial and technological means. However, governments should not wait for the establishment of adequate institutional structures. Implementation of a stage-by-stage demand management strategy can assist and trigger the proper functioning of the utilities, thus creating the necessary enabling environment.

5. Networking

Professional networks are not so much created as they evolve over time. ProNet in Ghana is a case in point. It now provides the rural water supply and sanitation sector with a national forum for information exchange, thus contributing to its coherence and efficiency. Resource centers have been established and research is facilitated. It is hard, however, to put a money value to these accomplishments that only indirectly benefit the sector's performance. It appears equally difficult to raise enough funds for proper networking programs.

Professional associations and resource centers provide the basic infrastructure for networking among water sector professionals. Current information technology, the Internet in particular, can facilitate information access and intensify information exchange at comparatively low cost.

6. General Findings and Recommendations to Council

● General Findings

This report defines **five categories** of institutional and management options in providing water supply and sanitation services:

- (A) Public ownership and operation by enterprise or department;
- (B) Public ownership with operation contracted to the private sector;
- (C) Private ownership and operation with regulation;
- (D) Public ownership with operation delegated to communities;
- (E) Community ownership and operation.

Key in all these options is the **decentralization** of responsibilities and means to the 'lowest appropriate level', where we either find autonomous government agencies, regulated private companies or empowered communities. The process requires a broad consensus and high-level political support and is best gradually implemented. Governments that decide to grant effective autonomy to decentralized public agencies or to prepare for private sector participation would start commercializing water supply and sanitation services.

The private and community options require a similar '**enabling environment**' of effective legal frameworks, capital markets and financial institutions (credit and money deposit facilities), and non-interference in the commercial management of operations. It is a public responsibility to create such an environment and provide the right incentives for the efficient management and sustainable use of water resources.

For the successful delegation of tasks, the **capacity** of autonomous public agencies, regulating offices, and community organizations to run water supply and sanitation services needs to be strengthened.

The apparent urge to engage the private sector in water supply and sanitation services meets reservations. A strong, but not necessarily heavy-handed **regulatory mechanism** is required to safeguard the continuity, equity and quality of water supply and sanitation services.

Knowledge of the value of assets, consumers' willingness to pay, unaccounted-for-water and other system statistics is essential in raising private sector interest, inducing competition and facilitating regulation.

Demand management alternatives are to be included in the appraisal of water and sanitation investment projects. Implementation of a step-by-step strategy should lead to substantial water savings, allowing for the extension of water supplies at lower costs.

Professional associations and resource centers provide the **basic infrastructure for networking** among water sector professionals. Current information technology, the Internet in particular, can facilitate information access and intensify information exchange at comparatively low cost.

The present **overview and analysis** of various institutional arrangements and management procedures, illustrated by case studies, will be most useful to those who weigh the various options with their prerequisites, implications and complications. The present report can also be used as a general reference.

- **Recommendations**

The Working Group opened a much-appreciated exchange of experiences among professionals with interests ranging from private sector-operated utilities to community-managed water supply and sanitation. That **dialogue** should continue.

Inevitably, given the extent of the subject, the Working Group **could not do justice** to several important topics such as 'enabling' sector policies and strategies, human resources development and other management issues, incentives for private investments in rural and peri-urban services, and sanitation. The thrust of future deliberations on how to arrive at higher coverage and higher financial and (water) resource efficiencies, it is felt, should be on the **incentives**, rules and norms under the various options. The Working Group recommends that the Council considers to what extent discussions on these topics can be furthered by existing Working Groups. It also agreed that future discussions on water demand management warrant a **dedicated working group**.

In this connection, it is proposed to define urban, peri-urban and rural water services as **pipéd or point source water supplies**, a technical distinction that makes more sense with regard to institutional management options.

While information exchange is an implicit task of all working groups, it is the Council's Secretariat that should **facilitate electronic networking** (Internet). This could involve maintaining a database of Council members, initiating and supporting newsgroups and mailing lists, creating a homepage on the World Wide Web (with links to relevant Internet sites), and supporting the set-up of FTP, ~~Helnet~~, Gopher and Web servers in organizations active in the area of water supply, sanitation and development.

- **Conclusion**

The Working Group certainly contributed to a better understanding of institutional and management issues. Specifically, it produced a body of case studies, from which it derived a consistent categorization of institutional and management options and their key elements. The resulting matrix, together with two diagrams depicting the progressive stages in private sector and community participation, are expected to facilitate the decision-making process for increased and improved water supply and sanitation services.



Institutional and Management Options

**IMO Working Group of the Water Supply and
Sanitation Collaborative Council**

**Report for Consideration at the Barbados Meeting of the Council
30 October - 3 November 1995**

Volume 2: Main Report

Working Group Coordinator

Mr Frank Hartvelt, United Nations Development Programme

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The Working Group on Institutional and Management Options and its present report to the Water Supply and Sanitation Collaborative Council benefitted from the contributions of many people and organizations.

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Mr. Le Masson helped convening the first seminar at the splendid facilities of the Banque Nationale de Paris in Louveciennes, France. The second seminar in Montréal a year later was equally well organized, thanks to the efforts of Guy Carrier of the Canadian International Development Agency (CIDA) and Denis Lapointe, a consultant made available by CIDA. Discussions at both meetings gained from the professional facilitation by UNDP consultant Jerome Delli Priscoli.

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	first seminar	second seminar
UNDP-World Bank Water and Sanitation Program	7	
CIDA		8
UNDP's Science, Technology and Private Sector Division (trustfund)	7	3

UNDP consultants Guy Alaerts, Professor at the International Institute for Hydraulic and Environmental Engineering (IHE) in the Netherlands, and Saul Arlosoroff, Professor at Israel's Hebrew University, served as resource persons to the second seminar.

The Working Group's secretariat was based in UNDP, New York, and consisted of:

Coordinator: Frank Hartvelt, Deputy Director UNDP-STAPSD

Secretary: Piet Klop, Land and Water Use Engineer UNDP-STAPSD

In the present report the secretariat has attempted to faithfully summarize case studies and synthesize Working Group discussions. It accepts responsibility for possible errors.

1. Introduction

At its global forum in September 1993 in Rabat, Morocco, the new issues group on institutional and management options stated:

"Many, if not most, failures of water supply and sanitation projects can be traced back to institutional and management deficiencies. There is widespread recognition that establishment of effective institutional structures and management procedures are key elements in sustainable sector development. Achieving the right structures is not so easy. Geographical, cultural and social differences make it difficult to develop standard approaches; and the differences between urban and rural needs are substantial.

The new issues group on water demand management and conservation said:

"It is already apparent that water resources are set to become a constraining factor on development in many countries. Through effective demand management, considerable reductions in water use (and water waste) can be achieved, deferring the need for substantial investments in new resources. To date, few demand management approaches have been employed in developing countries, where unaccounted for water can frequently be well in excess of 50%. The reason why only a few countries have applied demand management include lack of awareness of the potential benefits, lack of political will, and shortages or lack of trained personnel and equipment."

Accordingly, the Collaborative Council agreed to create a Working Group on Institutional and Management Options (IMO) with specific reference to water demand management. This Working Group would analyze and document and disseminate case studies on different institutional arrangements and management practices so that countries have ways of assessing the suitability of the many options open to them:

"Its scope should include: technical capability of water and sanitation agencies; management capabilities, with specific attention to community participation and community management approaches; measures for decentralization, including delegation of power and responsibilities to local level organizations; tariff policies, cost recovery and cross subsidies related to different levels of service; pricing mechanisms as a means of signalling scarcity and encouraging conservation; institutional and management implications of treating water as an economic good; and the administrative framework in which institutions have to operate, including the political will to establish viable water and sanitation agencies."

The Working Group proceeded with the following terms of reference:

- Identify, assess and document a range of case studies from both developing and developed countries. These case studies would serve as models from which lessons can be learned for replication and adaptation under various conditions prevailing in developing countries. Criteria for case studies would need to be developed together with processes to make use of them. Case studies could range from public/private utilities to community managed water supply and sanitation facilities and from water

production to distribution management. Specific attention should be paid to policy issues.

- Review the desirability and feasibility of creating a global network facilitating exchange of ideas, experience and expertise among institutions and sector professionals. Existing networks will be examined in the process.

In chapter 2, this report describes the Working Group's process and activities. Chapter 3 contains its 'products': selected case studies in section 3.1, presentations in section 3.2 and their discussion in section 3.3. The case studies illustrate the five principal institutional and management options that have been identified.

'Specific reference' to water demand management is made in section 3.4 by a background paper, a step-by-step strategy and a case study. Answering to the second part of the Working Group's terms of reference, section 3.5 discusses networking among water and sanitation professionals. Chapter 4 presents the Working Group's general findings and recommendations to the Council.

Annex I contains short abstracts of the case studies that were either presented at the Working Group's seminars, or collected by its secretariat. The case studies are grouped under the five principal options, plus demand management. Annex II has the list of Working Group members that attended one or both seminars. References to private sector and community participation in water supply and sanitation services can be found in Annex III.

2. Activities and Process

In February 1994, the Working Group coordinator, with Messrs. Le Moigne of the World Bank and Le Masson of the Caisse Française de Développement solicited the participation of the French water profession, represented by the Syndicat Professionnel des Distributeurs d'Eau (SPDE) and the Agence de Bassin Seine-Normandie, who already had commissioned a study of the 'French experience' in public-private partnerships to Mr. Lorrain of the Centre National de la Recherche Scientifique (CNRS). Supported by a team of water executives and scientists, he has collected and edited 13 case studies from France and abroad. The publication will be one of the products of the Working Group (which should not be mistaken for an endorsement of the 'French model' by the Collaborative Council).

Participants presented a variety of case studies at the first seminar in Louveciennes (1 and 2 June 1994), where discussions focussed on private sector participation. A report of the seminar was distributed in September 1994.

The Working Group's secretariat continued reviewing case studies, in particular those on the 'community option'. Analyzing and categorizing the cases, a matrix was devised to present the principal options and their key elements in a consistent fashion. This turned out to be a laborious process as case studies varied greatly in scope and measure of detail.

Selected case studies and the matrix were included in the background information for the second seminar in Montreal, from 5 to 7 June 1995. This time, discussions and presentations also covered the option of community and user-provided water supply and sanitation services.

Working Group members represented a variety of interests and experience, from community-managed water supply systems to big water companies. This mix certainly generated a wealth of case studies and ideas, encouraging more specific discussions hereafter.

3. Products

This chapter is organized after the World Bank's 1994 World Development Report, which defines 4 broad options in providing water supply and sanitation services. Here, in analogy to the distinction between private management (B) and private ownership (C), the fourth option of community and user provision has been 'split' into community management (D) and community ownership (E).

- Option A Public ownership and operation by enterprise or department;
- Option B Public ownership with operation contracted to the private sector;
- Option C Private ownership and operation with regulation;
- Option D Public ownership with operation delegated to communities;
- Option E Community ownership and operation.

3.1 Selected Case Studies

Option A The Achievements of a Public Enterprise: EMOS S.A. Santiago

- Institutional Setup

The Chilean government grants concessions for the installation and indefinite operation of water and sanitation enterprises, which operate as autonomous companies by shares (General Sanitary Services Law, 1988), subjected to quality control and technical and financial supervision by the Superintendency of Sanitary Services (SISS). The Production Development Corporation (CORFO), is the principal shareholder of the 13 public water and sanitation enterprises that meet 94% of Chile's urban water demands.

Tariffs allow efficient companies to be financially self-reliant. Studies on tariff formulae are made by SISS, applying long-run marginal costs. Companies can do their own studies, with controversies being resolved through arbitration. Tariffs are revised every five years and adjusted for price variations. Fixed and variable charges are related to fixed and variable costs. The local government or municipality partially subsidizes low income families: it compensates the enterprise for the discounts offered.

- Population and Coverage

EMOS serves a population of almost 5 millions in the urban metropolitan region. Coverage is 100% for drinking water and 97% for sewerage. In 2000, it is planned, 40% of sewage water will be treated.

- Activities and Achievements

All EMOS' activities are geared at efficiently supplying drinking water and sanitation services, meeting the required standards of quality, while managing water demands and protecting the resource.

EMOS normally meets all drinking water service standards. The rate of breakage in the water network (mostly asbestos-cement) is 0.32/km/year. The network is fully metered. More and more wastewater is being treated, a program that includes the control of industrial wastes that are still being discharged into the sewerage system. Unaccounted-for-water has decreased from 29% to 22% over the last four years. There is a water conservation policy to increase the efficiency of water delivery as well as to manage water demands.

At present (spring 1994), the average tariff for drinking water is 0.22 US\$/m³, for sewerage it is 0.11 US\$ per m³ of drinking water. The increase of tariffs allowed under the new law boosted profitability. With more financial resources, EMOS has raised quality standards and assigned more funds to human resources development. Collectively negotiated wages are now competitive with market wages. Yet, a general improvement in productivity has been attained.

EMOS' results over the last four years are:

	1990	1994
Return on fixed assets	5.7%	10.9%
Return on capital	5.4%	11.2%
Profitability (of sales)	23.4%	36.5%

- Private Participation

The private sector can participate through new concessions or through service contracts. New concessionaires are selected by open tender. Subconcessions are long-term service contracts. In fact, a Build-Operate-Transfer (BOT) arrangement for a 1 m³/s sewage treatment plant is presently under study. Service contracts range from project design to the repair and maintenance of every type of facility. Some commercial tasks (meter reading, for example) are also executed by private firms.

- Research and Development

Partly through its links with universities, the company has invested in studies and applications to raise system efficiencies (automization, modern instrumentation and meters). Leak control and detection of illegal connections is now routine. Clients are continuously educated on water conservation and environmental care.

- Conclusion

Under a sound institutional frame and integrated management policies a public enterprise can be efficient.

author: Raquel Alfaro, General Manager EMOS S.A.
 edited by: Piet Klop, UNDP-STAPSD

Option B Lessons from Buenos Aires and Caracas

Two recent attempts to arrange concessions for large municipal water and sewerage services in Latin America have attracted attention. In Caracas, Venezuela, the effort failed to attract responsive bids. In Buenos Aires, Argentina, the effort has been more successful: in December 1992, a concession was awarded to a consortium of local and international companies.

The arrangement chosen for both cities was based on the French concession model. Under such an arrangement, a private or mixed enterprise assumes responsibility for operating, maintaining and investing in fixed sector assets, which nevertheless remain the property of the public sector and must be returned to the appropriate public authorities in good condition at the end of the contract period, usually 25 or 30 years. During this time, the concessionaire assumes all commercial risks and most financial risks. In the case of Caracas, the concession would have lasted for 25 years. In Buenos Aires it is for 30 years.

In both cases, the preparation process took about three years, including one year to prepare bidding documents and draft the pertinent legal documents. The quality of existing operational and commercial information was very poor. Revenues could not be audited; financial projections and estimates of water consumption and demand were based on rough calculations. Maintenance had been inadequate and little was known about the actual condition of the assets and the extent of rehabilitation requirements. To overcome these shortcomings, in Buenos Aires considerable attention was devoted to gathering information on the quality of assets and costs of operation. However, the same was not done in Caracas. Technical assistance for the preparation process in Argentina was provided under a World Bank loan at a cost of about \$4.5 million. The Venezuelan government chose not to avail itself of World Bank or other external assistance.

Large foreign private water companies were invited to prequalify. Several of them formed consortia with other foreign and local partners. In both cases, a total of five international consortia, incorporating various groupings of British, French, Spanish, and local companies were prequalified, and interest appeared to be keen.

Selection followed a two-phase process in which the financial proposals of only those bidders which passed the technical evaluation would be considered. For the technical phase, service quality and coverage targets were established and bidders were invited to present technical solutions to meet the target goals. Required elements differed somewhat in the two cases. For Buenos Aires, a mandatory basin investment program totaling \$1.5 billion, including sewage treatment facilities was foreseen. For Caracas, the investment program was not specified and final disposal of sewage was not included in the proposed concession. In both cases, the financial selection criterion was the bidders' proposed price of water. Whereas in the case of Caracas, the possibility of negotiations following the award of the contract was strictly excluded, the award process for Buenos Aires left open the possibility of negotiations to work out final details.

Bidding documents for the two contracts laid out in broad terms the proposed regulatory regimes and the membership of the proposed regulatory agency. In both cases the mandate of the regulatory agency was to be limited to the capital city. In neither case were the structure and operational procedures of the agency detailed in advance. In Buenos Aires, where the

assets belong to the federal government, the "*Ente Tripartito*" with equal representation from the federal, provincial, and municipal governments, is now being established. The processes by which it will carry out regulatory functions and the extent of its authority remain to be defined, and will inevitably evolve over time. In Caracas, where several metropolitan municipalities own the assets, a "*Mancomunidad Municipal*" representing the municipalities would have been responsible for regulation, but this proposal lacked credibility because the municipalities had never reached any agreement on the arrangement; indeed their relations were fraught with tension.

The water companies of both cities were characterized by excess staff. In Buenos Aires, a voluntary reduction of 1,800 employees, out of a total of 8,000, was negotiated with the union. The operator is expected to absorb the remaining payroll, free of liabilities and retroactive payments. Because further reductions are clearly warranted, the government has agreed to provide up to \$38 million in severance benefits for future reductions. In Caracas, all 4,000 employees were dismissed at a cost of \$100 million to the government. A new autonomous company was established and some staff were rehired under a new staff regime. Despite the high cost, the approach adopted in Caracas might have been considered preferable, because it would have permitted the new arrangement to be initiated unencumbered by excess staff and liabilities. However, in practice, the execution of the lay-off program encountered a number of problems.

The tariff situation in the two cities differed substantially. At the equivalent of \$0.04/m³, the average tariff in Caracas represented only a fraction of operating costs, whereas in Buenos Aires the average charge of \$0.40/m³ covered all operating and maintenance costs. Since it was assumed that the private operator would be more efficient, bidders for the Buenos Aires concession were expected to offer initial rates that were lower than the existing tariff. In fact, the winning bid was about 20 percent lower.

Finally, exchange rate risk can be a major deterrent to foreign investment, and the risks in Venezuela are higher than in Argentina. Under Argentine law, investors are protected against exchange rate changes. In Venezuela, all risks associated with exchange rate devaluation would have been assumed by the operator.

In summary, although the approaches that were adopted in the two cases had much in common, there were several features of the Caracas situation that seemed to undermine what was an otherwise sane approach. First, and perhaps foremost, the lack of good working relationships among the Caracas municipalities was a weakness. This might have been overcome by strong political commitment at the highest levels of the Venezuelan government, but the central government was besieged with a variety of political difficulties which effectively prevented it from assuming strong leadership in this effort. The very low tariffs, inadequate technical preparation and the rigidity of the contract terms were additional disadvantages. In contrast, the strong political commitment of Argentina's federal government, its previous experience in privatizing a large number of state enterprises, the higher tariffs and the lower overall riskiness of the country's political and economic environment appear to have made the difference for Buenos Aires.

- **Lessons**

Consensus building and negotiation among interested parties regarding the model for private participation and the related legal instruments help create a positive environment that will attract the private sector and gain its confidence.

Political support and the active participation of top leadership in marketing the arrangement is critical.

The participation of multilateral agencies and independent consultants may contribute to the transparency of the process and enhance credibility.

The adequacy of revenue level and tariffs prior to the initiation of a concession affect the willingness of the private sector to get involved.

Political and economic risks, particularly exchange rate risks, to the private sector should be assessed and appropriate mechanisms for their alleviation created.

source: Conference on Water and Sanitation Utilities
Brussels, 1992

Option C The English Experience of Water Privatisation

● Introduction

Privatising the water industry in England and Wales was an unprecedented step. Its successes and its failures offer important lessons for other countries. This paper outlines the structure and history of the industry, the reasons for privatisation and the regulatory system which governs the industry. It sums up the results of the privatisation, and the messages for other countries from the English experience.

● Structure and History

When people talk about the privatised water industry most have in mind the 10 big Water and Sewerage Companies (WASCs). Thames, Severn Trent, North West and Anglian Water are the largest of the ten. Thames's turnover is around £1 billion, for example. South West, Wessex and Northumbrian Water are much smaller.

The WASCs differ in the strategies they have pursued since privatisation, and in the problems they face. Southwest Water, for example, has had the steepest price increases in the country, driven by its need to finance new sewerage treatment facilities for the many scattered coastal communities it serves. Southern Water faces water scarcity. The population it serves has grown, while rainfall in its area is (by English standards) relatively low. At the other end of the country, Northumbrian has no shortage of water; rainfall is high, and population has decreased.

The similarities between the WASCs are more important than the differences, however. All the WASCs were previously publicly owned Water Authorities. Each covers one or more major river basins. Two of the largest are named after rivers.

The Water Authorities were set up in 1974, inspired by the French model of River Basin Management. Beside responsibility for catchment management and environmental protection, the Authorities owned and operated the water and sewerage systems. When set up, they integrated the patchwork of private and municipal companies which had provided water services previously.

The Authorities were privatised in 1989. Their environmental protection and regulation functions were split out into a separate government owned agency, the National Rivers Authority (NRA). The rest of the Authorities, covering asset ownership and operation, were turned into private companies and floated on the stock exchange.

Even before the 1989 privatisation, England already had a long tradition of privately owned water companies. Many private water companies had been set up in the 19th Century to serve the needs of growing towns. There are still 21 water companies which have always been privately owned.

The 21 companies are responsible for water supply in their area. Sewerage services in the areas they serve are provided by the local WASC. The Water Only Companies (WOCs) are on average much smaller than the WASCs. However there is something of a continuum between the two groups. The largest WOCs, such as Three Valleys and Essex Water are not much smaller than the water supply business of the smallest WASCs.

Even though they were already private, the 1989 reforms did affect the WOCs. Many were bought by French utilities. Lyonnaise des Eaux for example owns Essex, Suffolk and North

East Water companies. A significant number however remain independent, including Bristol, Mid Kent and Portsmouth. The other major change following the privatisation of the Water Authorities was that the WOCs were brought under the same system of price cap regulation as applies to the larger companies. Previously the WOCs had been subject to 'dividend control', a kind of rate of return regulation.

● Reasons for Privatisation

There were two main reasons why the Conservative Government decided to privatise the water industry: the desire to mobilise private capital for investment and the belief that private ownership would boost efficiency and service standards.

In 1989 the water industry faced a massive investment bill. Higher environmental standards, largely embodied in EC regulation, meant that the industry would have to greatly improve the standards of sewage treatment and sludge disposal. Higher drinking water standards required investment in new treatment works capable, for example, of removing a greater proportion of nitrates and pesticides. While in public ownership, renewal and maintenance of the assets had been somewhat neglected, so by 1989 there was a backlog of investment needed just to keep the networks in good condition.

At the same time the Government was grappling with the budget deficit. It knew that to fund all the water industry's investment from public money would push the deficit well above target. Privatising the industry offered a way to bring in private sector money to pay for the investments, helping the government to keep its own expenditure down.

The other reason for privatisation was the belief that the private sector would provide a better and more efficient service. The Government had already privatised other state owned enterprises, such as British Airways and British Telecom, with success. With water, however, it faced a much bigger challenge. Since water companies do not face competition, the pressures on them to improve service and cut costs are lower than on an airline. Some commentators have argued that the Government's belief that the private sector would be better and cheaper than the public was as much a matter of ideology as of analysis.

● Regulation

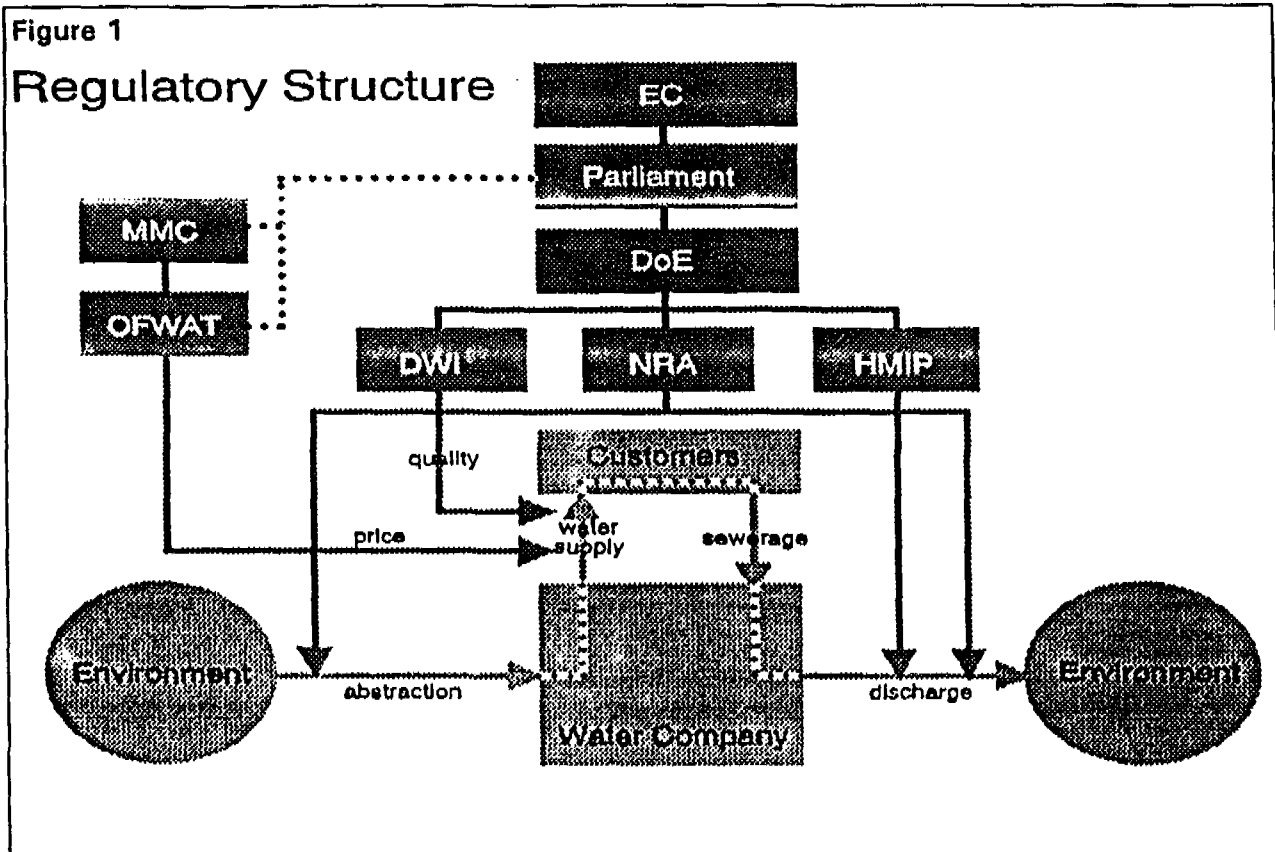
Why Regulate?

Private companies want to earn good profits. They can do this by becoming more efficient - producing the same product at lower cost. The ever-present incentive to cut costs is a key advantage of privatisation. However, a water company could also increase profits by raising prices, or by lowering quality. In most industries a company that does this will lose business to its competitors. But people have no choice over who they get their water from - it would be ridiculously expensive to have two sets of pipes running down every street.

Therefore the Government has to regulate. The main aims of regulation are to ensure that: prices do not rise to socially unacceptable levels (while still allowing companies reasonable profits), water supply and service quality remain sufficient and the environment is adequately protected.

Regulatory Structure

Figure 1 outlines the structure of regulation in the UK. The figures in light grey at the bottom show the basic operation of a water company. The company abstracts water from the environment, treats it, and delivers it to its customers. It collects the sewage its customers produce, treats it, and discharges it to the environment.



The darker figures are the regulatory structure. At the top, the Europe Union (EC) and the UK Parliament provide the overall legal and regulatory framework. The Department of Environment (DoE) is the main Government body with oversight of the area. Actual regulation is largely carried out by other agencies.

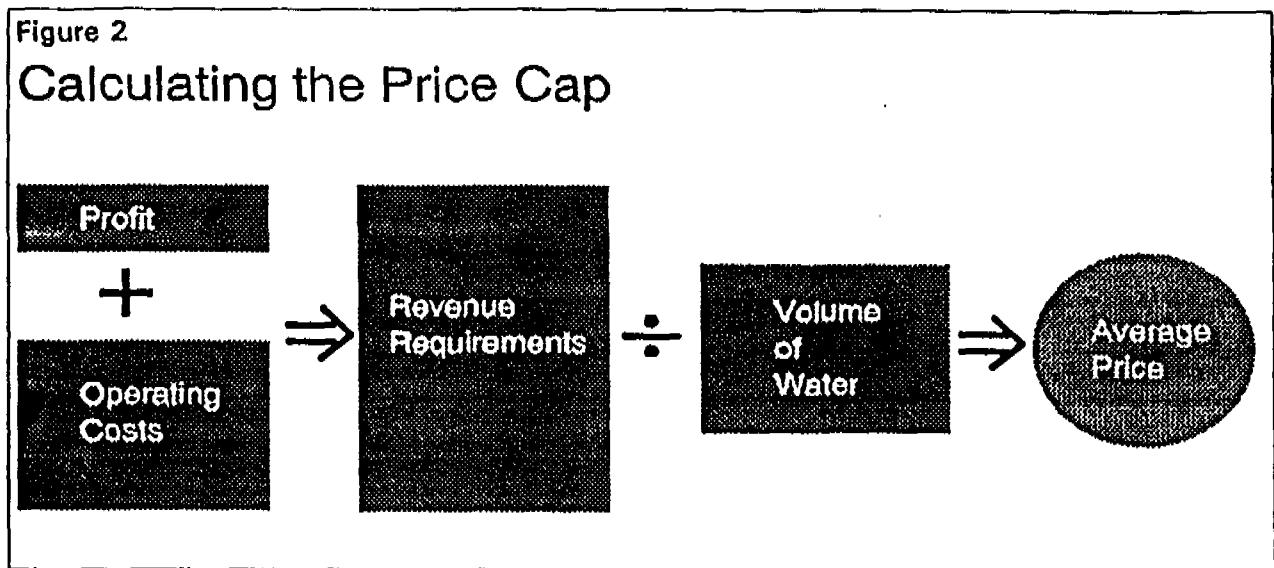
The National Rivers Authority (NRA) is the main agency in charge of environmental protection. It is organised regionally on river basin lines which match the areas covered by the WASCs. It controls how water companies abstract water from the environment, and what they discharge to it. Her Majesty's Inspectorate of Pollution (HMIP) has responsibility for the industrial processes with the highest risk of pollution. There are plans to merge HMIP and the NRA into a single Environmental Protection Agency. The Drinking Water Inspectorate (DWI) is responsible for monitoring and enforcing the quality of drinking water.

The Office of Water Services (OFWAT), sets the prices water companies can charge. If a water company is unhappy with its price limit, it can appeal to the Monopolies and Mergers Commission, the UK's competition (antitrust) authority.

If customers are unhappy with the service they receive, and their complaints are not dealt with to their satisfaction, they may ask Customer Service Committees (CSCs) to investigate. The CSCs and OFWAT work closely together.

Price Caps

At privatisation, maximum prices were set for all water companies for the next five years. The price was set to cover each company's costs, including a reasonable profit, as illustrated in Figure 2. In summary, the regulator forecast each company's operating costs, the investments it would need to make, and the profit it would need. Adding together costs and profits gives the company's revenue requirement in each year. Dividing this revenue requirement by the forecast volume of demand gives the average allowable price.



The purpose of setting the price limit for 5 years in advance is to give the companies an incentive to reduce cost. Once prices are fixed, if a company can reduce its costs, it can keep the savings as additional profit.

Some key features in the English approach to price capping include:

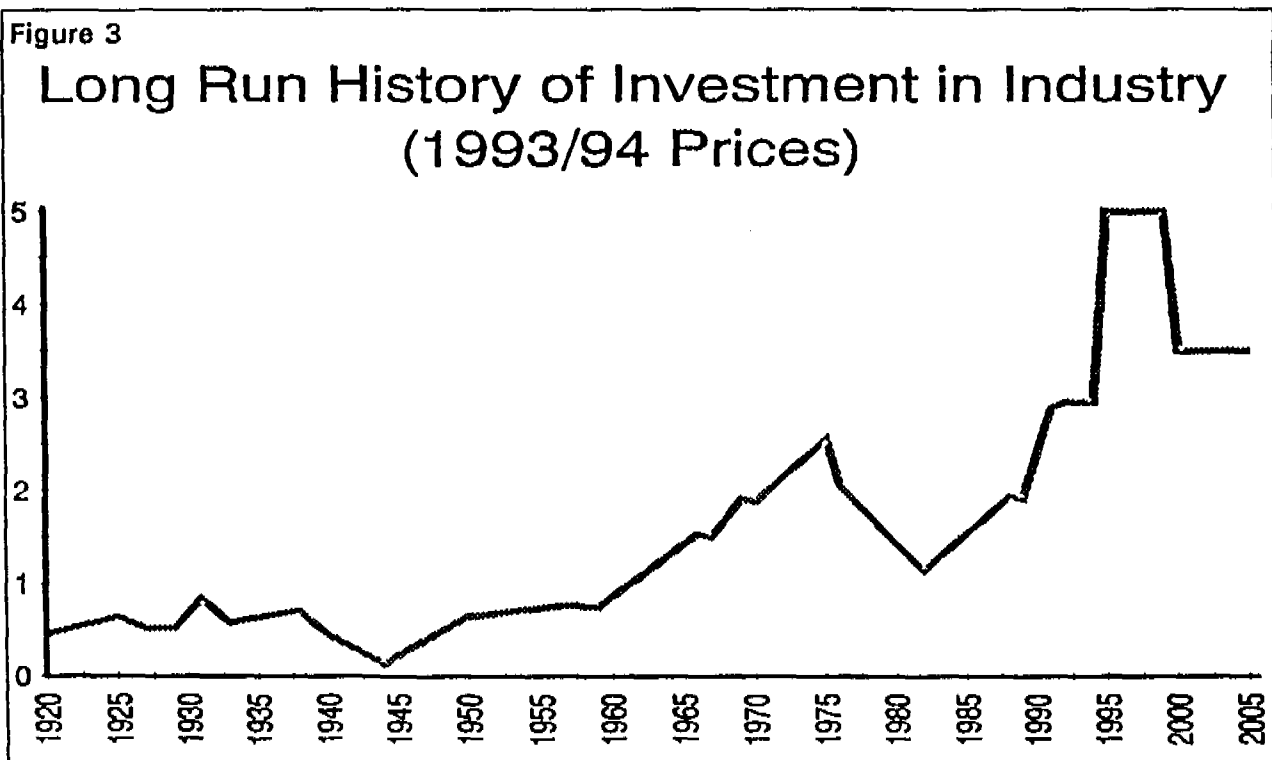
- efficiency gains - in forecasting operating costs, the regulator assumes that companies will be able to increase efficiency and make cost savings each year
- comparative competition - when price caps are set or reset, the efficiency of all the water companies is compared. Less efficient companies are expected to come up to the standard of the best performers. This means the underperformers are given more demanding efficiency targets.
- cost of capital - the regulator tries to set forecast profits at a level that is just high enough to attract the private sector to invest in the water industry
- investment - to fund the huge capital expenditure required, water companies have been borrowing money and retaining profits. This means prices have had to rise to provide investors with a return on the new investment.

- Results

The following sections assess privatisation on 6 criteria, namely: Investment, Profits and diversification, Standards, Demand management, Efficiency and Prices. In some areas the success of the reforms is spectacular. In others, there is debate over what has been achieved.

Investment

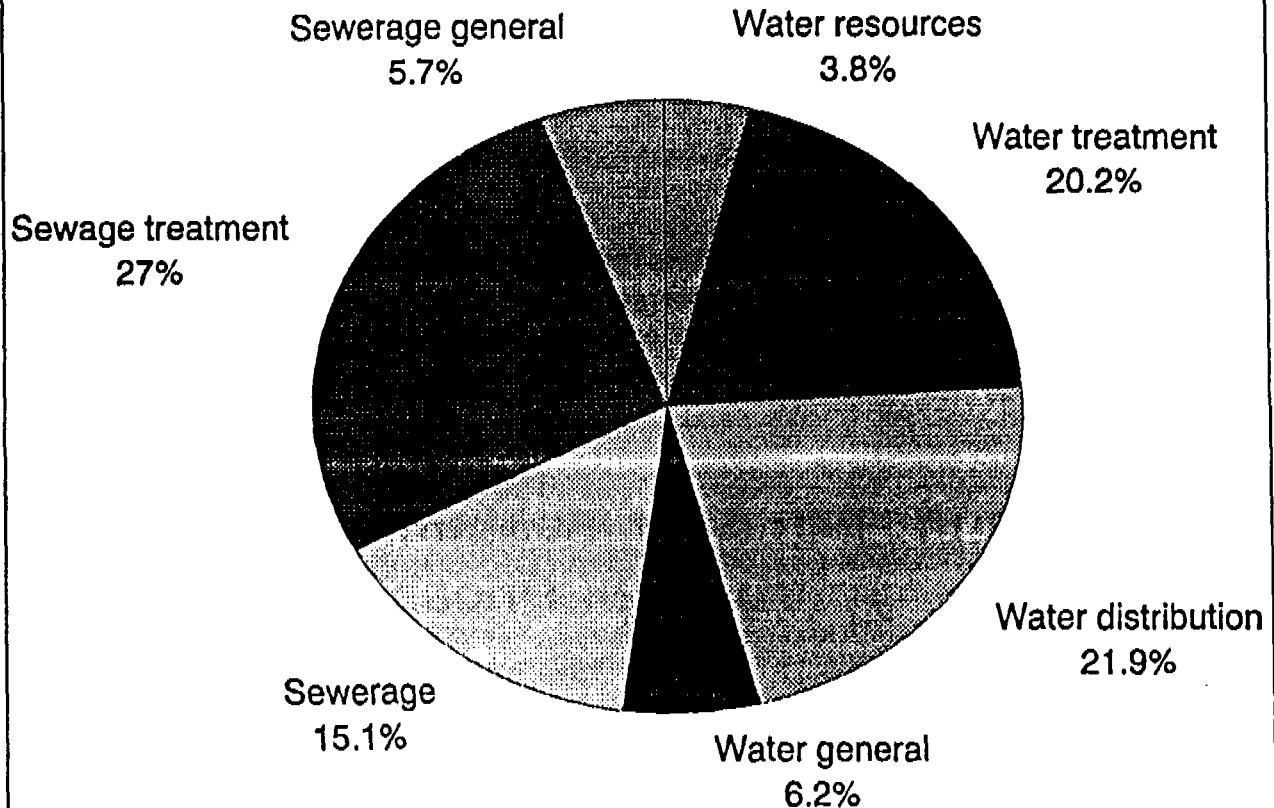
Figure 3 demonstrates the clear success of privatisation in increasing investment in the industry. In the 5 years from 1989, investment per year (in constant prices) has been higher than at any time in the industry's history. It is not clear exactly how high investment will be over the coming 5 years, but it could average around £5 billion per year, and is likely to continue at historically high levels in the first five years of the next century. It is very unlikely that the industry could have attracted this level of investment had it remained in the public sector.



As Figure 4 shows, the largest single category of investment has been sewage treatment. This is largely to do with meeting European Directives on bathing water quality. The second largest category is water distribution. Investment in this category is largely for pipe renewal and replacement, to improve quality and reduce losses. Closely behind follows investment in water treatment - for example to remove nitrates and pesticides from drinking water. Relatively little investment (3.8% of the total in 1992/93) has been for developing new water resources.

Figure 4

Capex by Service - 1992/93



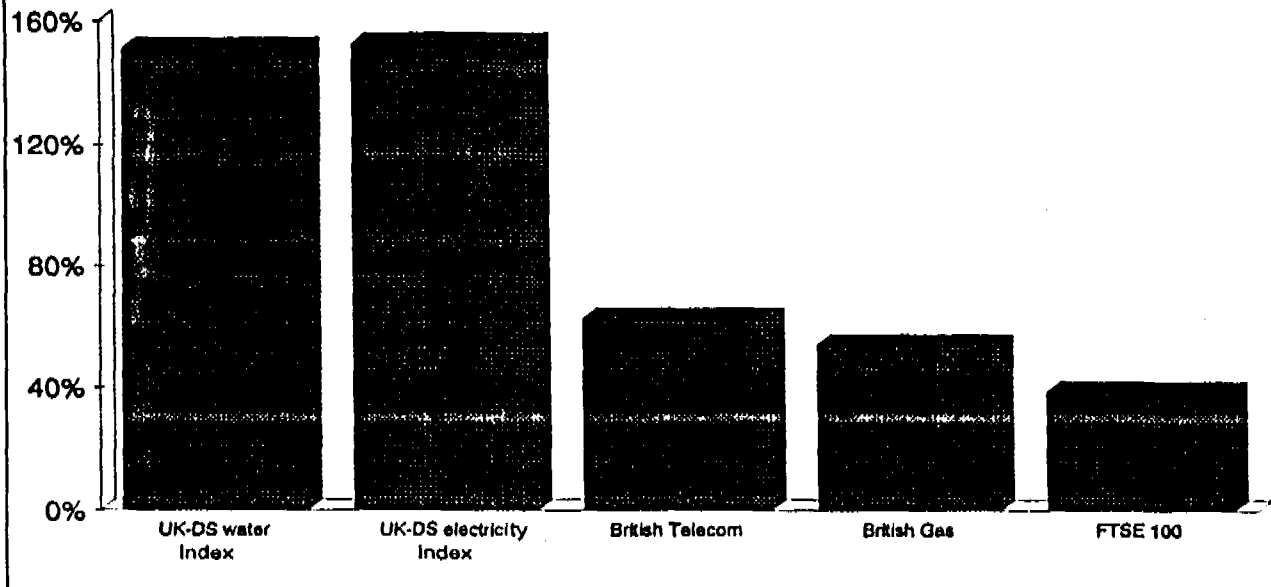
The volume of investment is impressive. There is however a question about whether it is all economically justified. The investment in water and sewerage is required to comply with environmental and drinking water standards. But no cost benefit analysis was done on the standards. It may be that some of the standards are unnecessarily high. If so, it would have been better to have somewhat lower investment, lower standards, and lower water prices.

Profits and Diversification

Attracting such large quantities of private investment is only possible if the investors get a good return. The privatised water companies have been very profitable - more profitable than people expected in fact. This profitability has been reflected in share price increases (figure 5). The index of privatised water shares rose 160% from flotation to the start of 1994, compared to an increase of only around 40% for the top 100 companies on the stock exchange. While some of the increase in water company share prices was due to the companies being underpriced when sold, the majority is a result of better than expected profit performance.

Figure 5

Share Price Increases in Other Utilities and FT-SE 100 From Flotation to Start of 1994



The greater freedom of the private sector has allowed water companies to diversify into new areas of business. In particular, English water companies have become important players on the world scene, making use of their technical and management expertise in many developed and developing countries. However not all diversifications into new business areas have been profitable.

Until now the big 10 water companies have been protected from takeover by special 'Golden Shares'. This protection expires at the end of 1994. There is already speculation about possible takeovers and mergers, either between water companies, or with companies outside the industry. There may be efficiency gains from a merger between a water company and another utility, such as a Regional Electricity Company. The threat of takeover could also give managers increased incentives for efficiency gains.

Standards

The massive investment in water and sewerage treatment has improved environmental and drinking water standards. OFWAT has devised a range of indicators designed to measure the quality of the service customers receive. The industry's performance against these service standards is summarised in Figure 6. On all but one criterion the industry has improved its performance over the last two years, often significantly. Some of this improvement may be the result of wetter weather improving supply security.

Figure 6

Service Standards 1993

	Level (%)	% Improvement Since 1991
1. Risk of water shortage	12.0	50
2. Risk of low pressure	1.3	32
3. Unplanned supply interruptions	0.3	36
4. Hosepipe bans	9.0	78
5. Risk of sewer flooding	0.1	10
6. Billing queries not responded to in 20 days	4.0	-4

Demand Management

There are two main tools for demand side management: metering and tariff policies and leakage reduction measures.

The bulk of residential consumers in England are not metered. OFWAT and the NRA have been pushing for increased metering. However there is some doubt about whether the resulting water savings justify the costs of meter installation. Most companies are slowly increasing the proportion of metered customers, but only one of the large companies, Anglian, has opted for a major expansion of metering.

Leakage in England is believed to average around 22%. There are considerable differences between companies, and also some uncertainty about the accuracy of the measurements, given the lack of meters. The industry has developed methods for assessing the optimum balance between leakage control, metering and resource development in areas of short supply. Companies are investing heavily in reducing leakage, but it is not yet possible to quantify the effectiveness of this investment.

Efficiency

Here too the picture is a little unclear. We have not found clear evidence of major cost savings as a result of privatisation. However, the industry has managed to increase environmental, water and service standards without significant increases in operating costs. There are also indications that some companies will significantly reduce the number of people they employ over the next few years.

Prices

The water industry's investment boom has required substantial price increases. The average household bill for unmeasured water supply has gone up 60% over the last 4 years. Twenty seven per cent of this was due to general inflation, leaving a real price increase of around 33%. The average household in England now pays around £88 per year for water and £97 per year for sewerage services. There is a large variation around these averages.

Figure 7

Bills and Prices 1993

	Units	Low	Ave.	High
Household Bill (unmeasured) - Water	£/year	£65	£88	£155
Household Bill (unmetered) - Sewerage	£/year	£77	£97	£160
Price per cubic meter - water	£/year	38p	60p	99p

For the average household water is still very affordable (Figure 8). With price increases at the rate currently forecast, the average water and sewerage bill will stay well below 1% of average household income for the foreseeable future. An average income household in the region with the highest water and sewerage bills will still pay only 1.2% of income for water services by 2004.

For low income groups living in areas with high water and sewerage bills it is a different story. Single parents on income support will be spending close to 5% of their income on water services by 2004. For pensioners on income support the situation is even worse. Water bills which are over 5% of household income are generally considered to pose a social problem. The water industry and the government will need to tackle this problem in coming years.

Figure 8

Affordability

... a real issue for some income groups

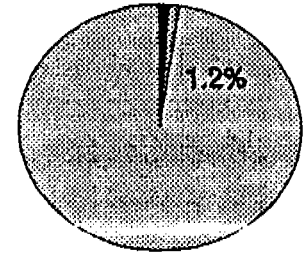
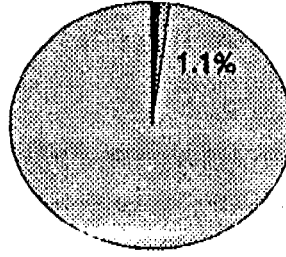
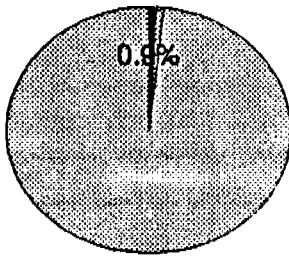
Average water and sewerage bill as % of household income

1994

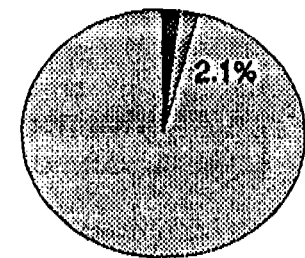
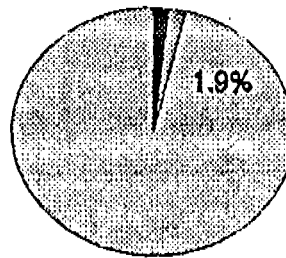
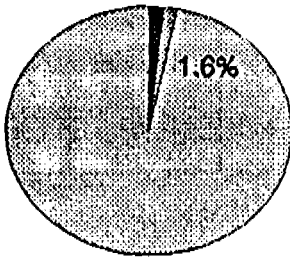
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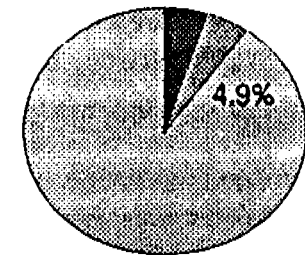
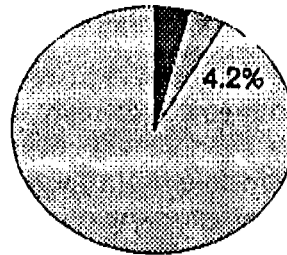
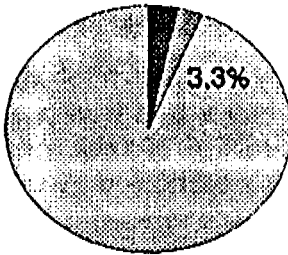
Average income



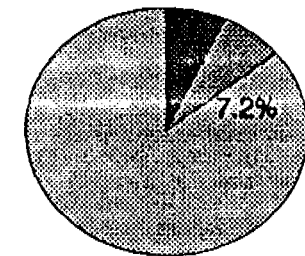
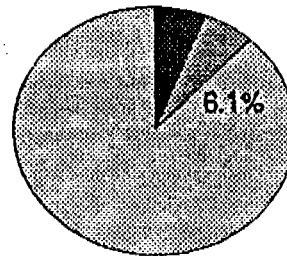
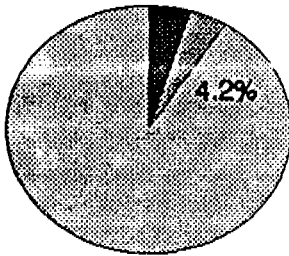
Half average income



Single parent on Income Support



Single pensioner on Income Support



Lowest water bill in E&W



Highest water bill in E&W

- Lessons for Other Countries

Many people in the Anglo-Saxon tradition used to assume that water suppliers had to be publicly owned. The first and most basic lesson from the English experience is simply that water privatisation is possible - at least in a country with a developed capital market.

The second most important lesson is that privatisation can make possible much higher levels of investment than would be possible in the public sector. It can also transform public sector organisations into entrepreneurs competing on the world stage.

On regulation, other countries can learn from both the strengths and weaknesses of the English system. Among the strengths are:

- price-capping - setting a maximum price for a significant period ahead protects consumers while preserving incentives for efficiency gains
- comparative competition - requiring all companies to match the standards of the best goes some way to simulating the dynamic striving for efficiency which occurs in a truly competitive market.

The weaknesses include:

- the regulatory system in England is very complicated and time-consuming
- splitting responsibility for economic and environmental regulation between different bodies has caused some problems, and the economic regulator has a very difficult job in determining which investments are justified
- the lack of cost-benefit analysis on environmental and quality standards raises the risk that some standards may have been set too high, and thus that some of the investments made to meet those standards were not economically justified.

On efficiency, the evidence is mixed. Cost have been held more or less constant while the quality of service has improved, but it is not clear if this performance is better than could have been achieved in the public sector. The next five years will provide interesting evidence.

Prices have risen sharply since privatisation. The main cause was the ambitious investment programme. Efficiency gains in the private sector may have held these prices lower than they would otherwise have been. On the other hand, the industry's high profits may indicate that prices have been higher than they needed to be.

author: David Ehrhardt, London Economics
edited by: Piet Klop, UNDP-STAPSD

Option D Community Training and Participation in Togo and Malawi

- Togo

An important feature of the Togo Rural Water and Sanitation Project is that it successfully integrated health education and community participation (the "software") with water and sanitation technology (the "hardware"). Over a period of seven years, the project provided potable water from boreholes, springs, and rainwater systems to 600,000 people in 864 villages. The project was noted for the large amount of pre-implementation community development support given by the Ministry of Public Health and Social Affairs. In particular, the ministry promoted a high degree of community participation and instituted comprehensive training activities for all project participants, including government field agents, members of village committees, and villagers using the new wells. The overall project approach to community participation was a continuous learning process during which the community learned to define and resolve its own problems.

Project implementation was the responsibility of the ministry, which concentrated on training at the local level, establishing village committees, and intensive promotional work in the project communities. Training was conducted in three tiers: instruction was first provided for government field agents, who then trained village development committee members, who in turn trained others in the community. Field extension agents received an average of 86 days of training in health education, community development, and construction techniques. In addition, specific training programs were set up in each project community for committee members, pump repairmen, village women, and sanitation and oral rehydration therapy volunteers. A primary objective was to establish a development committee in every project community. Village women were encouraged to become involved by establishing specific committee positions for women. Much of the credit for the success of the program goes to these committees, which managed the pumps, created and managed a pump maintenance fund, and coordinated village tasks.

The program was promoted by ministry teams consisting of a social affairs agent and a sanitarian. Each team was assigned approximately 20 villages, which it visited about once a month. The extension teams provided field training and supervision for other field agents, village development committees, and village volunteers. They also participated in local planning activities and in the development of educational materials. An entire year was usually devoted to promotional work in each village before construction began on any water or sanitation facilities. Project sustainability following construction was stressed by providing training for village pump caretakers and repair teams, establishing a locally managed maintenance fund, and making available mobile regional repair teams from the Ministry of Water Supply.

Widely considered to be one of the most successful examples of the participatory approach in water and sanitation development, the Togo Rural Water and Sanitation Project owes much of its effectiveness to community participation, extensive training of field-level personnel, and the long lead time given to promotion in the project communities. It is estimated that 25 percent of the total project budget was spent on training and extension services.

Malawi

The Malawi rural piped water program illustrates how institutional development can foster community participation. Started in 1968 within the Ministry of Community Development and Social Welfare and supported by a variety of donors over the years, the Malawi program continues to represent a decentralized process with a high degree of community participation in the planning, mobilization, construction, and maintenance of simple gravity-fed water systems. Its success has been due in part to the system of committees used to organize and direct community efforts. To date, more than 50 schemes have been completed under this program, and they serve approximately one million people. In 1980, a Health Education and Sanitation Promotion (HESP) component was added to the program to promote improved latrines, clothes-washing slabs, and a variety of behavioral practices intended to maximize the health benefits resulting from the piped water supplies. Because of its enormous success in serving rural communities, the program has become known throughout Malawi and has received numerous requests for program assistance from unserved areas.

Responsibility for program implementation is currently divided between two government ministries - the Ministry of Works and Supplies (MOWS), which oversees water supplies, and the Ministry of Health (MOH), which promotes hygiene education and the use of various sanitation facilities. These ministries work through a series of committees established under the project. Committee members are generally elected by people living in the area, and the committee leaders are drawn from community development councils or local branches of the ruling political party. During the construction of larger schemes, a main committee will be established to oversee the self-help program, section and branch committees set up to organize labor in larger subareas of the scheme, and village committees in charge of selecting standpipe sites and supervising labor in their villages.

Once construction is completed, most committees are either abolished or converted into maintenance organizations. Each standpipe will be assigned a tap committee, which will be responsible for tap operation and maintenance. Of all the various committees, these have the highest proportion of women members. In addition, each village or group of villages has a repair team that is charged with basic pipe repairs. Overseeing the entire scheme is a main water committee, which (1) supervises repair teams, tap committees, and system caretakers; (2) raises funds for system maintenance; (3) organizes self-help labor when needed; and (4) communicates with the two implementing ministries and the local district administration. Village health committees are also becoming increasingly involved in water supply and sanitation matters. An extensive program of classroom and on-the-job training is provided in the communities, and all program staff from the water and health ministries attend up to one month of refresher training courses every year.

Except for self-help labor and some locally donated materials, all capital costs are borne by the government. Routine O&M costs are met by the project communities, but the MOWS is responsible for major repairs and system expansion. In its 20 years, the program has proved to be highly sustainable. Studies have shown that over 98 percent of the more than 6,000 standpipes are in working order at any given time.

source: *Community Management of Rural Water Supply and Sanitation Services*
UNDP-World Bank Water and Sanitation Program, 1990

Option E Community Ownership: the Murugi Mugumango Water Supply Project, Kenya

The Murugi Mugumango Water Supply Project is the result of a merger of seven small self-help groups which independently tried to develop gravity water supply schemes. Following the advise of the district water engineer these groups decided to pull their resources together and form the Murugi Mugumango Water Society (in 1982) which was to be entrusted with the responsibility of developing and managing the water supply project.

Before joining forces, two intakes were constructed (one by the five self-help groups of Murugi, the other one by the two groups in Mugumango). Now the water from both intakes is conveyed through one water main. The expected increase in water demand is met by a new, third intake from which the Society plans to lay a 8", 7.8 km long pipeline to a tank.

The project consists of 129.3 kilometers of water mains and 438.3 km of minor pipelines. There are six storage tanks with a total capacity of 635,000 liters. Water is distributed to members through domestic connections which are metered. Through assistance from SIDA, the distribution system is also equipped with master meters which are installed at the main branches.

- Membership

One can apply for membership of Murugi Mugumango Water Society and must pay the relevant fees. Fees vary depending on when one became a member. Pioneer members contributed Ksh. 7430, consisting of an entrance fee (Ksh. 20), share in capital (2375), deposit for pipes (2000), deposit for meter (2000), advance for water use (120) and the standpipe and connection fee (915). Pioneer institutions paid Ksh. 12,850.

Late individual applicants must, in addition to the above fees, pay Ksh. 50 as administrative charge, Ksh. 200 as 'penalty' and Ksh. 900 as labor charges. This last item is regarded as compensation for labor provided by pioneer members. Late joining institutions pay Ksh 14,000.

Society members only get a water connection if all fees have been paid in full (so far 1528 out of 2290 members have been connected), possibly in installments.

- External Assistance

Local people initiated the project. They raised starting capital from the members. They contributed labor and locally available materials to the scheme's construction. Only after the merger into the Murugi Mugumango Water Society external support was received. The Canadian Hunger Foundation assisted the society by providing it with materials, technical assistance and training of local employees.

- Organization and Management

The project is registered with the Ministry of Culture and Social Services. The Society's supreme authority lies with the annual general meeting of its members. Nine elected members and four co-opted members form the Management Committee and are responsible for running the Society.

The Society employs 17 people to take care of the day to day project activities: a project manager, a cashier, a field supervisor, a storekeeper, an accounts clerk, a billing clerk, a typist, an office messenger, two inspectors, four plumbers and three watchmen.

- Revenue Collection

To sustain and expand its activities, the Society recovers all its costs. Monthly charges to individual water users follow this tariff structure:

0 m ³ - 30 m ³	Ksh. 20
31 m ³ and more	Ksh. 20 + Ksh. 2/m ³

For the first 30 m³ used, institutions are being charged more:

Ksh. 100 for government institutions, hospitals and boarding schools;
Ksh. 30 for primary schools, dispensaries and cattle dips; and
Ksh. 20 for churches.

Any additional cubic meter of water costs Ksh. 3.

Inspectors read all meters on the 28th of each month, bills are then prepared by billing clerks. Office messengers deliver the bills to individual members and institutions by an office messenger. Bills are to be settled at the Society's office within 14 days from the date of issue. Failure to do so leads to disconnection of the water system. Members can be reconnected upon payment of Ksh. 60.

The tariff structure was established in 1984 and was never revised. The Management Committee finds the current tariffs too low. It recently presented the annual general meeting a proposal to raise the rates to be able to cover increasing operational costs. Insufficient explanation may have caused the general meeting's rejection of the proposal. Another meeting has been called for.

- Ownership

The Murugi Mugumango Water Society owns the project infrastructure, ie. the intake structures, pipelines, storage tanks and office buildings.

source: UNDP-World Bank Water and Sanitation Program - East Africa
edited by: Piet Klop, UNDP-STAPSD

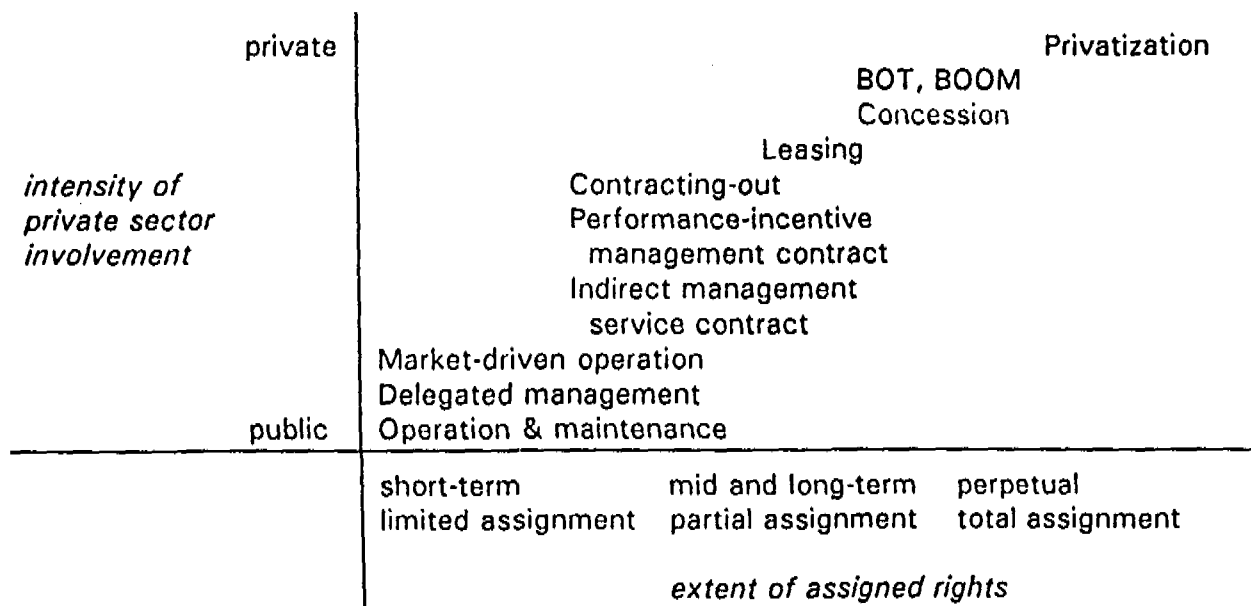
3.2 Presentations

3.2.1 Public Ownership, Private Management

- On the Comparison of Contracts

What is generally referred to as privatization covers a variety of arrangements. Differences hold less to the national origin of contracts, be it French, English, or American, than to the solution brought to the problem of dividing responsibilities between the public and private sector.

Two criteria play an essential role and permit classifying types of contracts on an axis with complete public ownership at one end and complete private ownership at the other. The first pertains to the importance of the financial engagement of the operator. The second concerns the duration of the rights that are assigned to private companies by the government. The figure below presents the different stages in private sector involvement.



BOT = Build, Operate, Transfer
BOOM = Build, Own, Operate, Maintain

The combination of the two then permits the distinction of three main contractual situations:

- *Limited assignment* in Anglo-Saxon countries includes operating and maintenance contracts, delegated management, contracting-out. In France it relates to market-driven operations, performance-incentive and indirect management services contracts. The government delegates the rights on a short-term basis, from 18 months to 3 years. The private company works according to a set of specified responsibilities, it does neither mobilize important assets, nor does it take risks.

- The *partial assignment* corresponds to the formulas for leasing and concessions in France, and to those for leasing and BOT (Build, Operate, Transfer) arrangements in the United Kingdom and the United States. Here the government delegates the more consequential elements of the public service. The duration of the assignment may vary from 7 to 25 years. The private company invests, takes risks and has a free hand in doing business. However, the government retains ownership over the public assets, all rights to which it reclaims at the end of the contract period. The private company is operating on behalf of the government. The contract grants it only temporary ownership.
- The *total assignment* pertains to privatization by sale of the assets as conducted in England for the distribution of water and electricity. In this category, the government transfers ownership of public assets to a private company, which thus acquires quasi-perpetual rights to it.

This classification may clarify an international comparison:

The differences between Anglo-Saxon rights and French rights are not fundamental even if modalities of application vary. Contractual arrangements in both cases reflect particular contractual situations. Each country has conceived a continuum of legal solutions. The real differences are found between the three main types of assignments and between their usage. As far as the operation of water services is concerned, the American practice is of type 1 (O&M, delegated management), the French practice clearly falls under type 2 (competition and leasing), while the English are in configuration 3 (total privatization).

The governments who want to access private know-how can make gradual choices, rather than being forced to opt for either public management or total privatization. They could start a public-private partnership through contracts of 'limited assignment'.

The above has important consequences for the different forms of regulation. Implications for the government vary from one type of arrangement to the other. In the case of limited assignment it retains wide control over operations as it owns the assets, as it directly gains the revenues from the public service and as it awards short-term contracts. Accordingly, the types of control should be minimal and largely specified in the contract. On the other hand, complete privatization by transferring numerous functions of government calls for precise regulation, as private companies are assigned perpetual rights. The assignment types somewhere in between, leasing and BOT for example, should thus be subjected to other modalities of regulation again.

By applying regulations for total assignment to a partial contract arrangement, rules are violated. Before choosing the modalities of regulation it must be established which is the current type of assignment. Thus, 'total' assignment requires 'hard' regulation as the government enters an arrangement in which it delegates much of its authority.

The type of assignment matters for a private company too. Its behavior will certainly vary with the time horizon in which it works. With long-term contracts the company has an interest and the possibility to invest in operational cost-reducing ways of production. Concession or leasing contracts may encourage companies to automatize sooner, whereas the O&M type of

assignment leads to more classic solutions. In other words, the mobilization of a partner in a partnership depends on the freedom of action that it is allowed as well as on the space of time at its disposal.

The classification also has consequences for partnerships between companies. There is a parallel between relations to the government and associations with other companies. Type 1 should correspond to flexible, multiple partnerships, permitting apprentices, whereas type 2 should involve more stable forms of cooperation.

- On The Transferability of Models

The examination of what is happening in the newly industrialized countries, or the observation of the solutions being carried out in the developing countries, sets off that it does not suffice to transfer responsibilities to make things work. It is often misunderstood that contractual relations between the government and the company should be appreciated in a regulatory global environment. Collective action is only possible on the condition that it be based on stable rules. If these rules are poorly defined or if they change too often, there cannot be any collective action. For privatization it does not suffice to call international bids and sell parts of the public service. One must start getting the socio-political conditions right. For example:

- What is the legitimacy of locally elected officials?
- Is there a precise definition of the public domain (which permits work on parcels of which the ownership cannot be contested).
- What are the local rules regarding financial questions? Modalities for regulating conflicts of interest, banking techniques.

Problems of transferability include:

1. The choice of the company. The French tradition is one of *intuitus personae*. Key parameters are: i) free elections, ii) duration of the contractual relationship, iii) absence of a large number of companies for such contracts. The techniques currently used in various newly industrialized countries - competition and preselection - tend to organize the selection as if it were a public market or public procurement. This poses several problems:
 - One does not enter a partnership in the same manner whether it concerns the purchase of equipment or a contractual relation for fifteen years.
 - If the government contracts a company it does so because it recognizes its competence. Now the public procurement system forces upon the company a definition of the problem as well as an outline of the solution. Thus the government denies itself other solutions that companies may propose.

Consequently, in a BOT or concession type of contract, a company needs a free hand in considering possible solutions. In the newly industrialized countries, procedures need to be developed somewhere in between *intuitus personae*, if such is not totally applicable, and public procurement.

2. **Contract management.** Most of the foreseeable problems can be anticipated in a short-term contract. Predicting is more difficult over the longer term however, in which case further detailing the contract becomes less imperative, whereas it becomes important to specify the mechanisms that make it work. The time factor is an essential variable. The situation is well illustrated by the examples of a bullet and of a ballistic missile: the trajectory of a bullet is painstakingly calculated, while a missile can be controlled in real time by intelligent software.

3. **Regulation.** The French model of urban services does not include a formal regulator of the Ofwat or PUC type. Three major mechanisms have been discussed elsewhere: regulation by market forces, political processes, and by reputation. The important point in recommending a particular institutional architecture is the place of politics. If the authority responsible for public service is elected by the users of that service, the users/voters have a certain control over politics and the regulating authority, who in turn has control over the operator. The system has a natural tendency to regulate itself, by the appreciation its users/voters feel for the service. The efficacy of the arrangement, its lightness and the absence of technocratic drift, tally with the objectives of local democracy. For this to be possible, there are several conditions that must be met: i) the locally selected have a strong legitimacy, and ii) the organizational scale of the public service corresponds to the one of local politics; if a service is organized within a national or regional framework, the major is unlikely to be deeply involved.

author: Dominique Lorrain, CNRS Foundation of Cities
June 1994
translated by: Piet Klop, UNDP-STAPSD

3.2.2 Privatizing the Water and Wastewater Industry in Trinidad and Tobago - a Few Concerns

In the current process of privatizing the Water and Wastewater Industry in Trinidad and Tobago, factors to be considered include:

- ultimate level of privatization;
- need for new legislation;
- short, medium and long term planning with investment levels;
- regulatory procedures.

Privatization is a serious and possibly lengthy process. Some developing countries have a tendency to seek short cuts to the development process and these can be costly in the long term.

The Water and Sewerage Authority has accessed a US \$60 million loan from the World Bank. This emergency loan will be used to rehabilitate the water infrastructure. This arrangement would fit very well with the French concept of delegated management where the utility still owns the assets. If the United Kingdom model is contemplated then one would expect that the private operator would finance both rehabilitation and expansion. One questions the judgement of obtaining the loan prior to private sector participation. What then will the private sector partner bring to the venture in terms of finance? Who will see that the loan is efficiently utilized? The same people who the state claims cannot run the industry?

A true concession arrangement may require substantial investments from the private sector over the duration of the contract. These will have residual values and possibly outstanding debts at the end of the contract. How are these issues to be dealt with? If loose ends such as these are not tied up early they can become real problems.

Management contracts will require less investments from the private sector. Consequently, the public sector will have to provide and pay for new works to meet the agreed development plans. A private investor in spite of the general understanding that he is taking risks may seek specific guarantees from the Government or an international lending agency in order to protect himself against political risks and non-payments.

In the case of the privatization of the local electric utility, the representative union has been able to exact a moratorium on staff reduction for two years. A private operator who is saddled with this at the outset may use it to garner additional guarantees for participation or later on as a basis for increased charges.

For the private operator, it will be expected that all investments will have to be supported by the price of the service. This means that the attitude of the regulatory agency will have to change from a political to a business-oriented one. The country must develop a policy environment and an administrative framework that is conducive to private sector participation.

The World Bank is not sure if the complete sale of assets as occurred in the United Kingdom should be repeated anywhere in the world. One question for Trinidad and Tobago is what if some years down the road the privatization trend is reversed in the developed countries as

often happens when circumstances change and the country is saddled with an unwilling foreign private operator.

Will the revamped Public Utilities Commission (PUC) in Trinidad and Tobago be given both the powers and the requisite qualified staff to carry out the two separate functions which the Office of Water Services and the Monopolies and Merger Commission perform in the UK? The question is pertinent since the PUC has recently been dismantled. The Authority is presently self-regulatory and all of the bidders indicated in their proposal that the regulatory function must be removed from the Company. The Government itself must have the administrative capability and capacity to manage privatization. The demand for this capability will have to be met at a time when the Government is involved in civil service reform and is seeking to reduce the amount of public administration.

The road to privatization is paved with good intentions but it does not appear to be as easy as some persons would want us to believe. However, it is imperative that Trinidad and Tobago take the step towards making the water industry financially viable by allowing private sector participation in the Water and Sewerage Authority. This will reduce the usual claims that investment opportunities are being limited due to inadequate water.

author: Lester Forde, Chief Engineer
Water and Sewerage Authority of Trinidad and Tobago
June 1995

3.2.3 An Institutional Framework for Community Water Supply and Sanitation Services

- Background

It is widely acknowledged that few urban utilities, or more informally organized community water supply and sanitation systems perform as well as they should. Their weak performance results in the inadequate delivery of fundamental services, especially to the poor; wasted water and investment resources; and deteriorating neighborhood and community environments.

In response to these problems, a remarkable international consensus has emerged on the main elements of an institutional framework for improving the performance of urban utilities in delivery of urban water and sanitation services. These elements include: a more commercial orientation of the supply organization (whether publicly or privately owned); increased participation of the private sector to reinforce market-friendly behavior; clarification of contracting procedures and arrangements; and rules or regulatory procedures to ensure that the public is well served and that the supply organizations are efficient investors and operators of facilities. Although the implementation of this framework varies from country to country, reviews of utility performance increasingly relate to how the existing institutional arrangements affect incentives for decision-making and behavior of major stakeholders in positive and negative ways.

While this global consensus clearly identifies the main elements of a better institutional framework for improving urban utilities, much less is known and agreed upon about how to improve service delivery in informal, community-based systems in peri-urban and rural areas. The Working Group on Institutional and Management Options was created largely in response to this challenge and seeks to determine the extent to which better institutional arrangements can lead to improved service delivery. This paper outlines what has been learned through recent World Bank and donor experience with large-scale community water supply and sanitation projects.

- The Big Principles

The importance of examining institutional incentives received a major boost at the Dublin Conference on Water and the Environment, which preceded the Rio Conference on Environment and Development. In Dublin, two key ideas were given considerable prominence:

1. water is an economic as well as a social good and should be managed as such; and
2. water should be managed at the lowest appropriate level, with users involved in the planning and implementation of projects.

The challenge now lies in how to interpret and operationalize these two principles.

Managing water as an economic good implies giving greater attention to issues related to allocation of water among users and the principles which should guide that allocation; the allocation of investment resources; efficient and effective use of supply facilities; and the relationships between the economic value of water to users, the cost of providing services, and the prices of services to users. The related institutional challenge is how to provide

incentives to stakeholders to achieve more efficient allocations, more efficient use of facilities, and more consistent relationships between the value, price, and cost of services. The aim is to select water uses and investments in which the value users attach to the service is greater than its cost and, consequently, is a service for which they are willing to pay.

Managing water at the lowest appropriate level implies the need to develop criteria for determining that level. The most robust criterion appears to be that major management decisions should be made at a level which encompasses, but does not go beyond, the range of demands being addressed. In particular, no decision should be made at a higher level that can be made effectively at a lower level. For instance, demands for community water supply and sanitation services are localized demands, suggesting that responsibility for managerial decisions about levels of service, locations of service facilities, and cost-sharing should be kept local as well. In general, higher level involvement should not go beyond ensuring that institutional rules and processes encourage, rather than hinder, such localized decisions.

- A Framework of Institutional Rules for Implementation of the Big Principles in Community Water Supply and Sanitation

The institutional goal at the operational level in community level water supply and sanitation is to establish program rules and organizational procedures which encourage efficient and effective choices, permit valid inferences about the level and intensity of local demands, and reduce transaction costs, particularly for feeder systems in urban and peri-urban areas. These transaction costs have seriously impeded extension of services to low-income neighborhoods by formal urban utilities.

Past experience has clearly demonstrated that rules which favor highly centralized decision-making about service allocations and the level and intensity of local demands have not produced either efficient or sustainable services. Examples of such traditional rules that have not worked well include:

1. the selection of communities to be served by planners on the basis of external determination of "need" for service; rather than economic "demand" for service;
2. the selection of levels of service to be provided (and by implication, technologies to be employed) based on "affordability" criteria; rather than on "willingness to pay" criteria;
3. the provision of the prescribed service level on a grant basis without procedures to negotiate with the selected communities on cost-sharing arrangements, which may differ from a uniform allocation of such responsibilities; and
4. the extensive involvement of government personnel, rather than local decision-makers, in decisions regarding the location, construction, operation, and maintenance of community facilities.

There are now numerous examples of both World Bank-financed and donor-financed projects which have successfully modified some of these traditional institutional rules with positive effects. While the general direction of these reforms is becoming clear, it is premature to propose a new "approved" set of rules. However, enough is now known for the Working Group on Institutional and Management Options to be in a position to endorse these directions of change.

In summary form, the following kinds of institutional changes have been shown to have positive effects:

1. Eligibility rules for participation should be broadened so that eligibility does not, by itself, guarantee that any particular community will receive service. Service improvement should follow, not precede, community initiative in seeking the service.
2. A range of levels of service (and technical options) should be offered by the community program and related cost implications made clear to communities. Communities should be actively involved in the selection of service levels.
3. The basic principles of cost-sharing should be specified and community responsibility for costs (both capital and operation and maintenance costs) that will not be borne by others made clear from the outset. These basic principles should aim at negotiated cost-sharing arrangements in which the local community chooses levels of service for which it is willing to pay the costs.
4. The local community should have options from which it can choose for assistance in proposal preparation for participation, for construction and siting of facilities, and for operations and maintenance. The cost-sharing arrangements for exercising these options should also be made clear prior to the community choice.

This combination of institutional reforms can reinforce incentives for efficient and sustainable service delivery and is consistent with the main water management principles discussed earlier. However, there are many possible variations in specific rules and procedures. The reforms should be accompanied by a systematic approach to learning about how the chosen institutional arrangements work, and why, in particular settings. They should also be accompanied by flexibility in program design, so that if the learning shows that the rules and procedures are not working as well as expected, the program management can adapt the design to improve performance.

author: Mike Garn, Economic Advisor
World Bank Water and Sanitation Division
July 1995

3.3 Summary of Discussion

This section presents the highlights of the discussions the Working Group had at its two seminars. Reference is made to case study abstracts in Annex I.

Option A Public ownership and operation by enterprise or department

A key element in extending efficient water supply and sanitation services by governments is the decentralization to autonomous agencies. This, it was emphasized, requires resources and resolve for regional and local capacity building. Many countries are re-organizing their public water and sanitation institutions, and are implementing various managerial reforms. EMOS Santiago, for example, decided to separate its regulatory and operational functions and the Hyderabad Water Supply and Sewerage Project introduced systematic staff performance reviews (case A.8).

If water supply and sanitation services are to become financially self-sustaining at the lowest appropriate level, cross-subsidies should be kept to a minimum. Yet, the Umgeni Water Board demonstrates that affluent suburban districts are prepared to cross-subsidize capital investments in rural water supply and sanitation upstream, thereby controlling erosion and pollution (see case A.13).

According to several Working Group members, governments are indisputably bad entrepreneurs. Others, however, cited examples of well-functioning public water and sanitation services and urged not fixing what is not broken. Private sector and community participation in the provision of water supply and sanitation services are generally favored though, in order to raise investment capital, increase (financial) efficiency and reduce dependency on erratic support policies and politics.

- Option B Public ownership with operation contracted to the private sector**
Option C Private ownership and operation with regulation

It is argued in section 3.2 that options B and C can be considered as a single category. There is a progressive range of public-private partnerships, varying in the degree of private financial and managerial involvement, and in the length of time over which rights are conferred. Full privatization (implying the transfer of ownership of the infrastructure) is but one option of maximum and permanent private sector involvement.

Public-private partnerships thrive in an 'enabling environment' of political stability, sound overall economic policies, effective legal and regulatory mechanisms, well-developed capital markets and financial institutions, a sizable and competent private sector, and informed and vocal water user groups. This implies a well-defined overall water policy. Some Working Group members raised questions as to the applicability of these options in countries where such an enabling environment, with all its checks and balances, does not yet exist.

Knowledge of the value of assets, consumers' willingness to pay, unaccounted-for-water and other system statistics is essential in successfully engaging the private sector. Indeed, as several case studies make clear, it is the availability of information (through regular system audits) that raises private sector interest, induces competition and facilitates regulation.

Investment and exchange rate risks must be assessed and alleviated: in Guinea and Côte d'Ivoire (see case B.2) it is the private operator who bears all technical and commercial risks, while the government redresses exchange rate fluctuations. Some working group members expressed their concern as to the reduced regulating power and capacity of the government of Côte d'Ivoire.

Turning a service aimed at continuity and equity into one driven by efficiency and profit raises many questions and concerns, especially on the implications of higher water rates for the rural and peri-urban poor. It appears advisable to separate welfare considerations from the commercial management of the services. The English Experience (section 3.1) suggests that privatization indeed boosts investments and service performance. Profitability and affordability, however, are real issues: with company stocks and executives' salaries, real prices have soared (33% over four years).

Working Group members cautioned against replacing a public monopoly with a private one. Other concerns pertained to the disparity in expertise and power between a local government and a multinational water company, which may not be inclined to invest in indigenous water sector capacity building. Partnership negotiations should include the issues of staff re-training, re-employment and dismissal.

Financial efficiency does not necessarily equal resource efficiency. The objective of managing water demands may conflict with the option of private sector participation: where revenues and profits primarily depend on the volume of water sold to non-metered water users, private system owners or operators may not be interested in reducing leakage, installing meters or promoting water saving devices. Remuneration based on reductions in unaccounted-for-water, improved public health or higher coverage would provide better incentives for efficiently meeting and managing the demand for water (and sanitation).

Public desperation and private haste should not be allowed to dictate the terms of a partnership (ref. Lessons from Buenos Aires and Caracas in section 3.1). It is equally important that governments do not lock themselves into some radical and long-term form of private sector participation. A transparent approach of gradually increasing its scope and duration is advocated instead. Thus, to prepare for private management, governments need to commercialize their water sector (something they also have to do when granting effective autonomy to public agencies). External support agencies, the World Bank in particular, can lend credibility to this process, monitoring its transparency and providing impartial advice.

Obviously, private sector participation is no cure-all. Critical is the presence of a strong and competent regulating mechanism, to safeguard the continuity, equity and quality of water and sanitation services. That is not to say that regulation should be a top-down, heavy-handed affair: competition is a powerful regulating mechanism. Vocal water users groups help regulate companies that have a long-term interest in preserving their reputation. In France it is at the ballot box that voters (water users all) hold their politicians accountable for the quality of the service and the underlying regulating arrangement between the local government and the operating company.

Much of the 'privatization' debate evolves around urban utilities, i.e. large-scale piped water supply systems. What, however, is the relevance of the above in rural and peri-urban settings, with point source water supplies? The question whether and how the private sector can be

enticed into investing in water supply and sanitation for the rural and peri-urban population has not yet been examined in depth.

- Option D Public ownership with operation delegated to communities
- Option E Community ownership and operation

Critical ingredients in these options are a government that is committed to decentralizing its responsibilities, and communities that actually want to manage or control their water and sanitation services. It is the effective demand, i.e. the level of service people are willing to pay for, that should rule the choice of technology as well as the institutional and managerial arrangement. Another principle is that service improvements should follow, not precede, community initiatives. Non-governmental organizations have an important stimulating and mediating role to play (e.g. cases D.2 and E.4).

Matching the service level with the willingness to pay, communities' responsibilities in contributing (in cash or in kind) to capital and operation and maintenance costs are to be negotiated and agreed upon. This can be a difficult and lengthy process: with government subsidies winding down, people may be asked to pay more for the same or a lower level of service. In Peru (see case E.6) attempts are made to overcome people's reluctance to pay by cutting defaulters' electricity supply.

Governments should provide the right incentives, for instance by making clear that poorly managed community systems will not be bailed out (see case E.9). Technical and institutional support on the other hand was strongly advocated. In the United States a network of national water associations offers exactly that kind of assistance.

Delegating responsibilities requires decentralizing the means to effectively manage and control water and sanitation services. Communities must be allowed managerial and financial autonomy, and be recognized as legal entities. Adequate credit and money deposit facilities are a principal requirement. Community development requires intensive and sustained organizational activity, the pace of which should not be set by physical targets. The point was made that local institutions should be developed with elected, or at least accountable community representatives.

On the government side it is the anxiety and resistance among staff that a transfer of 'their' power may generate that needs to be taken seriously. It is important to have the laws, rules and regulations in place before delegating responsibilities and means. Governments will have to adjust to new, enabling roles. One is to safeguard the coherence and consistency in overall water resources planning and management.

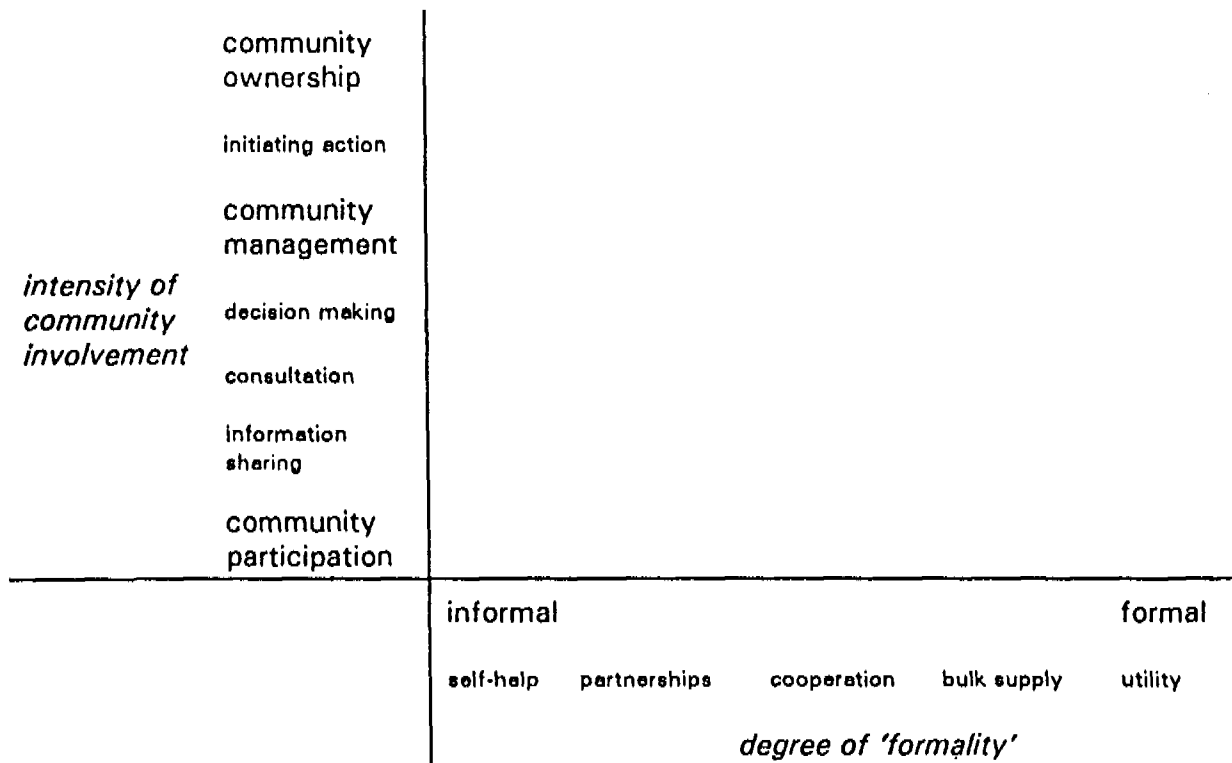
Water and sanitation are important, but hardly people's only concerns and possibly not quite enough to sustain a community organization. That is why in many cases water committees were formed under general community organizations. Baroda (case E.5) is a case in point. On the other hand, successful water associations like the one in Kitui-Pumwani (case E.4) generate sufficient income to be able to diversify into other community investments, creating employment opportunities. Also, they often hire specialist labor to perform tasks like water selling for example, thereby increasing accountability.

The 'community option' obviously requires capacity building resources and resolve, too. In

Togo, for example, 25% of the available budget went into training of all project participants (government staff included). See section 3.1.

Ultimately, the aim is to increase coverage and cost-effectiveness, while protecting the water resource. Flexible approaches should allow communities to find appropriate technical, institutional and managerial solutions. It is only later that their implementation could possibly be organized on a regional basis. Lacking 'prefab' solutions, all parties concerned should engage in 'structured learning' and adjust their designs accordingly.

The diagram in section 3.2.1 presents the different types of private sector participation. The successive stages in intensifying community involvement can be presented in a similar way:



Matrix

Next page's matrix is an attempt to bring a degree of order to the variety of institutional and management options.

Principles Involved in Different Institutional and Management Options

<p>principles of 'Dublin' and 'Delft'</p> <p>principal options</p> <p>exemplary case</p>	<p>enabling environment</p> <ul style="list-style-type: none"> • comprehensive understanding • legal and regulatory framework • water as economic resource (efficiency) • water as social good (equity) 	<p>institutional development</p> <ul style="list-style-type: none"> • subsidiarity • coordinating mechanisms • participation 	<p>human resources development</p> <ul style="list-style-type: none"> • extension • training • performance incentives • managerial reform 	<p>financing</p> <ul style="list-style-type: none"> • investments • revenue enhancement
<p>(A) public ownership and operation by enterprise or department</p> <p>EMOS S.A. Santiago</p>	<ul style="list-style-type: none"> - separation of operational and regulatory functions - consistent operational policies (water rates etc.) - creation of tradable property rights 	<ul style="list-style-type: none"> - public development cooperation owns 98% of stock - limited involvement local governments and communities - private sector participation through service contracts 	<ul style="list-style-type: none"> - with increased profitability more funds to HRD - salaries competitive with private sector 	<ul style="list-style-type: none"> - fixed and variable charges related to fixed and variable costs - direct instead of cross-subsidies to the poor
<p>(B) public ownership with operation contracted to private sector</p> <p>Buenos Aires and Caracas</p>	<ul style="list-style-type: none"> - ample information on value of assets and costs of operation - political support, consensus among interested parties - flexibility in negotiating details of contract 	<ul style="list-style-type: none"> - participation of multifateral agencies and independent consultants for transparency and credibility 	<ul style="list-style-type: none"> - government-paid lay-off program 	<ul style="list-style-type: none"> - relatively high pre-concession tariff allowing for lower rates later - mechanism to alleviate investment (exchange rate) risks
<p>(C) private ownership and operation often with regulation</p> <p>The English Experience</p>	<ul style="list-style-type: none"> - developed capital market 	<ul style="list-style-type: none"> - environmental oversight on catchment-basis 		<ul style="list-style-type: none"> - sharp increase investment - regulating office sets 5-year price caps - 33% real price increase over 4 years, high profits
<p>(D) public ownership with operation delegated to communities</p> <p>Togo and Malawi</p>	<ul style="list-style-type: none"> - long lead time for pre-implementation community development - integrated approach: teams of social worker and sanitary engineer 	<ul style="list-style-type: none"> - specific village development committee positions for women - collaboration between ministries of Works and Health - maintenance organizations with specialized committees 	<ul style="list-style-type: none"> - instituted training of extension agents, village committees, specialists: 25% of budget - refresher courses for ministries' staff 	<ul style="list-style-type: none"> - capital costs by government, routine O&M by communities
<p>(E) community ownership and operation</p> <p>Murugi Mugumengo, Kenya</p>	<ul style="list-style-type: none"> - detailed set of rules - water society and ownership formally acknowledged by government 	<ul style="list-style-type: none"> - managerial and technical assistance by NGO and ministry - executive and regulatory responsibilities separated - all connections are metered, progressive rates - high reconnection fee 		<ul style="list-style-type: none"> - starting capital raised by pioneer members - higher contribution from late-joining members - commercial framework

'Dublin' is the International Conference on Water and the Environment, held in Dublin, Ireland, in 1992.
 'Delft' refers to the UNDP symposium 'A Strategy for Water Sector Capacity Building' that was held in Delft, The Netherlands, in 1991.

3.4 Demand Management

3.4.1 Discussion Paper on Demand Management

- Concerns Related to Current Water Development and Management

Today's major concerns regarding water resources development and management may be grouped into three categories (Table 1). Clearly, they do not present isolated concerns, but are indeed linked. The environmental and economical implications of current water development strategies are intricately linked with the strong bias towards supply augmentation schemes. The very concept of supply augmentation is to continuously meet demand, which is, indeed, unsustainable. Firstly, because demands appear to be insatiable if they are not managed carefully. Moreover, the reservoirs filled with water create the illusion of plenty, thus not encouraging efficient use. Secondly, the ever increasing demand of water forces water developers to reach out to more distant resources. As a result costs for new projects double or even triple in certain cases. Thirdly, undervaluing water by making it seem plentiful and at the same time not achieving sufficient cost-recovery makes existing supply schemes a heavy financial burden to governments. Indeed, many water supply schemes are in disrepair and thus not able to supply the amounts of water they were designed for.

1. Environmental concerns <i>associated with degrading water resources</i>	2. Economical concerns <i>associated with present water development and management</i>	3. Social concerns <i>associated with environmental degradation and poor access to water supply and sanitation</i>
<ul style="list-style-type: none"> • Degradation of ecosystems regulated by groundwater and surface water regimes (wetlands, forests, etc.) • Irreversible degradation of aquifer systems • Reduced soil fertility through pollution, salination, waterlogging, and erosion 	<ul style="list-style-type: none"> • Insufficient cost-recovery • Inadequate supplies for future domestic and industrial uses • Increasing cost of new water supply schemes 	<ul style="list-style-type: none"> • Conflict over water and land use • Reduced food security • Water related disease • Reduced standards of living

Table 1. Three major concerns related to current water development and management

- Supply Augmentation vs. Demand Management

Summarizing, the *supply augmentation* approach is a

- short-term solution,
- it involves high investment - and is thus not suitable for low-value uses such as irrigation,
- furthermore, it exacerbates environmental degradation, including resource depletion.

Whereas *demand management*

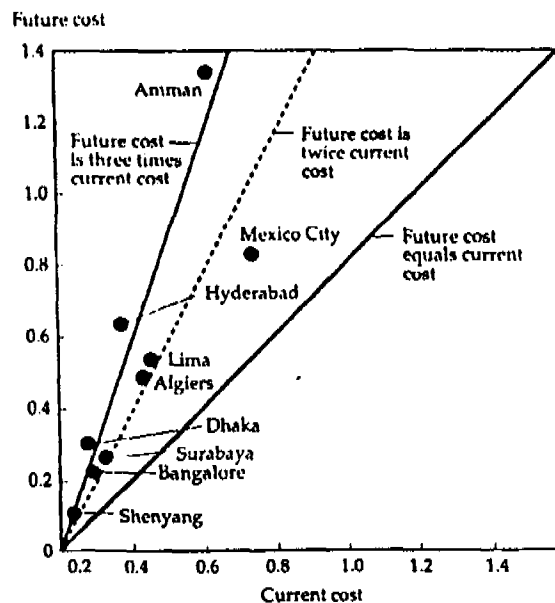
- averts high infrastructural investments - by bringing down current consumption as well as projected demands.
- It reduces degradation of resources
- and it reduces pollution, salination, waterlogging, and erosion both through efficient use of water.
- Moreover, it prevents conflict through inter-sectoral reallocation of water, particularly through freeing up of water in the irrigation sector.

- Tools¹

A. Conserving in Cities

Water deliveries to households, schools, businesses, and other municipal activities account for less than a tenth of global water use today. Nonetheless, meeting these needs is no easy task. Drinking water must be treated to a high level of quality and supplied with a high degree of reliability, which makes it expensive. As cities expand, planners reach out to capture ever more distant and costly resources (Figure 1).

Figure 1. How the cost of supplying water is increasing²



By the end of this century, some 22 cities worldwide will have populations of 10 million or more, and 18 of them will be in the Third World. Serving these dense population centers will in many cases take more water, capital, and energy than is available or affordable.

1 From Sandra Postel. 1992. Last Oasis: Facing water scarcity. Worldwatch Institute. Washington, DC.

2 From Ismail Serageldin. 1994. Water Supply, Sanitation, and Environmental Sustainability: The Financial Challenge. The World Bank, Washington, DC.

Already today, there remains a large unmet demand for household water. Nearly one out of every three people in the developing world - some 1.6 billion people³ in all - do not have access to a safe and reliable supply for their daily needs. As a result, water borne diseases account for an estimated 80 percent of all illnesses in developing countries. And women and children walk several kilometers to collect enough water for drinking, cooking, and cleaning, a drudgery that saps time and energy from more productive activities.

Therefore, conservation, once viewed as just an emergency response to drought, has been transformed in recent years into a sophisticated package of measures that offers one of the most cost-effective and environmentally sound ways of balancing urban water budgets. Water planners are realizing that an assortment of water efficiency measures can yield permanent water savings and thereby delay or avert the need for expensive new dams and reservoirs, groundwaterwells, and treatment plants (See Box 1). Slowly the idea is spreading that managing demand rather than continuously striving to meet it is a surer path to water security-while saving money and protecting the environment at the same time.

B. Efficient Irrigation

Of all the water taken from rivers, lakes, and aquifers, agriculture claims the largest share accounting for an estimated 65% of global water use. As opportunities to extend cropland area have dwindled, augmenting food production has come to depend more on coaxing higher yields from existing farmland, which often requires irrigation. Over the course of this century, as the number of people to feed swelled from 1.6 billion in 1950 to more than 5.4 billion at present - a threefold increase -, agriculture's water use increased fivefold. The really rapid rise began around mid-century, when water development entered its hey-day, and continued as the Green Revolution took hold and spread. However, due to poor management, operation and maintenance, and insufficient cost-recovery to pay for O&M as well as new investments, irrigation is a very inefficient and low-value water user, especially in the developing world. Dryland regions, such as Israel, Texas and California have proven that with appropriate technologies - such as use of drip, surge and sprinkler techniques - and the right economic incentives, water use efficiency in irrigation can increase substantially (See Box 2).

C. Industrial Recycling

Industries make the second largest claim on the world's water bodies, accounting for a fourth of global water use. Generating electricity in thermal power plants (nuclear and fossil fuel) takes copious amounts of water, as does making the paper, steel, plastics, and other materials we use every day. Spurred by droughts, strict pollution control requirements and appropriate pricing, industries in countries like USA, India and China have shown that they can reduce their water use dramatically by recycling and reusing their supplies (See Box 3). Yet these technologies remain greatly underused, particularly in the developing world, where industry's water use is now rising rapidly.

³ From the 1995 draft report to ECOSOC of the ACC Subcommittee on Water Resources.

D. Waste Water Reuse

The greatest gains in domestic water use lie in redirecting water used in cities and towns for a second use on farms. Though typically viewed as pollutants, most wastewater constituents are nutrients that belong on the land, where they originated. Farmers worldwide spend heavily on chemical fertilizers to give their crops the nitrogen, phosphorus, and potassium that domestic wastewater contains in large amounts. According to one calculation, it takes the equivalent of 53 million barrels of oil - worth more than \$1 billion - to replace with fuel-based fertilizers the amount of nutrients yearly discarded in US sewerage.

Israel has the most ambitious wastewater reuse effort underway in the world today. Already some 70 % of the nation's sewage get treated and reused to irrigate 19,000 hectares of agricultural land. Globally, at least 500,000 hectares of cropland in some 15 countries are now being irrigated with municipal wastewater. Although this amounts to two tenths of one percent of the world's irrigated area, in dry regions wastewater can make up an important share of agriculture's water supply (See Box 4).

In fact, by not making wastewater reuse a part of water planning and management, developing countries put their urban and rural populations at risk, since reuse will almost surely take place in dry climates out of economic necessity, but without adequate sanitary controls.

● Constraints

As illustrated by a few examples mentioned above - and further illustrated by case studies in the Boxes indicated -, the many ways of conserving, recycling, and reusing water constitute the making of an efficiency revolution. With tools and technologies readily available, enormous water savings are possible in agriculture, industries, and cities. Yet we are stuck at the brink of this transformation because of policies and laws that encourage wastefulness and misuse rather than efficiency and conservation.

Governments often build, maintain, and operate irrigation systems with public funds, and then charge farmers next to nothing for these expensive services. Irrigators in Mexico, for instance, pay on average just 11% of their water's full cost, and those in Indonesia and Pakistan, about 13%. In Egypt, a land of extreme scarcity, farmers are not charged directly for their irrigation water at all. And in India, the world's third largest food producer, government spending to operate and maintain medium and large canal projects exceeds the total revenue collected from farmers by 23.5 billion rupees (US\$ 816 million). These are but a few examples. It must however be realized that⁴:

- Most countries provide subsidized or free water for irrigation
- Most countries subsidize water supply infrastructure
- Few countries accomplish significant cost-recovery
- Few countries have well defined demand management techniques

⁴ From EDI/UNDDSMS. 1993. *Proceedings of the Workshop on Water Resources Management in Southern Africa, Victoria Falls.*

Thus appropriate pricing, the creation of markets for buying and selling water, and other economic inducements for wise water use hardly exist in most places. These measures, however, have an important role to play in an era where water becomes increasingly scarce.

- Demand Management: Institutional and Management Options

- A. Water Pricing

Many of the water shortages cropping up around the world stem from the widespread failure to value water at anything close to its true worth. To the contrary, grossly underpricing water perpetuates the illusion that it is plentiful, and that nothing is sacrificed by wasteful practices. Correcting these perverse situations is easier said than done. It requires

- Challenging political interest;
- raising awareness and building a strong commitment from civil society, governments, and the private sector to make protection of water ecosystems a central goal in all that we do;
- creating an enabling environment; and
- decentralizing water management and encouraging user participation so that local water suppliers and users have more responsibility and accountability for the performance of their operations

Additionally, it requires that waterusers in developing countries at least pay for the operation and maintenance of their supply system. This is often frustrated by the notion that they cannot afford the prices. Yet those benefiting from irrigation commonly earn far more than those cultivating rainfed lands do. And slum dwellers typically pay 5-10 times the price of the municipal water to the water vendor. Moreover, Third World water users have shown time and again that they are willing and able to pay more for water that is reliable and over which they can exercise control, in the case of irrigation. Therefore, incentives and structures for improving fee collection have to be put in place. Setting prices closer to the real cost of supplying water is a key component of agricultural, urban and industrial conservation. As revenue collection based on volumetric pricing can be difficult, as it usually is in the irrigation sub-sector using open canal systems, governments - and donors - frequently attempt to organize water users to take ownership of and responsibility for operating water systems. In such cases markets in tradable water rights can also provide the right incentives for conservation.

- B. Water Allocation

With the pace of water development slowing and supplies no longer expanding in places, meeting new demands will increasingly require shifting water among the different users - irrigators, industries, cities, and the natural environment. In many parts of the world, such competition is already evident, and in most cases it is agriculture that will lose water - sometimes out of choice, and sometimes not. In fact small percentage reductions - in the order of 5-7% - of water use in irrigation would free up vast quantities of water for industry and municipal usage.

In the western United States, competition for scarce supplies has spawned an active market that is fostering transfers of water from farms to cities. If an irrigator can earn more by selling water to a nearby city than by spreading it on alfalfa, cotton, or wheat, transferring that water from farm to city use is economically beneficial. If it prevents the city from damming another river to increase its supplies, the transfer can also benefit the environment. In this way, marketing can be an effective means of reallocating a finite pool of water.

Farmers can free up supplies for sale in three ways:

- by irrigating more efficiently and selling the conserved water,
- by switching to less thirsty crops and selling the water they no longer need, or
- by taking land out of irrigation entirely and either producing dryland crops or retiring the land from agriculture.

Irrigators may also choose among several different types of transactions:

- they can sell their water rights directly, which permanently transfers control to the buyer,
- they can lease some or all of their water for an agreed-upon period, while keeping the rights, or
- they can swap supplies with another water user.

To the extent that agricultural supplies are freed up by increasing irrigation efficiency or by switching crops, land need not come out of production, however, agriculture could lose more water - and land - than is socially desirable, given the challenge that lies ahead of feeding a much larger world population.

In parts of Bangladesh, India, and Pakistan, water markets of groundwater have emerged as an effective way of distributing water. Often poorer villagers cannot afford the pumps and other machinery to extract underground water for their crops. But if they are able to buy supplies from wealthier farmers, they can still receive some of irrigation's benefits.

However, where electricity is subsidized and priced according to a flat fee geared to the horsepower of the pump, as is common in many areas, a farmer has an extra incentive to sell the water, since there is no real cost to the extra pumping. Although water marketing makes relatively inexpensive water available to poorer farmers, it also creates a strong inducement to overpump the resource, especially because tubewell owners often have de facto ownership rights to as much groundwater as they can extract. As a consequence, groundwater levels decline, resulting in drying up of the shallow wells forcing the poorer farmers to buy water from the tubewell owners, creating a downward spiral of social inequity and environmental degradation.

To serve the goals of efficiency, equity, and sustainable resource use simultaneously, water marketing would need to be accompanied by limits on groundwater pumping, the reduction of energy subsidies, and assurances that markets do not further concentrate water rights in the hands of the rich. Additionally, protecting the many other functions water performs that a marketplace does not adequately value such as habitat protection, species preservation, and aesthetic benefits - requires limiting the amount of water that cities, industries, and agriculture collectively claim.

- Concluding Remarks

Falling freely from the sky, water has deluded us into believing it is abundant, inexhaustible, and immune to harm. The challenge is now to put as much human ingenuity into learning to live in balance with water as we have put into controlling and manipulating it.

From an institutional and management point of view, establishing demand management as the future strategy of water development requires primarily:

- Raising awareness and building a strong commitment from civil society, governments, and the private sector we have to make protection of water ecosystems a central goal in all that we do.

Building on this commitment, the following instruments and approaches can be applied:

- an efficient regulatory and legal framework;
- appropriate water pricing practices; and
- increased emphasis on decentralization and small scale projects to enhance user participation will have to be put in place.

Box 1. Conserving water in cities

Mexico - Efficiency standards, pricing, and education

Faced with an enormous water shortage, the Mexican government and city officials are orchestrating an aggressive water conservation initiative. In 1989, the federal government took a bold step and adopted a strict set of nationwide efficiency standards for household plumbing fixtures and appliances. They require toilets—the biggest water guzzler in the home—to use no more than 6 liters (1.6 gallons) per flush, and they set maximum limits for showers, faucets, dishwashers, and washing machines as well.

Mexico City has launched an ambitious program to replace conventional toilets (using about 16 liters) with the 6-liter models in public places, commercial buildings, and private residences. By late 1991, more than 350,000 toilets had already been upgraded, which will save nearly 28 million cubic meters of water per year—enough to meet the household needs of more than 250,000 residents.

Officials hiked the city's water rates in 1990, encouraging residents to install the package of home water-saving devices made available and to be more thrifty overall.

And to bolster the whole effort, a large scale public information campaign—including educating schoolchildren and airing radio and television spots—is under way to raise awareness about the city's water plight and to let people know how they can conserve.

Indonesia - Pricing

Pricing was the main tool of a conservation strategy adopted by the water utility serving Bogor, Indonesia. With a proposed new water project estimated to cost twice as much per unit of water as existing supplies, the utility opted to try to reduce demand through more effective pricing. It tripled or quadrupled water prices, depending on the amount used, to encourage households to conserve. Between June 1988 and April 1989, average monthly residential water use dropped nearly 30 percent, which should allow the utility to connect more households to the urban water system at a lower cost.

Source: Sandra Postel, *Last Oasis: Facing water scarcity*, Worldwatch Institute, 1992

Singapore - Leak repair

Measures to curb wastage in the transmission and distribution systems in Singapore include inspection for leakage along pipeline routes for transmission mains of 700 mm diameter and above and implementation of a yearly leakage detection program for all distribution mains of 500 mm and below. The objective of the program is to check the soundness of the entire distribution network at least once a year. Leakage detection tests are carried out for the entire distribution network within eleven months, leaving one month to re-test the leak prone areas. Any leaks detected will be repaired immediately.

In 1991, 1,010 leaks were detected. Had the 1,010 leaks not been detected and repaired up to the end of the year, the total cumulative wastage could have amounted to 165,829 cubic meters per month.

Source: *Urban water resources management*, ESCAP Water Resources Series, No. 72, 1993

Box 2. Efficient irrigation

Israel - drip irrigation

Following its establishment as an independent nation in 1948, Israel faced the challenge of growing crops in a dry environment with extremely limited supplies of water that often contained high levels of salt. In response, Israeli researchers developed a new concept in agricultural water use known as drip irrigation—and they have been perfecting it ever since. Under this method, water is delivered through a network of porous or perforated piping, installed on or below the soil surface, directly to the crops' roots. This keeps evaporation and seepage losses extremely low. Because water is applied frequently at low doses, optimal moisture conditions are maintained for the crop, which boosts yields, and salt is prevented from accumulating in the root zone. Modern Israeli farmers often have highly automated drip systems, with computers and monitors sensing when and how much water to apply and determine the precise amount of nutrients to add.

Drip systems often achieve efficiencies in the range of 95 percent. Because it is relatively expensive, with the initial outlay typically running \$1,500-\$3,000 per hectare, drip irrigation is mostly used on higher valued fruit and vegetable crops, though more than 130,000 hectares of cotton, sugar, sweet corn, and other field crops are now watered by drip as well.

Texas - surge irrigation

Farmers in Texas are turning to a technique called "surge" irrigation, which can greatly improve traditional gravity methods. Instead of releasing water in a continuous stream down the field channels, irrigation under the surge method alternates between two rows at specific time intervals. The initial wetting somewhat seals the soil, allowing the next application to advance more quickly down the furrow. This surging effect reduces percolation losses at the head of the field and distributes water more uniformly, especially if the furrows are somewhat shortened.

Farmers who adapt their old-fashioned furrow system to the new surge technique have reduced their water use by 15-50 percent, while cutting their pumping cost at the same time. For those in Texas Plains, where savings have averaged 25 percent, the initial investment of about \$30 per hectare is typically recouped within the first year.

Texas - LEPA sprinkler irrigation

Between the 1989 and 1990 growing season, two farmers sold the conventional side-roll sprinkler that had been watering their alfalfa farm east of Lubbock, Texas, and bought a "low-energy precision application" (LEPA) system. In addition, they buried gypsum blocks in the soil to monitor soil moisture, which allowed them to irrigate only when their crops really needed it. The detailed records they kept for those two years showed that water use dropped by 47 percent, electricity use fell by 32 percent, while crop yield—owing mainly to better-timed irrigations—rose to nearly a third. As a result, their overall water productivity climbed 150 percent.

Adapting an existing sprinkler for LEPA costs Texas farmers in the range of \$60-\$160 per hectare, and the water, energy, and yield gains typically make it a cost-effective investment. The payback for such a retrofit is two to four years, while converting to a LEPA sprinkler from an entirely different system would typically have a payback period of three to seven years.

Source: Sandra Postel, *Last Oasis: Facing water scarcity*, Worldwatch Institute, 1992

Box 3. Industrial recycling

Massachusetts - drought

Spalding Sports Worldwide, a sporting goods manufacturer, has a Massachusetts plant that draws upon the Quabbin Reservoir, the main source of supply for the greater Boston area. When the region's brush with drought in 1988 and 1989 further squeezed an already tight water supply outlook, the company decided to take a hard look at its entire production process with an eye toward expanding the conservation efforts it had begun earlier in the decade. Through a number of measures—especially recycling the cooling water for its machinery—Spalding cut its water use from 1.5 billion cubic meters in 1989 to 64,000 cubic meters in 1992, a 96 percent drop in just three years.

California - regulations

As part of a city-wide conservation effort during the mid-eighties, industries in San Jose, California, made impressive progress in water conservation. A detailed look at 15 companies in the area—including several computer makers, a food processor, and a metal finisher—showed that by adopting a diverse set of conservation measures these firms collectively reduced their annual water use by 5.7 million cubic meters, enough to supply about 9,200 San Jose households. Water savings ranged from 27 to 90 percent, and in most cases, the payback period on the conservation investments was less than 12 months.

Besides the typical inducements of strict federal and state water quality regulations, Californian industries have faced the possibility of large cutbacks in water supply because of the ongoing drought. As a result, many are investing in water conservation well beyond what is financially justified at the present time as an insurance policy against future rationing, which could threaten production.

India - pricing and regulations

In the town of Goa, India, a fertilizer plant owned by Zoari Agro-Chemical Limited cut its water use by half over six years in response to high water prices and government pressure to reduce effluent discharges to the sea. The Goa plant now produces a ton of nutrients using only 40 percent as much water as a fertilizer plant at Kanpur in Uttar Pradesh.

Source: Sandra Postel, *Last Oasis: Facing water scarcity*, Worldwatch Institute, 1992

China - administrative and legislative measures

In Tianjin, China, economic, administrative and legislative measures resulted in a decrease of industrial water use from 360 cubic meters per 10,000 Yuan of gross production value in 1981 to 145 cubic meters in 1988, which represents a reduction of 60 percent of industrial water consumption per unit of industrial output value. In Beijing also, between 1978 and 1984, the decrease was from 880 cubic meters per 10,000 Yuan of production value to 335 cubic meters.

Source: *Water conservation and pollution control in Indian industries*, Water & Sanitation Currents, UNDP/World Bank Water and Sanitation Program, 1994

Box 4. Waste water reuse

Israel

Israel has the most ambitious wastewater reuse effort under way in the world today. Already, some 70 percent of the nation's sewage gets treated and reused to irrigate 19,000 hectares of agricultural land. With no new sources to tap, Israel plans to expand the use of reclaimed wastewater by the end of the decade. Virtually all of it will go to agriculture, which is projected to lose as much as 38 percent of its allocation of fresh water to spreading urban areas. If the nation meets its targets, reclaimed wastewater will supply more than 16 percent of Israel's water needs by the end of the nineties.

About half of Israel's reclaimed water comes from the greater Tel Aviv metropolitan area, where it undergoes treatment, is recharged to an underlying groundwater basin, is detained there for further treatment, and then is pumped back up and piped to farms in the western Negev desert.

Another strategy is the "agro-sanitary approach used in parts of the western Galilee. The key to this low-tech strategy is a series of ponds and reservoirs that biologically treat sewage and remove its harmful constituents, making it safe for watering crops that will not be eaten raw. Organic matter is reused so as not to overload the land, but a share is retained to add useful nutrients and other elements to the soil.

Typically, engineers achieve the required treatment through a sequence of physical, biological, and chemical processes that collectively can bring wastewater up to a very high quality. Depending on the size and type of operation, the advanced treatment needed to meet the strictest standards for reuse cost 15-42 cents per cubic meter (\$180-520 per acre foot), including conventional primary and secondary treatment.

Florida

St. Petersburg, Florida, is the only major US city to have closed its cycle completely by reusing all its wastewater and discharging none to surrounding lakes and streams. The city has two water distribution systems—one that delivers fresh water for drinking and most household uses, and another that distributes treated wastewater for irrigating parks, road medians, and residential lawns, and for other functions that do not require drinking water quality. For residents hooked up to the dual system, the reclaimed water costs only about 30 percent as much as the drinkable supply, and, because of the nutrients it contains, cuts down on their lawn fertilizer as well.

Source: Sandra Postel, *Last Oasis: Facing water scarcity*, Worldwatch Institute, 1992

author : Arienne C. Naber, Hydrogeologist UNDP-STAPSD
June 1995

3.4.2 Step-by-step Demand Management Strategy for Urban Areas

I. Water conservation

- A. Retrofitting to reduce flow in commercial and public buildings as well as at home
 - Reducing volume of flush in toilets
 - Installation of low-pressure flow regulators on taps, faucets and showers
- B. Efficient urban-related irrigation using drip, surge and low-pressure sprinkler techniques
 - Parks and gardens
 - Farmers within the city's jurisdiction or within a feasible distance from the city
- C. Industrial conservation
 - Reduction of flow rates
 - Switching from continuous to intermittent flows
 - Sequential reuse of process water or water of lower quality

II. Reducing unaccounted-for-water

- A. Reducing water thefts
- B. Reducing leaks

III. Water pricing and pollution control

- A. Comprehensive metering system and its routine repair and calibration
 - Industries-gradual installation starting with large users
 - Commercial and public buildings-Government and private offices, schools, army & police camps, etc.
 - Domestic metering following a prioritization of districts: 1) Rich, 2) middle-income, and 3) low-income groups
- B. Pricing
 - Progressive block rate-essential for successful achievement of objectives
 - Flat rate
- C. Pollution control
 - Enforced effluent charges promoting industrial in-house treatment and reuse

- IV. Minimizing unaccounted-for-water
- A. Complete loss inspection (including leaks and theft) and leak repair program
 - B. Complete billing and collection of fees, enforcement
- V. Institutional and management changes to promote demand management
- A. Institutional changes
 - Creation of department responsible for reducing unaccounted-for-water
 - Creation of department responsible for fee collection
 - Creation of unit responsible for promotion of retrofitting—use of private sector is highly recommended
 - B. Water transfers from farms to cities
 - Farmers can irrigate more efficiently and sell the conserved water
 - Farmers can switch to less water consuming crops and sell the water they no longer need
 - Farmers can take land out of irrigation entirely either by producing dryland crops or retiring the land from agriculture
 - Farmers can use treated effluent and sell water to the cities
- VI. Comprehensive demand management for urban areas, including reuse of effluents
- A. Waste water reuse options
 - Installation/completion of sewerage system
 - Full biological/conventional treatment of sewerage
 - Redistribution for second use on city parks and gardens, as well as farms
 - Installation of double water supply system (drinking water and sanitation)
 - Redistribution for sanitary reuse
 - Supply of treated effluents for use by the industry, industrial zones could install and operate their own sewage treatment plants
 - B. Setting appropriate standards for water fitting and appliances
To deal with local manufacturers and/or imports
 - C. Enlisting the private sector (contractors, management firms) to assist utilities in
 - Leak detection and repair
 - Retrofitting at households, offices and commercial buildings
 - Design of dryer water cycles in the industrial subsector

author: Saul Arlosoroff, UNDP Consultant
June 1995

3.4.3 Case Study: Revenue Enhancement, a Neglected Procedure of Public Waterworks

- Introduction

Demand Management: an Attained Objective

All waterworks in Malaysia have adopted a full regime of meter reading and billing, some of them as long as 50 years ago. As a result, per capita domestic consumption has been stabilized between 200 to 230 liters per capita per day (lcd). In contrast, some waterworks in neighboring countries that do not supply through meters would, if a full day's pressure could be maintained, return per capita consumptions in excess of 400 lcd.

Failure of the Malaysian Systems

Despite the above success in controlling demand, the process of reading meters, issuing bills and ensuring collections has been, comparatively speaking, neglected over the last 30 years. A 1987 national Non Revenue Water (NRW) study estimates NRW to vary between 40% to 50% in many States of Malaysia.

It is now argued that where losses over 40% occur, about half this percentage can be attributed to under-registration and under-billing compounded by low efficiencies of collection. The remaining half is due to theft or physical losses from Malaysia's decaying network of asbestos-cement pipes. A prioritized pipe replacement program, based on analysis of frequency of bursts and type of breakages, rather than a costly but inconclusive leak detection exercise is required.

Revenue Enhancement: an Immediate Objective

Revenue enhancement procedures, long-neglected in the post-independence period, must now be given priority. With annual growth rates (or a doubling of demand every 10 years), there has never been enough money available to pay for renewals and replacements - the emphasis being on new constructions. As a result, service has been poor and standards have spiralled downwards.

Revenue enhancement views water as a commodity, supplied at certain agreed standards of pressure, flow and quality. A successful service requires internal control: meter maintenance and audit of readings, externalities related to consumer satisfaction, consumer consumption profiles, and pricing policies to ensure the product is affordable. Inadequate internal processes can often be corrected with comparatively low expenditures, but with immediate and sometimes spectacular returns.

- Revenue Enhancement Processes

The Billing Process

Due to understaffing and obsolete machinery, reading and billing could not keep up with the growth of the economy and water demands. Posting of payments fell behind the issue of bills by 5 months or more. This made it nearly impossible to enforce payments, and collection

efficiencies dropped to below 80%. No analysis of billing statistics was possible: low reading efficiencies and poor control of meter readers resulted. Once computers were introduced collection efficiencies rose on a slow learning curve to above 95%.

Collection Procedures

In order to service their clients, some waterworks employed bill collectors who went to consumers premises. Apart from poor security, it was not possible to keep track of consumers who did not pay on first or second visits. It became impossible to tell whether a non-updated payment was due to non-collection or due to the collector not reporting payments on time. Such a dilemma was solved by the collector leaving a bill if no payments were made after the first visit. Subsequently it became the responsibility of the consumer to go to the waterworks branch office to pay his bill. Collection efficiencies of over 95% became possible. Computerized receipting machines and tight communication procedures followed by stringent enforcement further raised collection efficiencies.

Consumer Satisfaction

Enforcement procedures can become a cat and mouse game between consumers and meter disconnectors. In the end, the axiom that a satisfied customer is willing to pay holds true. For collection efficiencies above 95%, the service, both as regards to pressure and quality, must be impeccable. Capacity building, revenue enhancement and improvement of distribution systems has to be incorporated into an integrated plan.

The Need for Integrated and Competent Management

The practice so prevalent in Malaysia of privatization only involving the privatization of the treatment processes, followed by bulk sales to the water undertaking, without due regard to the overall business practices of the organization, is short-sighted. In fact, it is hard to see how privatization can bring the effects of improved efficiency to waterworks.

Analysis of Data

This has been shown necessary to transform a poorly controlled billing system into a viable system. Computers facilitate the storage and access invaluable information on, for example, types and sizes of meters, their date of installation or change, consumption per premises and ratio of industrial/commercial consumptions.

Lately there has been much talk that privatization by itself can lead to improved performances of waterworks. The immediate riposte to such claims is that many do not see how the replacement of a public monopoly by a private monopoly can lead to improved efficiencies. It has been agreed that some form of standardized performance parameters can be used to measure efficiencies, but not much progress has been made. The waterworks of Bangkok, Singapore and Penang have cooperated in this field and some performance parameters have been established to induce comparison, competition and mutual learning between water undertakings.

- Conclusions

It is agreed that long term planning and capacity building is necessary to keep up with demand of the burgeoning populations of Asian cities. However, after the consultants walk away, the waterworks must be run to achieve adequate returns on the investments. The only proper way to achieve this is to focus on the commercial aspects of waterworks, taking into account the whole gamut of processes from collection of water, treatment of water, distribution, billing collection and customer relations, inclusive of enforcement of payments.

author: Kam U Tee, Waterworks Management Consultant
edited by: Piet Klop, UNDP-STAPSD

3.5.1 Professional Associations

Within the International Water Supply Association, IWSA, there are a number of national professional associations. Where such national associations do not exist there are national committees of IWSA, perhaps being the forerunner of the formation of a full professional association.

Within many of the full national associations there are also national committees for IWSA dealing specifically with IWSA work as some of the full national associations are very large, e.g. American Water Works Association (55,000 members).

In addition, there are countries where no associations or committees exist as the one water supply undertaking is representative of the whole country. Formation of an association or committee would be useful in these countries to involve research associations, consultants, manufacturers and universities, as has been done in Ghana.

- Regional Organizations

In addition to national professional associations, there are several regional associations, e.g.

North American Region representing Canada, USA and part of Mexico

AIDIS representing countries in South America

Caribbean Water & Waste Association

ASPAC representing the 13 member countries of IWSA in the Pacific region

ASCEN representing 7 countries in Central Asia

UADE representing 23 countries in Africa

- National Professional Associations

Argentina	Asociacion Argentina de Ingenieria Sanitaria y Ciencias del Ambiente
Australia	Australian Water & Wastewater Association
Austria	Österreichische Vereinigung für das Gas und Wasserfach
Bangladesh	Bangladesh Water Supply Association
Belgium	ANSEAU-NAVEWA
Brazil	Associação Brasileira de Engenharia Sanitaria e Ambiental
Canada	Canadian Water & Wastewater Association
China PR	China Water Supply Association
Denmark	Danish Water Supply Association
Finland	The Association of Finnish Water & Wastewater Works
Germany	Deutscher Verein des Gas und Wasserfaches
India	Indian Water Works Association
Indonesia	Indonesian Water Supply Association
Israel	Israel Municipal Water Works Administration
Italy	F.N.A.M.G.A.V.
Japan	Japan Water Works Association
Lithuania	Lithuania Water Suppliers Association
Luxembourg	Association Luxembourgeoise des Services d'Eau
Malaysia	Malaysian Water Association

Netherlands	V.E.W.I.N.
New Zealand	NZ Water & Wastes Association
Philippines	Philippine Water Works Association
South Korea	Korea Water Works Association
Spain	Asociación Espanola de Abastecimientos de Agua y Saneamiento
Sweden	Swedish Water & Wastewater Works Association
Switzerland	Schweiz. Verein des Gas und Wasserfaches
Taiwan	Chinese Taiwan Water Works Association
Thailand	Thai Waterworks Association
USA	American Water Works Association

- National Committees of IWSA

Cyprus	Cyprus National Committee of IWSA
Czech Republic	Czech Republic National Committee of IWSA
France	Comité Français de l'AIDE
Ghana	Ghana National Committee of IWSA
Great Britain	British Committee of IWSA
Hungary	Hungarian National Committee of IWSA
Ireland	Irish National Committee of IWSA
Norway	Norwegian National Committee of IWSA
Poland	Polish National Committee of IWSA (information)
Portugal	Portuguese National Committee of IWSA
Romania	Romanian National Committee of IWSA
Slovakia	Slovakian National Committee of IWSA
South Africa	South African National Committee of IWSA
Sri Lanka	Sri Lanka National Committee of IWSA

- Countries with One Water Supply Undertaking

Benin
Cameroon
Gabon
Gibraltar
Hong Kong
Ivory Coast
Lesotho
Macao
Mauritius
Morocco
Nepal
Senegal
Seychelles
Togo
Trinidad
Tunisia
Uganda
Zaire

author: Len Bays, Secretary General IWSA
June 1994

3.5.2 Case Study: ProNet Ghana

- ProNet

ProNet, a non-governmental organization indigenous to the Republic of Ghana, has been active in the water and sanitation sector for several years. Funding comes from WaterAid, a UK-based charity with a specific interest in water, sanitation and hygiene education in the developing world.

ProNet was formed out of the need for an organization with the expertise, experience and resources to meet national and potentially regional demands in the water and sanitation sector. Its core staff provide services to seven WaterAid-sponsored projects in 13 districts in the Eastern, Upper East and Ashanti Regions of Ghana. There are five departments within the organization: Technical Support, Training and Enterprise Development, Health Education and Sanitation, Information Management and Administration.

The Information Management Department is the most active in formal networking. It comprises three units namely Publication, Research and Networking. Research results go back into the sector through the Publication unit, conferences and routine project meetings. We forward replies as letters and publications arrive from readers and participating organizations. Amendment to the address data base is routine. Thus the Network is constantly expanding.

- ProNet and Networking

ProNet's networking takes place on various levels. Nearly all its activities are formal. ProNet organizes an annual conference to bring together all sector professionals in Ghana. We publish two quarterly newsletters and a sector activity data base annually. At regional level ProNet is not involved in any specific activity. At the district level routine workshops are organized which seek to obtain the views from both direct implementing agencies and local government policy makers. The partners that implement WaterAid funded projects meet quarterly to discuss key issues.

ProNet does not organize community level networking but local partners do by bringing together water and sanitation committee members and village health volunteers for training.

- Activities

ProNet did not set out with the intention of creating a network. It went through a process of identifying activities that would encourage sector efficiency and address the main issues within the sector. All the activities we attribute to networking arose without the clear vision of being part of a networking process. ProNet participates in three levels of networking.

Originally, the main focus of ProNet's networking activities was to hold routine meetings and encourage communication between the various organizations funded by WaterAid in Ghana. Although this was a limited network and started with three small organizations, it offered a peer group support mechanism.

Through its work with the organizations that WaterAid funds, ProNet became involved in training and in health education materials development. This necessitated their becoming involved in a wider networking process. ProNet started to talk to other training and health oriented organizations to receive and give information. Initially this was quite informal, but now Ghana has a training and materials development forum brought together by the Ghana Water and Sewerage Corporation. Although ProNet did not initiate this process, it certainly is essential.

ProNet built a data base of sector activities in collaboration with the Canadian International Development Agency and the Government of Ghana. This is currently being done for the third time. The report is distributed not only to the contributing organizations but to other interested parties as well. Bringing in the data base at the national conferences Ghana now has a national forum and information exchange process within the rural water sector. This contributes greatly to sector capacity strengthening, information sharing and of course consensus building.

- Resource Centers

ProNet houses a resource center within its office buildings in Accra. Apart from being a library of standard texts and project documents it holds slides, videos and graphics. The resource center manager coordinates the research activities ProNet organises in conjunction with the University of Ghana and the National Service Scheme. ProNet undertakes to provide research topics for up to 5 undergraduates per year. The research findings are published and distributed to appropriate organizations and if thought interesting enough summarized in the publications.

ProNet is attempting to decentralize the functions of the resource centers to the district level. This will require considerable resources but should improve accessibility and further strengthen the network.

- Resourcing

ProNet is totally dependent on WaterAid for the funding of its networking activities. There is no formal recognition of these activities because they are not related to direct water, health and sanitation outputs. The total costs of operating and equipping the resource center, publications, conferences and data base are approximately US\$ 80,000. We consider it necessary to isolate the costs of networking and give it appropriate budget line recognition as a legitimate contribution to sector strengthening.

Staffing is by graduates drawn mostly from the departments of geography and social science. The staff are in constant need of training particularly in the areas of information management, data capture, research methodology and resource center management.

An estimated US\$ 150,000 is required to finance seven district-based resource centers to feed the national network. Market surveys and business analyses conducted in preparation for this seem to indicate that commercialization is only likely to cover part of the running costs and would hardly cover depreciation of initial investment. There are possibilities for cost sharing within the sector if coordination could be improved.

- **Conclusions**

Some conclusions can be drawn from the networking process described above:

- Information flow must be consistent to build confidence.
- Publications must be balanced presenting both diverging and converging ideas.
- A network is built as a function of time rather than created on the spur of the moment.
- Networking encourages to meet and to write, which reduces the risk of duplication of effort.
- A functioning network creates an environment for collaboration between government, NGOs and communities.
- Specific activities and fora encourage sharing of training and health education materials, improving sector efficiency.
- Routine networking builds a national movement and encourages an environment for consensus building.
- The various levels of networking build a forum or avenue for contribution to national policy. By dint of the process, policy recommendations are based on experiences from the field. In many ways this has created a structured learning process.
- Networking creates opportunities not only for policy contribution but also for advocacy work based on the demands of a wider constituency.
- Networking is an expensive and time consuming business that increases indirect costs with very little possibility for quantifiable justification for continuous financing. Often, funding agencies claim to encourage the process, but are reluctant paying for it.
- Resource centers as repositories for information are critical to the strengthening of the national rural water and sanitation network.
- A networking organization can become confused with either an umbrella or coordinating body. We perceive a networking organization to be one that stimulates the sharing of information without imposing its individual view.
- Policy contribution and advocacy have become fashionable (and through the networking process attainable), yet some caution is necessary. As ProNet runs few direct implementation activities, its constituency is 'second-hand' (i.e. based on the constituency of participating organizations).
- Professional publications are useful but it is difficult to motivate institutions or individuals to participate in the writing of interesting articles. Some investment in journalists would increase the efficiency of this part of the process.
- Networking can help achieve standardization in both the technical and social aspects of rural water delivery.

author: Ron Bannerman, Operations Manager ProNet
edited by: Piet Klop, UNDP-STAPSD

3.5.3 Discussion Paper on Electronic Networking

- Introduction

According to the second part of its Terms of Reference, the Working Group on Institutional and Management Options (IMO) would

"review the desirability and feasibility of creating a global network facilitating exchange of ideas, experience and expertise among institutions and sector professionals. Existing networks will be examined in the process."

At its first seminar in Louveciennes in 1994, the Working Group concluded that networking could best be conducted through professional associations, possibly involving electronic communications. Computer networks complement and support professional associations by allowing cheap, real-time or near real-time information exchange - such as messages, publications, data, etc. - between individuals and institutions around the globe.

This paper discusses the potential of computer networks for information sharing, thereby focusing on a true global network: the Internet.

- Background

Originally designed to enhance information exchange within the research and academic communities, the Internet is a collection of computer networks connected by dedicated servers, or 'hosts', that route information over the Net using a set of rules called the Transmission Control Protocol/Internet Protocol (TCP/IP). Dedicated servers are located at universities, research institutes, government agencies, non-profit organizations, commercial enterprises and commercial Internet Service Providers (ISPs). All users with some form of access to these servers, either through Local Area Networks (LANs) at the workplace or through a computer modem and a telephone line at home, have access to Internet resources. Depending on the ISP, different services and tools are available, ranging from basic e-mail facilities to integrated graphics-based information managers such as the World Wide Web.

Most Internet services discussed below can be accessed by e-mail. This is an important feature as Internet connections of most developing countries are limited to basic e-mail services, see figure 1.

- Information Resources

The following is a short description of utilities and services, designed to access, search and retrieve digital information on the Internet. Internet services (Telnet, FTP, Archie, Gopher, Usenet, WWW) are 'client/server' applications: Through the 'client' software installed on the user's computer the applications on an Internet 'server' can be accessed.

1. Telnet

The Telnet application enables a user to log in to remote computer systems on the Internet. A Telnet login session requires a user to enter the Internet Protocol (IP) number, or domain

name identifying a remote system. Once the connection is made, all the applications running on the remote machine are available, e.g. library card catalogs and other kinds of databases.

2. FTP

Through the File Transfer Protocol (FTP) service files can be retrieved from (or copied to) remote systems. Like Telnet, FTP requires a user to enter the system's IP. A user without an account on the FTP site can log in under 'anonymous' to retrieve those files available to external users through anonymous FTP. To find a file on the selected system, FTP allows the user to browse around.

3. Archie

To locate a file anywhere on the Internet, it is useful to use the Archie service. Archie uses FTP commands to get directory listings of all the files on hundreds of anonymous FTP sites around the world. It then puts these file listings into a database and provides a simple interface for searching it.

4. Gopher

Gopher is a text-only, menu-based information browser. Numerous sites on the Internet run the host Gopher software. When connected to a Gopher site, the user can search databases, read text files, transfer files and generally navigate around the collection of Gopher sites. Gopher provides automated access to Telnet, FTP and Archie services.

5. Mailing Lists

E-mail based discussion lists, or mailing lists, support group communication on the Internet by providing two basic functions: i) the ability to distribute a message to all subscribers to the list by sending it to a single 'listname address', and ii) the ability to quietly join and leave the list at any time by sending a message to the list's 'administrative address'. To exert some control over the content of the messages, some lists are moderated by a postmaster. Rather than automatically retransmitting, the postmaster screens a message before distribution to the list.

There are at least five popular mail server programs used to manage Internet discussion lists: Listserv, Listproc, Mailbase, Mailserv, and Majordomo.

6. Usenet

Usenet was developed to facilitate discussion groups, called newsgroups. It requires a full Internet connection and a software package implementing the Network News Transfer Protocol (NNTP). NNTP software is an integral part of most UNIX versions and most DOS and Macintosh Internet access software packages, so typically there is no additional software to purchase.

Usenet newsgroup names lead off with an identifier that describes the type of newsgroup. The second part of the newsgroup name identifies the major subject area. Most subjects have further subgroups dedicated to more specific aspects of the general topic (e.g. rec.music.jazz).

Some newsgroups do not allow postings without the article being vetted by a postmaster. Such groups are called moderated newsgroups.

7. World Wide Web

The World Wide Web (WWW) is based on the concept of hypertext. Hypertext documents or Web pages are written in HyperText Markup Language (HTML) and contain active links to other Web pages as well as other Internet services such as Telnet, FTP, Gopher and Usenet. Web pages can also contain text, sound clips and images, making the Web a full-fledged multimedia system.

A Web browser provides an interface to the Internet, requesting network resources and displaying them on the user's terminal. Sharing information on the Web in the form of a Web page or a Telnet, FTP, Gopher or Usenet site requires access to a Web server running the HyperText Transfer Protocol (HTTP) software.

All resources linked to the Web have a unique address called the Universal Resource Locator (URL), e.g. *http://website/directory/webpage*. In a hyperlink URL used to link FTP, Telnet and Gopher sites to the Web, "http" is substituted by the application name, e.g. *ftp://ftpsite/directory/file*. Its power, ease of use and attractiveness has made the World Wide Web by far the most popular Internet service. As a result the Web is expanding rapidly.

- Internet Access by E-mail

If a user has only access to basic e-mail, it is still possible to access FTP, Archie, Gopher, Usenet and WWW services through so called e-mail gateways. Dedicated mailserver applications provide the interface between e-mail based systems and the different Internet services that would otherwise require a full Internet connection. As yet, no mailserver applications exist for Telnet.

To use Internet services by e-mail, a simple message of the form:

```
ftpmail@server,  
gophermail@server,  
archie@server,  
agora@server (for WWW)
```

can be sent to one of the mailservers for each of the services. Two other ways of requesting files via electronic mail are specialized mailservers and listserv mailservers. However, these mail servers give only access to a specific set of files at one location.

- Existing Networks Related to WSS and Development

To illustrate the potential of computer networks for information sharing between institutions and professionals, some current initiatives in the area of WSS and development are discussed below.

1. GARNET

Initiated by the WSSCC, the Global Applied Research Network in Water Supply and Sanitation (GARNET) in collaboration with the Water, Engineering and Development Centre (WEDC) is developing a site on the World Wide Web. This Web page primarily provides information about WEDC, including education and training opportunities; research and consultancy areas; specialist areas of WEDC activities as well as WEDC publications. Pointers to other Web sites are currently under development.

GARNET's URL is <http://info.lut.ac.uk/departments/cv/wedc/index.html>

2. INDIX

The International Network for Development Information eXchange (INDIX) is a coalition of development aid organizations, whose activities are coordinated by the International Development Research Centre (IDRC), Ottawa, Canada.

Among other activities in the area of development information sharing, INDIX has developed a Web page providing links to the major Internet sites related to international development. The Web page organizes the available information by international agency, geographic region, and subject. To access INDIX type

*http://indix.idrc.ca, or
gopher indix.idrc.ca, or
telnet indix.idrc.ca*

3. UWIN

The Universities Council on Water Resources maintains an expertise directory called the Universities Water Information Network (UWIN). The objective of UWIN is to serve as a clearinghouse for water resources information and to facilitate networking among the water resources community. Current services include:

- Expert directory - a listing of the research specialties of faculties and professionals in water resources fields
- USGS WRSIC database - a directory of abstracts of water resources research since 1967
- NIWR directory - an information base containing the National Institutes for Water Resources publications directory and water resources information for the public directory.

UWIN is set up as an information gopher server. To access UWIN type *gopher gopher.c-wr.siu.edu*.

4. SDNP

The Sustainable Development Network Programme (SDNP) is a UNDP supported information network on sustainable development. SDNP supports communities and local, regional and

national governments in developing their network's capacity to plan for sustainable development, thereby closely collaborating with UNDP's Capacity 21 programme. UNDP maintains a Gopher server through which all SDNP documents can be obtained. To retrieve a list of available documents, the SDNP mailserver can be accessed by sending e-mail to maiser@ff121.undp.org with the command *SEND INDEX.TXT*

Files can be retrieved by anonymous FTP to [ftp FF121.undp.org](ftp://FF121.undp.org).

The SDNP secretariat can also be contacted by sending an e-mail message to gopher.undp.org.

5. APC Networks

The Association for Progressive Communications (APC) connects member networks dedicated to providing low-cost computer communications services for individuals and organizations working on social and environmental issues. All APC members are independent organizations. Member networks pay a fee to the APC secretariat to diversify the growth of the Association. To contact the APC secretariat send an e-mail message to apcadmin@apc.org.

6. Infoterra

Infoterra is a UNEP supported network of environmental organizations around the world known as national focal points that respond to information requests on environmental problems and issues. Member of the APC network, Infoterra provides the following services:

- mailing list;
- database of international experts;
- thesaurus of environmental terms;
- listing of national focal points.

The URL is <gopher://pan.cedar.univie.ac.apc>.

7. Bibliographic Reference Systems

Bibliographical information on water can be found and accessed through Telnet in a large number of specialized databases on water, such as Water Resources Abstracts, Waternet, FLUIDEX, AFEE, Waterlit. Also in multi-disciplinary databases like Compendex, NTIS, Pascal, or Chemical Abstracts, or in specialized databases on the environment like Environmental Bibliography, Enviroline, Pollution Abstracts.

There are directories of databases available which can be of use to locate the different servers, e.g.:

- CD-ROM Directory 1994. Omnigraphics Inc. ISBN 0-685-73066-2. Also available as CD-ROM
- Marcaccio, K.Y. (Ed) 1992. *Gale Directory of Databases 1993*. London, Gale. ISBN 0-8103-5746-1

8. Water Resources Discussion Lists

There is an array of electronic discussion lists available on the Internet that are primarily concerned with topics related to water resources. To obtain a list of all known Listserv lists, send the command *LISTS GLOBAL*. To search for Listserv lists with a given keyword or character string in the description, send the command *LISTS GLOBAL [keyword]*, e.g. *LISTS GLOBAL WATER*.

Interesting for the sanitation subsector are for example SEWR-LIST, managed by Listproc, and SWMM-USERS, managed by Listserv. To retrieve these lists type

LISTPROC@MCFEELEY.CC.UTEXAS.EDU (Mailserver)
SEWR-LIST@MCFEELEY.CC.UTEXAS.EDU (Listname) and
LISTSERV@UOGUELPH.CA (Mailserver)
SWMM-USERS@UOGUELPH.CA (Listname)

• Some Concluding Remarks and Recommendations

Although the potential for information sharing using computer networks is enormous, especially in view of the ever expanding Internet, it should be noted that 1) online information on water supply and sanitation in relation to international development is still limited; and 2) the information gap with the developing world is increasing.

To address the former, three implementation steps are suggested:

1. Development of a Web page: WurlD (Water: universal resources linked to Development)
 - inventory of links to on-line information resources in the area of water supply, sanitation and development, such as Telnet servers, FTP sites, Gopher sites, World Wide Web pages, bulletin boards, mailing lists, newsgroups;
 - inventory of existing and new initiatives on the Internet;
 - selection of the Web server site (WSSCC Secretariat, IRC, WEDC?);
 - Web page for water supply, sanitation and development
2. Extending on-line services via the WurlD page
 - identification of digital information resources to be made available on-line;
 - feasibility study: analysis of hardware, software and maintenance requirements; review of cost-recovery options for specific services;
 - formulation and implementation of operational strategy.
3. Promoting access of developing countries to on-line information
 - identifying 'national information centers';
 - promoting the use of FTP, Gopher and Web mailservers;
 - feasibility study for development of a Telnet/e-mail 'pseudo' robot service;
 - enhanced access to on-line information through semi-automated form requests.

With regard to enhancing access of developing countries to on-line information, the different levels of Internet connectivity have to be taken into account. In countries with very few connections, the focus should be on providing national water supply and sanitation information centers - for instance a university or NGO - with at least an e-mail gateway. Via form requests these centres could then act as information relay offices to and from the Internet.

In countries with appreciable Internet connectivity through e-mail, enhanced access to databases could be improved by either the development of a Telnet/e-mail 'pseudo' robot service, or the promotion of semi-automated form requests to be processed by the institution maintaining the Telnet server. Responses could be returned by e-mail. In addition, CD-ROM forms a valuable tool for information sharing for libraries and documentation and research centers in less developed countries.

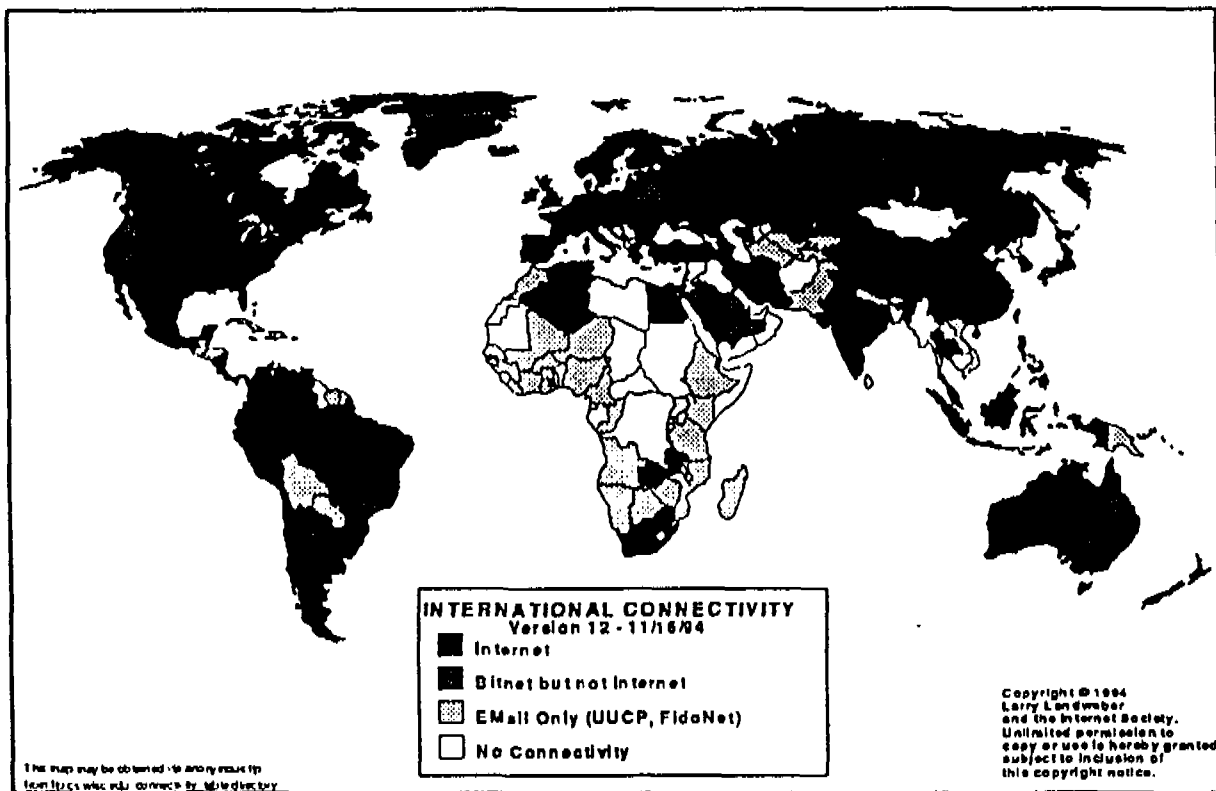


Figure 1. Global Internet connectivity

author: Arienne Naber, Hydrogeologist UNDP-STAPSD
July 1995

4. General Findings and Recommendations to Council

● General Findings

This report defines **five categories** of institutional and management options in providing water supply and sanitation services:

- (A) Public ownership and operation by enterprise or department;
- (B) Public ownership with operation contracted to the private sector;
- (C) Private ownership and operation with regulation;
- (D) Public ownership with operation delegated to communities;
- (E) Community ownership and operation.

Key in all these options is the **decentralization** of responsibilities and means to the 'lowest appropriate level', where we either find autonomous government agencies, regulated private companies or empowered communities. The process requires a broad consensus and high-level political support and is best gradually implemented. Governments that decide to grant effective autonomy to decentralized public agencies or to prepare for private sector participation would start commercializing water supply and sanitation services.

The private and community options require a similar 'enabling environment' of effective legal frameworks, capital markets and financial institutions (credit and money deposit facilities), and non-interference in the commercial management of operations. It is a public responsibility to create such an environment and provide the right incentives for the efficient management and sustainable use of water resources.

For the successful delegation of tasks, the **capacity** of autonomous public agencies, regulating offices, and community organizations to run water supply and sanitation services needs to be strengthened.

The apparent urge to engage the private sector in water supply and sanitation services meets reservations. A strong, but not necessarily heavy-handed **regulatory mechanism** is required to safeguard the continuity, equity and quality of water supply and sanitation services.

Knowledge of the value of assets, consumers' willingness to pay, unaccounted-for-water and other system statistics is essential in raising private sector interest, inducing competition and facilitating regulation.

Demand management alternatives are to be included in the appraisal of water and sanitation investment projects. Implementation of a step-by-step strategy should lead to substantial water savings, allowing for the extension of water supplies at lower costs.

Professional associations and resource centers provide the **basic infrastructure for networking** among water sector professionals. Current information technology, the Internet in particular, can facilitate information access and intensify information exchange at comparatively low cost.

The present overview and analysis of various institutional arrangements and management procedures, illustrated by case studies, will be most useful to those who weigh the various options with their prerequisites, implications and complications. The present report can also be used as a general reference.

- Recommendations

The Working Group opened a much-appreciated exchange of experiences among professionals with interests ranging from private sector-operated utilities to community-managed water supply and sanitation. That dialogue should continue.

Inevitably, given the extent of the subject, the Working Group could not do justice to several important topics such as 'enabling' sector policies and strategies, human resources development and other management issues, incentives for private investments in rural and peri-urban services, and sanitation. The thrust of future deliberations on how to arrive at higher coverage and higher financial and (water) resource efficiencies, it is felt, should be on the incentives, rules and norms under the various options. The Working Group recommends that the Council considers to what extent discussions on these topics can be furthered by existing Working Groups. It also agreed that future discussions on water demand management warrant a dedicated working group.

In this connection, it is proposed to define urban, peri-urban and rural water services as piped or point source water supplies, a technical distinction that makes more sense with regard to institutional management options.

While information exchange is an implicit task of all working groups, it is the Council's Secretariat that should facilitate electronic networking (Internet). This could involve maintaining a database of Council members, initiating and supporting newsgroups and mailing lists, creating a homepage on the World Wide Web (with links to relevant Internet sites), and supporting the set-up of FTP, Telnet, Gopher and Web servers in organizations active in the area of water supply, sanitation and development.

- Conclusion

The Working Group certainly contributed to a better understanding of institutional and management issues. Specifically, it produced a body of case studies, from which it derived a consistent categorization of institutional and management options and their key elements. The resulting matrix, together with two diagrams depicting the progressive stages in private sector and community participation, are expected to facilitate the decision-making process for increased and improved water supply and sanitation services.

Annex I Case Study Abstracts

Option A Public ownership and operation by enterprise or department

A.1 The Achievements of a Public Enterprise: EMOS S.A. Santiago, by Mrs. Raquel Alfaro

Concessions for operation of water supply and sanitation are awarded to public or private companies. A regulatory body sets standards and tariffs. The government subsidizes lower incomes. The public company for Santiago is productive and efficient thanks to sound institutional framework and integrated management policies (incl. water conservation).

A.2 Urban Water Supply Sector in Morocco, Institutional Development and Management Autonomy, by Mr. Abdelali Filali Baba

Administrative reform yielded a National Office for Drinking Water (ONEP) and High Water Council. By a contract program the State is disengaging, gradually reducing subsidies to a more autonomous ONEP. Tariffs are set among all concerned parties, enabling ONEP to increase its revenues.

A.3 Water Sector Institutional and Management Options, Ghana's Experience, by Mr. E.K.Y. Dovlo

The public Ghana Water and Sewerage Corporation restructured to become more demand-responsive by delegating responsibilities to more autonomous districts, according to specific guidelines, procedures, authority limits. Rural water supply and sanitation strategy includes community ownership and management. Private sector is involved where appropriate.

A.4 Polish Water Supply and Sewage Disposal Companies - Their Organization and Ownership Transformations, by Prof. Marek Roman

Water supply and sanitation companies are now owned by local authorities. However, legal vacuum hampers transformations. Two arrangements dominate: local authority budget-founded services and one-person partnership of local authority funds. Local authorities tend to adhere to public ownership and management.

A.5 Organization des Systèmes de Gestion de l'Eau Potable en Algérie, by Mr. Benblidia

Regional and local public water supply enterprises have been created and are overseen by a single national ministry. Heavy investments improved water supply situation. Efficiency would require more capacity building and public participation. Present reforms facilitate private sector involvement.

A.6 Plan Directeur de Développement du Secteur Eau et Assainissement 1991-2010, Zaire, by Mr. Tshiongo Tshibinkubula wa Tumba

Rigorous planning and active coordination by the government (who remains the partner of donor agencies). Need for regulatory framework and rationalization before privatization. After privatization failed, Regideso (urban water supply agency) became a public agency again. Present masterplan opts for maximum decentralization. Political and social turbulence, and the current financial crisis hardly make for an enabling environment.

A.7 Innovation and Management of Water, Sanitation and Environmental Problems in Urban Areas -

an Integrated Flood Control, Water and Park Policy - the Case of Curitiba, Brazil, by Mr. Jonas Rabinovitch

Water and sanitation and drainage interventions are to be integrated in environmental policies to facilitate creative cross-sectoral solutions.

- A.8 Institutional Strengthening: Hyderabad Metropolitan Water Supply and Sewerage Project, India, by Mr. V. Lakshmi pathy

Water Supply and Sanitation Service was transformed into an autonomous Board. A thorough analysis of human resources and managerial needs was carried out. Managerial reforms included: job profiles, personnel performance evaluation, formal training. Staff was involved throughout. Reforms were agreed upon by consensus.

- A.9 Institutional Arrangements in Water Supply and Sanitation in Brazil, by Prof. Alex Abiko

Water supply and sanitation used to be organized by limited number of states (24), rather than municipalities (2400). Good results were obtained under centralized management. Current decentralization proves difficult due to the financial crisis, huge social discrepancies and technical as well as political disagreements.

- A.10 Water Sector Restructuring Study, Jordan, by Mr. Nabil Sweis

Administrative reform: merging water supply and irrigation authorities.

- A.11 Chile's Regulatory Reform, from Conference on Water and Sanitation Utilities, Brussels, 1992

A clear and effective regulatory framework and a commercial approach to sector operations accounts for Santiago's high quality and efficient water supply and sewerage services. The government separated operational and regulatory functions, established a consistent rate policy, replaced cross-subsidies with direct subsidies to poor consumers and created tradable property rights for water. Private sector participation is limited to service contracts. BOT and BOO arrangements are considered to attract sector financing.

- A.12 New York: Giuliani to Offer Plan for Selling Water System, from *The New York Times*, 25 April 1995

For efficiency purposes and immediate cash, Mayor Giuliani proposed selling the entire water system - reservoirs, pipes and sewers - to the City's Water Board, a quasi-independent city agency which presently rents it. Thus, water rates would be used only the water system, not the general city coffers.

- A.13 Umgeni, South Africa: Interdependence in the Provision of Rural and Urban Services, from *Report of the UNICEF-Coordinated UN Inter-agency WES Mission to South Africa*, 30 October - 10 November 1994

The Umgeni Water Board demonstrates that services can be provided to rural and peri-urban areas within one catchment in a cost-effective manner. Upstream pollution and erosion justified expansion of water and sanitation services to rural areas. Affluent suburban districts cross-subsidize the capital investment required. Operations and maintenance costs are fully recovered.

A.14 Water Supply and Sanitation in Rural Areas in Mexico, by Ms. Lilian Saade

With the proper overall legal and institutional frameworks in place, the chief difficulty now is to overcome poor people's reluctance to pay monthly water fees.

A.15 Rural Water Supply and Sanitation in Zimbabwe, by Mr. A.C. Mpamhanga

The thrust of the devolution of responsibilities and authority has been on institutional development in the public sector, notably the regional development centers. Different agencies work closely together. High rates of inflation affect service delivery.

A.16 Waste water management in the Netherlands, by Mr. Ger Ardon

Water management is a fragmented responsibility: water companies supply drinking water, municipalities run the sewage systems, while water boards take care of waste water treatment. A single organization, with provinces and municipalities holding shares, would be preferable.

A.17 Water Pollution Control in Québec, by Mr. Raymond Auger

The Société Québécoise d'Assainissement des Eaux finances and manages up the 850 municipal waste water treatment projects. As a public corporation it is the sole intermediary between the government of Québec and the municipalities. It subcontracts much of its work (studies, construction) to private firms. Its low-interest debts are paid by the Province (85%) and municipalities (15%). Advantages: various economies of scale, cost and quality control, expertise and information flows, solid financial status.

Option B Public ownership with operation contracted to the private sector

B.1 Mise en Place d'un Cadre Juridique de la Gestion du Service Public de l'Eau Potable (et de l'Energie Electrique) au Gabon, by Mr. François Ombanda

In a simplified judicial framework, the public/private (64/36) concessionaire deals with fewer responsible authorities.

B.2 Lessons from Buenos Aires and Caracas, from Conference on Water and Sanitation Utilities, Brussels, 1992

The factors that made private sector participation a success in Buenos Aires and a failure in Caracas are: consensus among interested parties regarding the model of private sector participation and related legal instruments; active political support in marketing the arrangement; participation of (independent) multilateral agencies; adequacy of revenue levels and tariffs prior to the concession; assessment and alleviation of (exchange rate) risks.

B.3 Guinea and Côte d'Ivoire: Two West African Cases, from Conference on Water and Sanitation Utilities, Brussels, 1992

The Guinea case demonstrates both the flexibility of the operational contract and the importance of well-designed regulatory frameworks. A private operator assumed all technical and commercial risks, the public sector retained responsibility for investment, and exchange rate risks were shared.

Cote d'Ivoire has progressed into more intensive forms of private sector participation. Incentives are provided to investment planners to ensure commercial viability of no investments.

B.4 Privatized Solid Waste Management in Dar es Salaam, Tanzania, from UNDP-Habitat-World Bank Urban Management Programme

A private contractor collects refuse charges, a proportion of which reverts to the municipality as landfill fees. The city council plays a major role in monitoring the performance of the contractor so as to maintain an adequate standard of service.

B.5 Private Sector Participation in the Water and Wastewater Industry in Trinidad and Tobago, by Mr. Lester Forde

Against the backdrop of public under-investment and under pressure from the country's structural adjustment program, the private sector was invited to participate in the Water and Sewerage Authority. To allow for an accurate assessment of the value of the assets, it will be decided after a three to five year period of private management, whether the Authority will be completely divested. The contract does not allow cutting staff within two years.

Option C Private ownership and operation with regulator

C.1 The English Experience of Water Privatization, by Mr. David Ehrhardt

Total privatization requires a developed capital market. It has made possible much higher levels of investment. Prices have risen sharply, while profits are high and shares have soared. Affordability has become an issue. So far, there is not much evidence of efficiency gains, but the quality of services has improved. Centralized regulatory system is fragmented and complicated.

Option D Public ownership with operation delegated to communities

D.1 Rural Water Supply and Sanitation Project in Lumbini Zone, Nepal, by Mr. Han Heynen

In line with trends in society, government retired to a decentralized, demand-driven strategy. Water supply and sanitation are now planned at district level. Gradual evolution of a community-based approach. Central department may be charged with water resources management (to be separated from project implementation).

D.2 Buguta/Makwasinyi Community Water and Sanitation Project, Kenya, by Mrs. Ilse Marks

NGO acts as intermediary between rural communities and government. Special attention was given to the development of a community management and local financing mechanism. 'Water kiosk' attendants only serve those who can prove payment of membership fee.

D.3 Khaliqabad, Pakistan: Conflict Resolution in a Community Based Rural Water Supply Scheme, from *Aab Newsletter*, March 1994

Communitarianism of risk (i.e. the cost of not resolving intra-village conflicts and its repercussions on water supply) led to realistic cooperation where strictly required. Separate groups have hired

their own operators to minimize chances of further conflict.

- D.4 Community Training in Togo, from *Community Management of Rural water Supply and Sanitation Services*, UNDP-World Bank Water and Sanitation Program, 1990

Long lead time and substantive resources (some 25% of project budget) were given to community development and training activities for all project participants. Development committees were established, with specific committees for women. Yet, over a period of seven years, 600,000 people gained access to potable water.

- D.5 Community Participation in Malawi, from *Community Management of Rural water Supply and Sanitation Services*, UNDP-World Bank Water and Sanitation Program, 1990

Community leaders are elected (rather than appointed). Construction committees are converted in maintenance organizations with tap committees, repair teams and system caretakers. The organization raises funds, organizes self-help labor and communicates with the concerned government ministries and local administration. An extensive training program also provides for refresher courses.

- D.6 The Role of the Standpost in the Distribution of Drinking Water in Morocco, by Mr. Abdelali Filali Baba

The National Office for Drinking Water (ONEP) requires communities or their water associations to appoint a standpost keeper-manager. People now have to pay for their water (considerately priced by the state distributor), for the keeper's salary and the maintenance costs involved.

Option E Community ownership and operation

- E.1 Community Water Management in Yemen, by Mr. Piet Klop

Creating an enabling environment meant facilitating 'tribal water management'. This required integration of people's short term needs with their long term problems.

- E.2 *Projet d'Appui aux Villages Dotés de Points d'Eau Modernes: Animation et Sensibilisation à l'Assainissement autour du Point d'Eau, Hygiène et Utilisation Rationnelle de l'Eau*, Mali, by Mrs. Assa Soumare

Improving rural water supply and sanitation by standardization of hardware, 'after-sales' service, vocational training, establishment water management committees, health information and education. Provision of money deposit facilities.

- E.3 Quelques Notes sur la Présentation du Père Verspieren, Mali

In rural water supply, hardware may be given to communities, but operation shall be trusted to individual(s), under a community-accepted arrangement.

- E.4 Kitui-Pumwani, Nairobi: Water and Sanitation Project, from Habitat International Coalition

NGO prodded illegal slum community to form and register self-help groups and helped negotiate for municipal water supply. For nine years now, the slum never defaulted on its water bill. Water is sold at 'kiosks' at deliberately inflated prices. The so generated community income

allowed for diversification in profitable community investments, creating employment opportunities. 'Social enforcement' of payments and participation in community projects.

E.5 Case of a Slum in Baroda, from UNDP-World Bank Water and Sanitation Program - South Asia

Coalition of (international) charity, local government, industry and academics set up a **Community Savings and Loan Association**, which is graduating from individual loans to financing community infrastructure.

E.6 People's Participation in Improving Sanitation - A Case of Kanpur Slums, from UNDP-World Bank Water and Sanitation Program - South Asia

The Kanpur Slum Dwellers Federation, supported by the National Slum Dwellers Federation and a renowned women's organization, organized study visits and mobilized 'illegal' slum communities to assess and prioritize their demands. A community toilet appeared to be the most pressing need people were willing to contribute to. Slum residents pay a monthly fee, while outsiders pay-and-use. Sitting near a commercial area, the toilet facility turned out to be profitable. The income is deposited in the bank and used to improve this and other community facilities.

E.7 Rural Sanitation in Lesotho, from *Rural Sanitation in Lesotho - From Pilot Project to National Program*, UNDP-World Bank Water and Sanitation Program, 1990

Users are required to contribute the full cost of latrine improvements, yet construction rates are high. Long-lasting and intense organizational activity generated the sanitation demand needed. 'Hard' and 'soft' ministries collaborate closely. Privately supplied and financed markets for latrines have been created.

E.8 Philippines: Promoting Demand for Sanitation, from *Community Management of Rural water Supply and Sanitation Services*, UNDP-World Bank Water and Sanitation Program, 1990

Sanitation demand was generated through the existing primary health-care delivery system, community volunteers, personal associations. The project provided toilet bowls free of charge once a latrine was successfully constructed. Department of Health field staff received a 25-30% salary incentive.

E.9 United States: Community Management without Direct Participation, from *Community Management of Rural water Supply and Sanitation Services*, UNDP-World Bank Water and Sanitation Program, 1990

The government makes available loan and grants, communities initiate and implement rural water supply systems. There is no safety net for failing water users' associations (which are legal entities). A national network of associations offers technical advisory, referral and training services. Overall community involvement in the activities of the association is minimal, except at times of crises.

E.10 Community Management of Rural Water Supplies: Lessons from Developing Countries from a Western Canadian Experience, from *Water International* 18 (1993)

Farmer groups conceive their plans with interdisciplinary Farm Water Grant Program staff. Along the lines of rural natural gas and electrification associations, water associations were formed as legal entities to receive the grant. Farmers would pay 25% of the construction cost,

which sets the level of service. Planning and implementation were directly linked. Economically secure, educated, well-informed farmers were adamant in assuming ownership and responsibility.

E.11 Community Ownership: the Murugi Mugumango Water Supply Project, Kenya, from UNDP-World Bank Water and Sanitation Program - East Africa

The Murugi Mugumango Water Society runs its water project along commercial lines. It has a well-developed set of rules and guidelines. Starting capital was raised among its pioneer members. Late-joining members pay more in fees, among others to make up for non-performed community labor. All water users are metered and billed against a progressive tariff. Failing to pay within 14 days results in disconnection and a fairly hefty reconnection fee. Some flexibility is applied though.

E.12 Picapiedra, Peru: Sustainable Water Supply and Sanitation Services in Peru, Two Case Studies, by Ms. Anna Zucchetti

An enabling environment has been created with clearly defined roles and responsibilities for the public and private sectors and user communities. With external financing, an NGO helped to construct a water system. Water fees are included in electricity bills. Failure to pay results in having one's electricity cut off. Fees people are prepared to pay, however, merely cover the caretaker's salary. Only when emergencies arise are people prepared to contribute to maintenance (repair).

Water Demand Management

DM.1 Revenue Enhancement, a Neglected Procedure of Public Waterworks, Malaysia, by Mr. Kam U Tee

Revenues can be enhanced by management reforms, ie. disciplined meter reading and billing, revenue collection and recording. Rural water supply: water company sells a metered volume of water at subsidized rate to village cooperative that in turn sells to its constituents at fixed prices. Peri-urban water supply may benefit from interest-free loans. Good service is a prerequisite for commercial management as there is a close relation between capacity building and revenue enhancement. Data collection induces comparison and competition between water companies.

DM.2 Case Study - Israel, by Mr. Saul Arlosoroff

By water law, individual water rights were abolished, water is owned by public sector, which established a pricing and allocation system. Institutional setup, research, training, extension geared at principal objective: water conservation. All water use is metered, a progressive tariff structure is in place (also in irrigation).

abstracts by Piet Klop, UNDP-STAPSD

The IMO Working Group coordinator can provide copies of the complete case studies to those who are interested.

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The following Working Group members participated in the first seminar in Louveciennes (31 May - 2 June 1994) or the second seminar in Montreal (5 - 7 June 1995), or both.

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Working Group on Institutional and Management Options

report of the first seminar

held from May 31 to June 2, 1994

in Louveciennes, France

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1. SUMMARY

During its 1993 meeting, the Water Supply and Sanitation Collaborative Council called for a working group on Institutional and Management Options in improving water supply and sanitation system efficiencies.

At its first meeting in Louveciennes, France, 14 participants from developing countries, 15 from external support agencies and 9 from water companies, extensively discussed public-private partnerships (as exemplified by the French and English experiences).

It was concluded that the adoption and acceptance of an appropriate water policy and regulatory framework (constituting an 'enabling environment') is fundamental to involving the private sector in water supply and sanitation services.

Different policies and regulatory conditions and a variety of alternative institutional and managerial options were presented by 18 case studies from developing countries.

It was noted that public water authorities are not necessarily inefficient and that the private sector is not always interested have the appetite nor has the capacity to engage itself in the provision of basic services. In a number of cases, community-based arrangements are appropriate under the circumstances prevailing.

The working group will consider these and other case studies, by focusing on key elements of the enabling environment, the institutional arrangements and the human resources and managerial situation. Specific attention will be paid to water demand management as well. It will present case studies and lessons learned to the next meeting of the Collaborative Council (planned in the fall of 1995), as well as recommendations on networking among sector professionals.

2. PROCEEDINGS, CONCLUSIONS AND ARRANGEMENTS

2.1 Introduction

This working group focuses on institutional and management options for expanding water supply and sanitation services and making them more efficient by drawing lessons from different case studies and considering possibilities to intensify communication among sector professionals. Enough is known on what to do. The challenge is now how to do it.

As to institutional development, the government should promote rather than provide services. Various forms of decentralization are to be considered. However, the government will remain responsible for creating an enabling environment, including water policies, legal and regulatory frameworks, quality control, standards, stimulation of research, and mobilization of resources.

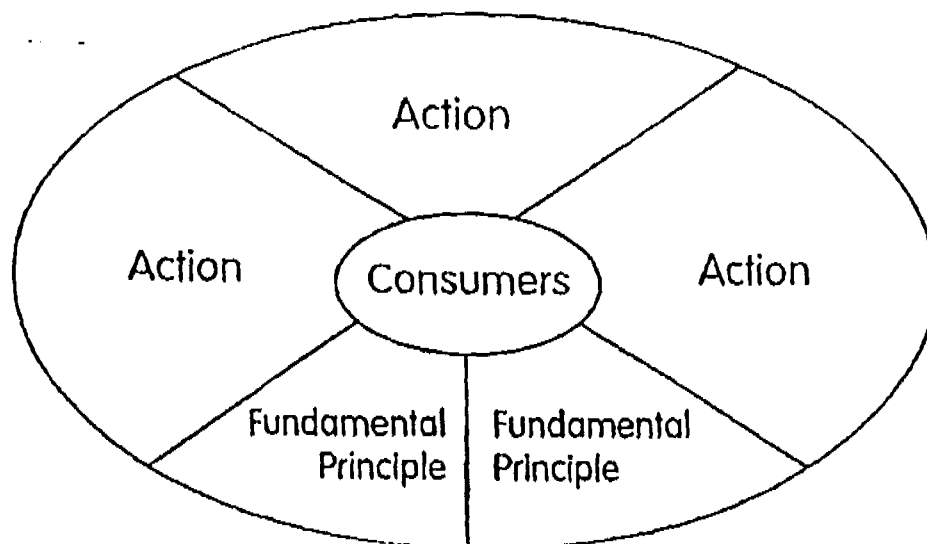
Human resources development is much more than increasing the competence of staff. It involves improvement of employment practices and career structures, and professional and financial incentives.

The 1991 symposium 'A Strategy for Water Sector Capacity Building' in Delft, The Netherlands, articulated capacity building as:

- the creation of an enabling environment with appropriate policy and legal frameworks
- institutional development, including stakeholder participation
- human resources development and the strengthening of managerial systems

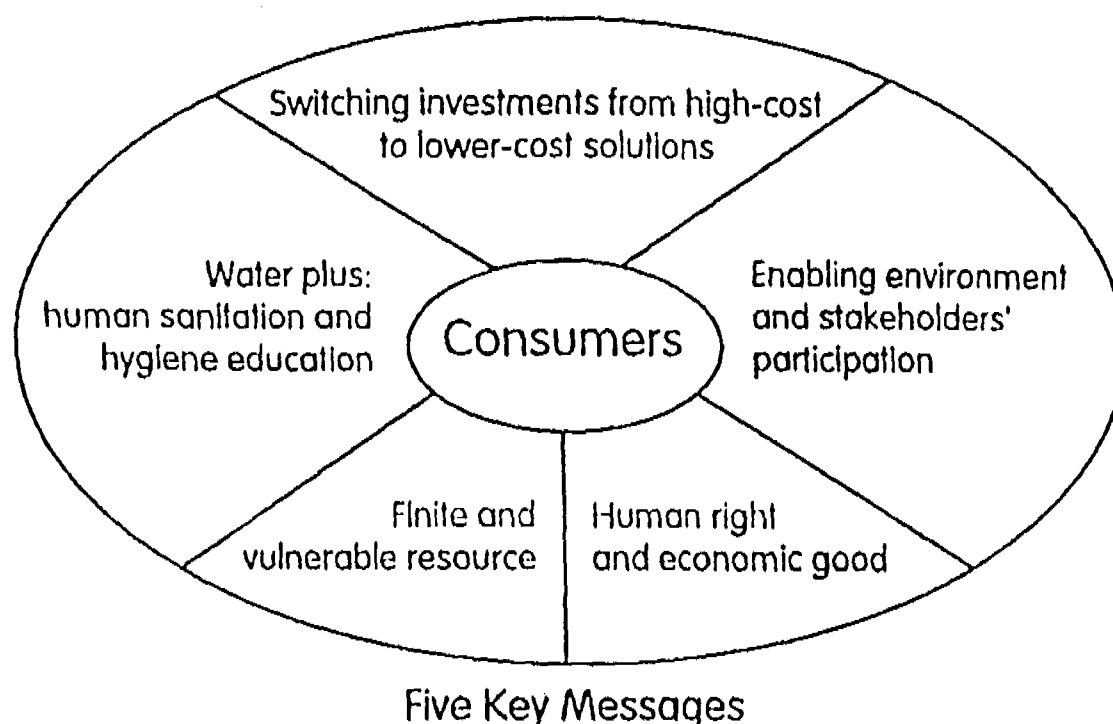
Figure 1 shows the all-importance of the consumers of water supply and sanitation services.

Water and environmental sanitation



Accordingly, the two fundamental principles and the 3 actions are presented in figure 2 below.

Water: protection of health and the environment, poverty alleviation and sustainable development



by Mr. Frank Hartvelt, working group coordinator

2.2 Seminar Objectives and Process

In September 1993 the Board of the World Bank approved the water resources management policy paper and requested Bank staff to come up with strategies for implementation. The Rabat meeting of the Collaborative Council decided to create a working group on Institutional and Management Options in expanding more efficient water supply and sanitation services (specific reference was made to demand management options).

In February 1994, UNDP, World Bank and the French Syndicat Professionnel des Distributeurs d'Eau agreed to organise a seminar which would especially feature the French and English models of delegated, respectively privatised water resources management and water supply. Participants from developing countries would present their experiences. Another objective would be the discussion of a network of through sector professionals could propose water management models and share experiences.

The seminar was held at the training center of the Banque National de Paris in Louveciennes. The help of Mr. Pebereau, Chairman of the board of BNP in arranging the splendid facilities was gratefully acknowledged.

The seminar opened with a tour of Louis XIV's water supply service to Versailles and of the Louveciennes treatment plant. The first plenary session was opened by the UNDP, World Bank, WHO and the Collaborative Council. This was followed by a short facilitated discussion of expectations for the meeting. Mr. Coulomb, Président du Syndicat Professionnel des Distributeurs d'Eau and host, then officially opened the seminar.

Presentations on the French and English models of water management followed lunch. A panel discussion contrasted the differences and similarities of the models. Participants then broke into four small groups to discuss the case studies which had been prepared for the seminar. Each group discussed 4 or 5 of the eighteen prepared cases. In the day's final plenary participants discussed, in small groups, the lessons learned from the cases and developed a list of lessons.

Participants remained in two facilitated plenary sessions during day two. In the opening plenary, they discussed cases to be studied during the next year. This caused a debate over the purpose of and expectations for the seminar. Some participants felt that more discussion was needed on the French experience. During the session, the French water companies and River Basin Authorities were asked if they would like to contribute more to the discussion. Also, those from the developing countries who had experience with the French companies were also asked to share some of their experiences. Participants agreed to the French proposal to produce a reader of 15 case studies. Several participants noted that the 18 cases prepared for the meeting needed a common theme to be useful. Participants agreed to revise, in light of the discussion and guidance discussed, the 18 cases.

The final plenary focused on future communications and networks. There was considerable agreement on the need for better information exchange and for matching capabilities and skills. The general sense was to look to building on existing networks and to other cases, such as AWRA, as models. Several participants felt that networks should start at the National then move to the Regional and International.

After lunch a voluntary small group discussion was held to clarify next steps. The group affirmed the French case study reader and that the draft will be ready by Spring 1995. The seminar organizers agreed to provide some suggestions for revisions to those who prepared cases. As next steps for building a network, the organizers agreed to look at an inventory of associations, other cases such as AWRA and possibly do a few case studies of successful networks. The next meeting was set for mid-March 1995.

by Mr. Jerry Delli Priscoli, facilitator

2.3 Focus of the Working Group

Realizing that governments and external support agencies will fall short in financing the necessary expansion of water supply and sanitation services, it was argued that the focus should be on appropriate ways to involve the private sector. The French and English experiences would serve as useful examples, the dissemination of which would be facilitated by a network among sector professionals.

Others did not regard public-private partnerships as an objective in itself. Also, the mandate given by the Rabat meeting of the Collaborative Council presents involvement of the private sector as merely one of a whole spectrum of institutional and management options to be considered in striving towards more efficient water supply and sanitation services. Large utilities as well as community-based services have useful lessons to share. The mandate also called for special attention to water demand management, an issue that may justify a dedicated subgroup.

Besides investigating which institutional and management options worked, which did not and why, working group members suggested to include in its deliberations strategies for reaching out to policy makers and water user groups. It was also suggested to link up with other Collaborative Council working groups, notably those on Operation and Maintenance and Gender Issues.

2.4 Highlights of the Discussions

The presentations and case studies have been included in Section 5.

Although alternative institutional arrangements were presented, most discussions (in plenary as well as in working group sessions) tended to concentrate on the appropriateness of private sector involvement.

2.4.1 On Public-Private Partnerships

There is a continuum of various public-private partnerships, which differ in the degree of financial and managerial involvement of the private sector as well as in the length of period for which the rights are conferred. Total privatization then is but one form of delegated management (it implies the transfer of ownership of installations and equipment) and, in relation to the basic need of drinking water, may not be the most feasible for politicians. (Confusingly, the term 'privatization' is often, though incorrectly, employed in connection with other types of delegated management where ownership remains with the government.) There obviously are no blueprints and no model partnerships that can be adopted. A well-defined legal environment, however, is imperative in any case.

Turning a service aimed at continuity into a company aimed at efficiency may have serious managerial implications: managers and staff need to be re-trained, re-employed (encouraged to 'go private'), paid to quit or laid off. French water supply and sanitation services have been through this process. Privatization in England, on the other hand, did not bring about dramatic organizational changes.

Social implications of the price increases that come with profit-oriented services are another

issue. In England, there is no data yet on failures to pay or disconnections. Water is not metered but paid for in advance. There are no special provisions for people having difficulty paying their water bills. In general, while the government may decide to subsidize water and sanitation for the poor, it seems advisable not to allow welfare considerations to interfere with the commercial management of services.

The public-private partnership in England (and Wales) did not evolve the way it did in France. Corporations were rather hastily privatized, without much public involvement. In France, on the other hand, consumers and politics have been engaged in the process of establishing a public-private partnership throughout. The local system of checks and balances between the mayor, the company and the consumers-alias-voters seems to be working better than the centralized but fragmented regulation in England (where the independence of regulators is a concern). In developing countries, however, water and sanitation may have become too politicized.

The government of France reverted to its principal role and created a truly enabling environment: adequate legal frameworks, autonomous river basin organizations with the democratic mechanisms between all players at that level, a broad consensus among politicians on the nature of the public-private partnership, and a large degree of trust between the concession partners.

Governments gain from involving the private sector because they can avoid or reduce future expenditures in water supply and sanitation. England grossly underpriced its assets, generously waived all debts and discovered that the sale by itself did not yield big profits. The other argument relates to the quality of the service, which is reckoned to improve in a public-private partnership. Financing of pollution control programs from revenues generated by the private sector may be another consideration.

Do the French and English experiences actually apply to many developing countries with lots of poor people and few connections? Companies do not have the incentive to connect the poor and are not likely to take the risk of investing in water supply and sanitation. Here the principal role of governments surfaces: creation of an enabling environment of appropriate policies and adequate legal and regulatory frameworks. It is suggested that external support agencies could assist in sharing the risks involved.

In addition, many developing countries find that the private sector itself is not yet prepared to engage in water supply and sanitation. It does not have the capacity yet to run these services on a commercial basis.

2.4.2 On Decentralization in General

Decentralization and other institutional reforms should be gradually implemented, allowing for pragmatic adjustments to changing conditions and true participation by all stakeholders.

The concept of river basin management and the establishment of river basin organizations is probably fundamental to the decentralization of water supply and sanitation services.

Successful community participation requires that long-term problems as well as short-term needs be addressed. It also requires careful balancing of the means allocated to the

improvement of water supply and sanitation services and the absorptive managerial capacity.

Where central governments are ineffective and water policies non-existent, water supply and sanitation may be decentralized to quasi-autonomous local communities, clans or tribes.

2.4.3 On Other Institutional and Management Issues

In the 'competition by information', data are fundamental to any performance evaluation, to efficient management and to effective advocacy.

Reaching out to policy makers, the sector should try to come up with solutions, not problems.

2.4.4 On Networks

There is no doubt about the desirability of networks: decentralization will bring along more partners in water supply and sanitation and hence a greater need to exchange ideas, facilitate joint action, etc. Networks can certainly become vehicles for the propagation of successful institutional and managerial arrangements.

It is important to start from what already exists. Since networking could best be conducted through professional associations, their establishment and strengthening, first at the national level, would be the way to go. Only then regional and global networks can be formed (the UADE is a case in point). The suggestion is made that examples of successful networks will be collected and presented to national professional associations. Strengthening these associations may also include electronic communications, which have an enormous potential to facilitate and intensify the exchange of information.

Water sector professionals could be encouraged to participate in cross-sector associations and networks, while the networks dedicated to 'water' should reach out to the political level.

2.5 Agreements

A book is being prepared by Mr. Lorrain et al. that will include some 15 in-depth case studies on public-private partnerships in water and sanitation, in France and abroad. Participants expressed their interest in the approach he advocated. The book will be published under the auspices of the Collaborative Council as one of the products of the IMO working group.

Mr. Lorrain will circulate a first draft of the book among working group members by October 1994. It will be presented at the 'water seminar' of the World Bank at the end of this year. Next meeting of the Working Group (early spring 1995) will be asked to adopt the book, which will be published (in French) shortly thereafter. The World Bank has offered its help in translating and publishing of a version in English. A Spanish version shall be ready before the end of 1995 too.

While the book of Mr. Lorrain will focus on private sector involvement, additional case studies may discuss other options to increase the efficiency of water supply and sanitation services. In order to arrive at a coherent and helpful document, their focus would have to be narrowed to a few selected key themes. The respective authors will be asked to re-organize and supplement their case studies (if possible).

There is a wealth of relevant case studies available: on peri-urban issues from Solidarité Eau (presented at the conference in Sophia Antipolis) and on operation and maintenance from the O&M working group. The significant progress in coverage and efficiency made in Chile, Malaysia and Brazil (Curitiba) justifies closer investigation: are there any common elements of success? WHD

Messrs. Bays and Klop will make an inventory of national professional associations already existing in the water supply and sanitation sector. UNDP is assigned a lead role in this.

It seems appropriate to let the next meeting of the working group coincide with the publication of Mr. Lorrain's book, ie. March 1995. At its second meeting, the working group will decide what it is going to present to the Council in November next year.

3. FOLLOW-UP

- In view of the pivotal importance of the discussion on institutional and management options, all coordinators of other working groups of the Water Supply and Sanitation Collaborative Council have been put on the mailing list.
- UNICEF, the UNDP/World Bank Water Supply and Sanitation Programme, the UNDP/UNHCS/World Bank Urban Management Programme and UNDDSMS have been approached for case studies, while other sources are being considered.
- O&M working group members will be asked to look at their case studies from the IMO perspective.
- Some of the case studies that were presented in Louveciennes have been modified.
- Water demand management and water conservation issues will be pursued by the coordinator in fall 1994.
- Another effort will be made to promote the establishment and strengthening of national professional organizations in ongoing or future water programs.

4. PRESENTATIONS AND CASE STUDIES

4.1 Sur la Dimension Internationale des Services Urbains

by Mr. Dominique Lorrain, CNRS Fondation des Villes

* De la Comparaison des Contrats

Ce que l'on désigne du terme général de privatisation recouvre en fait des situations très différentes. Ces différences tiennent moins à l'origine nationale des contrats - contrats français, anglais, ou américain, qu'à la solution apportée au problème du partage des responsabilités entre la puissance publique et l'entreprise privée.

Deux critères jouent un rôle essentiel et permettent de classer les formes de contrat sur un axe qui part du tout public pour s'achever au tout privé. Le premier tient à l'importance de l'engagement financier de l'exploitant. Le second concerne la durée des droits qui sont accordés à l'entreprise par la puissance publique. Cette combinaison permet alors de distinguer trois grandes situations contractuelles.

- *La délégation limitée* recouvre dans les pays anglo-saxons les contrats operating and maintenance, le delegated management, le contracting-out et en France le marché d'exploitation, la régie intéressée ou la gérance. La puissance publique accorde des droits à court terme à l'entreprise - de 18 mois à 3 ans - qui travaille selon un cahier des charges précis; elle ne mobilise pas d'actifs importants, ne prend pas de risques.
- A la *délégation partielle*, correspondent les formules de l'affermage et de la concession en France, du lease et du BOT au Royaume-Uni et aux Etats-unis. La puissance publique délègue des éléments plus conséquents du service public. L'entreprise travaille sur des durées entre 7 et 25 ans. Elle investit, prend des risques, a une liberté d'action. Mais la puissance publique reste propriétaire du patrimoine qui lui revient de droit en fin de contrat. L'entreprise exploite *pour le compte de*. Le contrat dont elle dispose ne lui accorde que des droits temporaires.
- A la *délégation totale* correspond la privatisation par vente des actifs comme cela a pu se faire en Grande-Bretagne pour la distribution d'eau ou d'électricité. Dans ce cas, la puissance publique transfère la propriété du patrimoine à une entreprise privée et celle-ci acquiert des droits quasi-perpétuels.

Les formes graduelles de recours à l'entreprise privée

privé				Privatisation BOT, BOOM Concession
			Lease Affermage	
		Contracting-out Régie intéressée Gérance		
	Marche d'exploitation Delegated management Operating & maintenance			
public				
droits accordés	Droits à court terme	Droits à moyen & long terme		Droits perpétuels
	Délégation limitée Type 1	Délégation partielle Type 2		Délégation totale Type 3

Cette distinction permet de clarifier quelques éléments de comparaison internationale:

- a) Les différences entre un droit anglo-saxon et un droit français ne sont pas fondamentales même si des modalités d'application les distinguent. A chaque situation contractuelle correspond dans un cas comme dans l'autre des contrats appropriés. Chaque pays a produit un continuum de solutions juridiques. Les véritables différences se situent plutôt entre les trois grandes familles et dans l'usage qui en est fait. Pour ce qui concerne l'exploitation des services d'eau les pratiques américains relèvent de la famille 1 -O&M, delegated management-, les pratiques françaises sont clairement du type 2 -concession et affermage- et la voie anglaise relève de la configuration 3 -privatisation totale.
- b) Les gouvernants qui veulent faire appel au savoir-faire privé peuvent faire des choix graduels et ne se trouvent pas devant l'alternative brutale de la gestion publique ou de la privatisation totale. Ils peuvent faire l'apprentissage du partenariat par des contrats de délégation limitée.
- c) Cette présentation a des conséquences importantes quant aux formes de régulation. L'implication de la puissance publique est très différente d'un type à l'autre. Dans le cas de délégation limitée elle conserve en définitive une large maîtrise des opérations puisqu'elle reste propriétaire des actifs, qu'elle encaisse directement les recettes du service public et qu'elle signe des contrats à court terme. Les formes de contrôle qui devraient en découler devraient donc être légères et largement inscrites dans le contrat. Inversement, la privatisation totale qui s'apparente à un transfert de nombreux attributs de la puissance publique appelle une régulation précise car l'entreprise reçoit des droits perpétuels. Les formules de type concession, affermage, BOT qui se situent entre ces deux types, devraient donc être traitées par d'autres modalités de régulation.

On comprend alors que le mélange d'une régulation importée d'une formule de délégation totale avec un contrat de délégation partielle conduit à une altération des règles du jeu. Avant de choisir des modalités de régulation il faut pouvoir établir dans quel type de contrat on se trouve. Une délégation "totale" a pour symétrique une régulation "dure" car la puissance publique se place dans un schéma dans lequel elle abandonne beaucoup.

- d) Le positionnement dans une famille ou une autre a des conséquences sur ce qui peut être attendu de l'entreprise privée. Son comportement sera forcément différent selon l'horizon temporel dans lequel elle travaille. Avec des contrats à long terme, l'entreprise a intérêt et la possibilité de faire des investissements de production qui diminuent ses coûts d'exploitation. Les contrats de concession ou d'affermage incitent plutôt les entreprises à automatiser (capteurs, automates), tandis que les contrats de type O&M les conduisent plutôt à adopter des solutions plus classiques. Autrement dit, dans un partenariat la mobilisation d'un acteur dépend aussi de la liberté d'action qui lui est laissée et du temps dont il dispose.
- e) Ce positionnement a des conséquences quant aux formes de partenariat entre les entreprises. On peut établir un parallèle entre cette relation à la puissance publique et l'association avec une autre entreprise. Au type 1 devrait correspondre des partenariats souples, multiples permettant des apprentissages, tandis que le type 2 devrait entraîner des formes plus stables de coopération.

De la Transférabilité des Modèles

L'examen de ce qui se passe dans les nouveaux pays industriels ou l'observation des solutions mises au point dans les pays développés, fait ressortir qu'il ne suffit pas de transférer des contrats pour que "ça marche". Les relations contractuelles entre l'entreprise et la puissance publique doivent s'apprécier dans un environnement réglementaire global, trop souvent méconnu. L'action collective n'est possible qu'à la condition de s'appuyer sur des règles d'action stabilisées. Si ces règles restent mal définies, ou si elles changent trop souvent, alors il ne peut y avoir action. Pour privatiser il ne suffit pas d'organiser un appel d'offre international et de vendre des morceaux d'entreprise publique. Il faut aussi organiser les conditions socio-politiques, préalables à l'action. Par exemple:

- De quelle légitimité disposent les élus locaux?
- A-t-on une définition précise du domaine public (ce qui permet tout de même d'engager des travaux sur des parcelles dont la propriété ne peut être contestée).
- Quelles sont les règles locales qui touchent aux questions financières. Modalités de règlement des conflits d'intérêts, techniques bancaires.

Quelques problèmes de transférabilité:

1. Le choix de l'entreprise. La tradition française est celle de *l'intuitus personae*. Elle se fonde sur quelques principes i) libre choix des élus, ii) durée de la relation contractuelle, iii) absence d'un grand nombre d'entreprises pour un tel type de contrat. Actuellement, les techniques utilisées dans divers nouveaux pays industriels -appel à concurrence, présélection tendent plutôt à organiser le choix comme s'il s'agissait d'un marché public ou d'un *public procurement*. Ce qui pose plusieurs problèmes:

- On ne choisit pas un partenaire de la même manière selon qu'il s'agit de l'achat d'un équipement ou d'une relation de service établie sur quinze ans.
- Si la puissance publique fait appel à l'entreprise c'est qu'elle lui reconnaît des compétences. Or le système du *public procurement* encadre l'entreprise dans une définition du problème et dans des esquisses de solutions. Ce faisant, la collectivité publique se prive d'autres solutions que l'entreprise pourrait proposer.

Par conséquent, dans les contrats de type BOT, concession, une liberté de solution doit être laissée à l'entreprise dès le stade de la première réponse. Dans les nouveaux pays industriels il faut mettre au point des procédures de choix qui se situent entre *l'intuitus personae*, si celui-ci n'est pas totalement applicable-, et le *public procurement*.

2. La gestion du contrat. Dans un type de contrat à court terme il semble logique et possible de mentionner dans le contrat lui-même, la grande majorité des problèmes envisageables. Sur des durées plus longues le pouvoir de prédiction des contractants s'affaiblit. Dans ce cas, si le contrat ne peut tout prévoir sa rédaction détaillée devient moins impérative, tandis qu'il devient important de prévoir des mécanismes qui permettent de le faire vivre. A nouveau, le facteur temps représente une variable essentielle. On se trouve ici dans un cas de figure assez bien illustré par *les figures de l'obus et du missile* en balistique. Dans le premier cas la trajectoire doit être soigneusement calculée; dans le second cas le vecteur comprend de l'intelligence embarquée et les acteurs peuvent agir en temps réel.
3. Qui régule? Le modèle français de service urbain ne comprend pas de régulateur formel de type Ofwat ou PUC et pourtant il est régulé. Nous en avons exposé les trois grands mécanismes en un autre texte¹: régulation par le marché, régulation politique, régulation par la réputation. Le point important qui touche aux recommandations d'architectures institutionnelles tient à la place du politique. Si l'autorité responsable du service public est par ailleurs élue par les usagers du service public, alors les usagers/électeurs exercent un contrôle sur le politique/autorité organisatrice qui exerce un contrôle sur l'opérateur. Le système a une tendance naturelle à s'autoréguler à partir de l'appréciation que les usagers/électeurs font de la qualité du service. L'efficacité du dispositif -légèreté, absence de dérive technocratique- rejoint les objectifs de démocratie locale. Pour que cela soit possible il faut que plusieurs conditions soient réunies: i) que les élus locaux aient une forte légitimité, ii) que le périmètre d'organisation du service public corresponde à celui de la vie politique locale; si un service est organisé dans un cadre national ou régional il a peu de chance d'impliquer fortement le maire.

D. Lorrain, Les services urbains, le marché et le politique, in L'expérience Française du financement privé des équipements publics. Paris. Economica, 1993. Sur ce point voir p29-33.

4.2 The English Experience of Water Privatisation

by Mr. David Ehrhardt, London Economics

1. Introduction

Privatising the water industry in England and Wales was an unprecedented step. Its successes and its failures offer important lessons for other countries. This paper outlines:

- the structure and history of the industry
- the reasons for privatisation
- the regulatory system which governs the industry.

It sums up the results of the privatisation, and the messages for other countries from the English experience.

2. Structure and History

When people talk about the privatised water industry most have in mind the 10 big Water and Sewerage Companies (WASCs). Those are shown in Figure 1.

Thames, Severn Trent, North West and Anglian Water are the largest of the ten. Thames's turnover is around £1 billion, for example. South West, Wossox and Northumbrian Water are much smaller.

The WASCs differ in the strategies they have pursued since privatisation, and in the problems they face. Southwest Water, for example, has had the steepest price increases in the country, driven by its need to finance new sewerage treatment facilities for the many scattered coastal communities it serves. Southern Water faces water scarcity. The population it serves has grown, while rainfall in its area is (by English standards) relatively low. At the other end of the country, Northumbrian has no shortage of water; rainfall is high, and population has decreased.

The similarities between the WASCs are more important than the differences, however. All the WASCs were previously publicly owned Water Authorities. Each covers one or more major river basins. Two of the largest are named after rivers.

The Water Authorities were set up in 1974, inspired by the French model of River Basin Management. Beside responsibility for catchment management and environmental protection, the Authorities owned and operated the water and sewerage systems. When set up, they integrated the patchwork of private and municipal companies which had provided water services previously.

The Authorities were privatised in 1989. Their environmental protection and regulation function were split out into a separate government owned agency, the National Rivers Authority (NRA). The rest of the Authorities, covering asset ownership and operation, were turned into private companies and floated on the stock exchange.

Even before the 1989 privatisation, England already had a long tradition of privately owned water companies. Many private water companies had been set up in the 19th Century to

serve the needs of growing towns. There are still 21 water companies which have always been privately owned. These are shown in Figure 2.

The 21 companies are responsible for water supply in their area. Sewerage services in the areas they serve are provided by the local WASC. The Water Only Companies (WOCs) are on average much smaller than the WASCs, as the turnover information in Figure 2 shows. However there is something of a continuum between the two groups. The largest WOCs, such as Three Valleys and Essex Water are not much smaller than the water supply business of the smallest WASCs.

Even though they were already private, the 1989 reforms did affect the WOCs. Many were bought by French utilities. Lyonnaise des Eaux for example owns Essex, Suffolk and North East Water companies. A significant number however remain independent, including Bristol, Mid Kent and Portsmouth. The other major change following the privatisation of the Water Authorities was that the WOCs were brought under the same system of price cap regulation as applies to the larger companies. Previously the WOCs had been subject to 'dividend control', a kind of rate of return regulation.

Figure 1

Privatised Companies The Big 10....

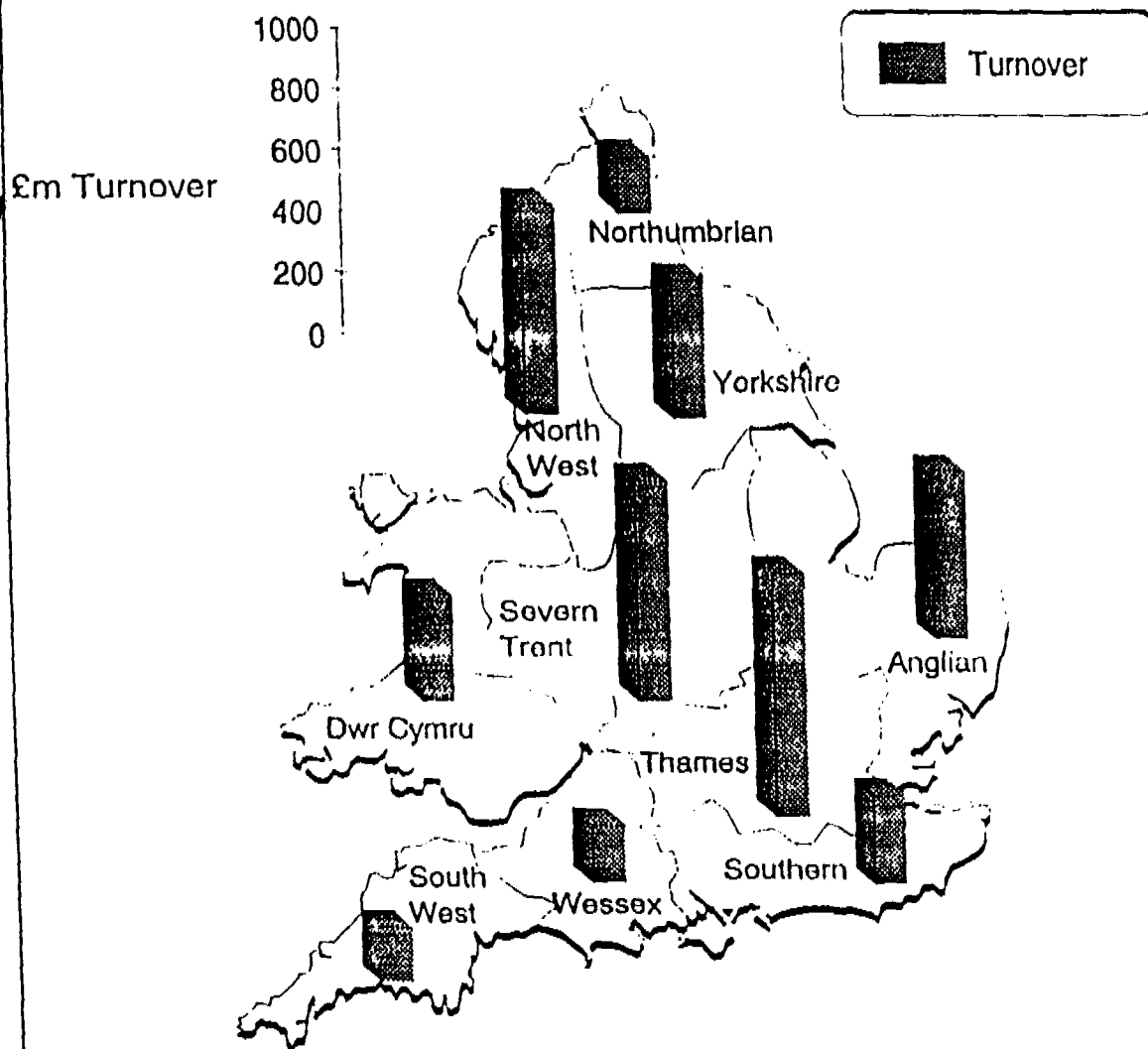
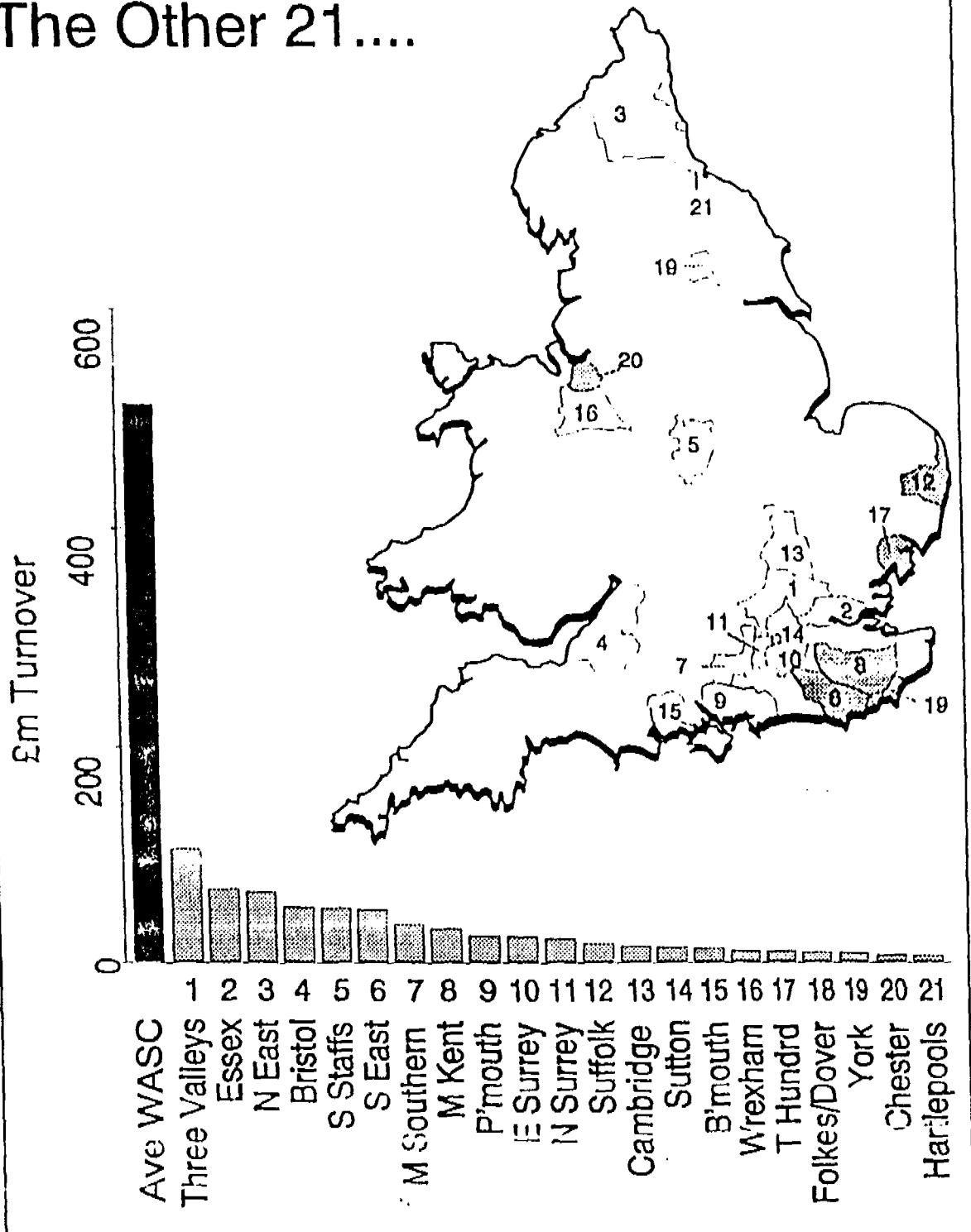


Figure 2

Privatised Companies The Other 21....



3. Reasons for Privatisation

There were two main reasons why the Conservative Government decided to privatise the water industry:

- the desire to mobilise private capital for investment
- the belief that private ownership would boost efficiency and service standards.

In 1989 the water industry faced a massive investment bill. Higher environmental standards, largely embodied in EC regulation, meant that the industry would have to greatly improve the standards of sewage treatment and sludge disposal. Higher drinking water standards required investment in new treatment works capable, for example, of removing a greater proportion of nitrates and pesticides. While in public ownership, renewal and maintenance of the assets had been somewhat neglected, so by 1989 there was a backlog of investment needed just to keep the networks in good condition.

At the same time the Government was grappling with the budget deficit. It knew that to fund all the water industry's investment from public money would push the deficit well above target. Privatising the industry offered a way to bring in private sector money to pay for the investments, helping the government to keep its own expenditure down.

The other reason for privatisation was the belief that the private sector would provide a better and more efficient service. The Government had already privatised other state owned enterprises, such as British Airways and British Telecom, with success. With water, however, it faced a much bigger challenge. Since water companies do not face competition, the pressures on them to improve service and cut costs are lower than on an airline. Some commentators have argued that the Government's belief that the private sector would be better and cheaper than the public was as much a matter of ideology as of analysis.

4. Regulation

4.1 Why Regulate?

Private companies want to earn good profits. They can do this by becoming more efficient - producing the same product at lower cost. The ever-present incentive to cut costs is a key advantage of privatisation. However, a water company could also increase profits by raising prices, or by lowering quality. In most industries a company that does this will lose business to its competitors. But people have no choice over who they get their water from - it would be ridiculously expensive to have two sets of pipes running down every street.

Therefore the Government has to regulate. The main aims of regulation are to ensure that:

- prices do not rise to socially unacceptable levels (while still allowing companies reasonable profits)
- water supply and service quality remain sufficient
- the environment is adequately protected.

4.2 Regulatory Structure

Figure 3 outlines the structure of regulation in the UK. The figures in light grey at the bottom show the basic operation of a water company. The company abstracts water from the environment, treats it, and delivers it to its customers. It collects the sewage its customers produce, treats it, and discharges it to the environment.

The darker figures are the regulatory structure. At the top, the Europe Union (EC) and the UK Parliament provide the overall legal and regulatory framework. The Department of Environment (DoE) is the main Government body with oversight of the area. Actual regulation is largely carried out by other agencies.

The National Rivers Authority (NRA) is the main agency in charge of environmental protection. It is organised regionally on river basin lines which match the areas covered by the WASCs. It controls how water companies abstract water from the environment, and what they discharge to it. Her Majesty's Inspectorate of Pollution (HMIP) has responsibility for the industrial processes with the highest risk of pollution. There are plans to merge HMIP and the NRA into a single Environmental Protection Agency. The Drinking Water Inspectorate (DWI) is responsible for monitoring and enforcing the quality of drinking water.

The Office of Water Services (OFWAT), sets the prices water companies can charge. If a water company is unhappy with its price limit, it can appeal to the Monopolies and Mergers Commission, the UK's competition (antitrust) authority.

If customers are unhappy with the service they receive, and their complaints are not dealt with to their satisfaction, they may ask Customer Service Committees (CSCs) to investigate. The CSCs and OFWAT work closely together.

Figure 3

Regulatory Structure

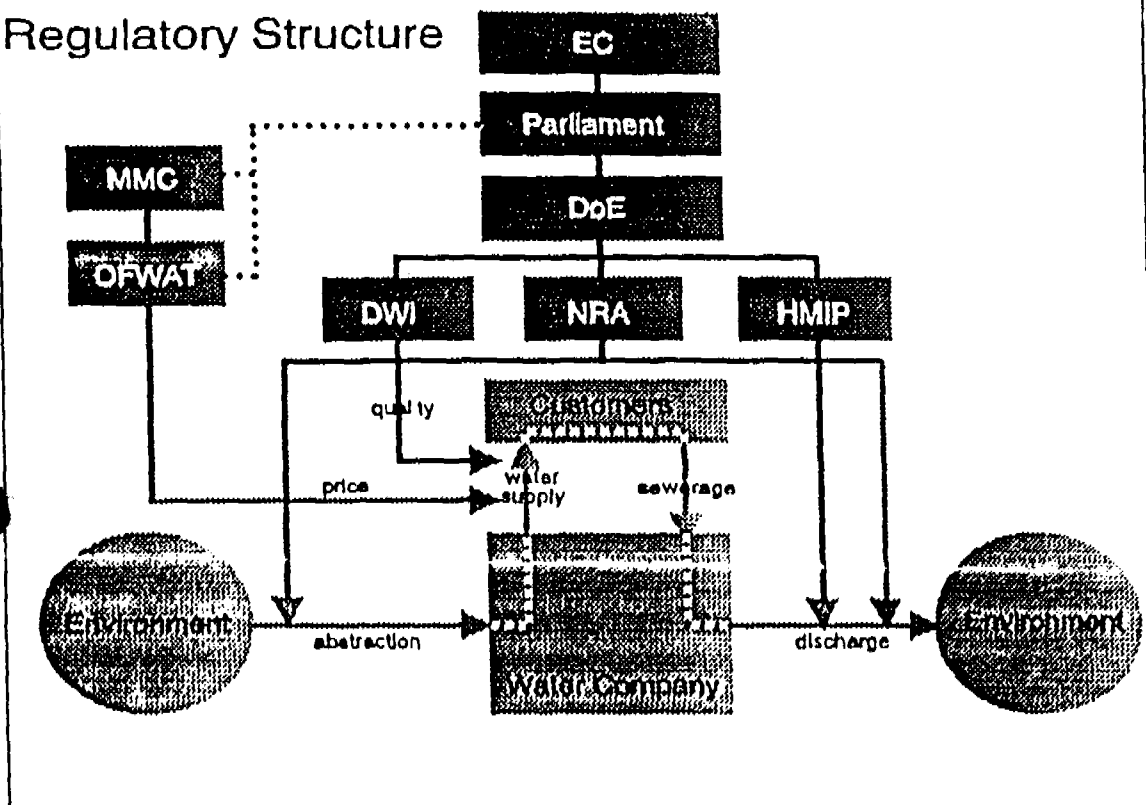
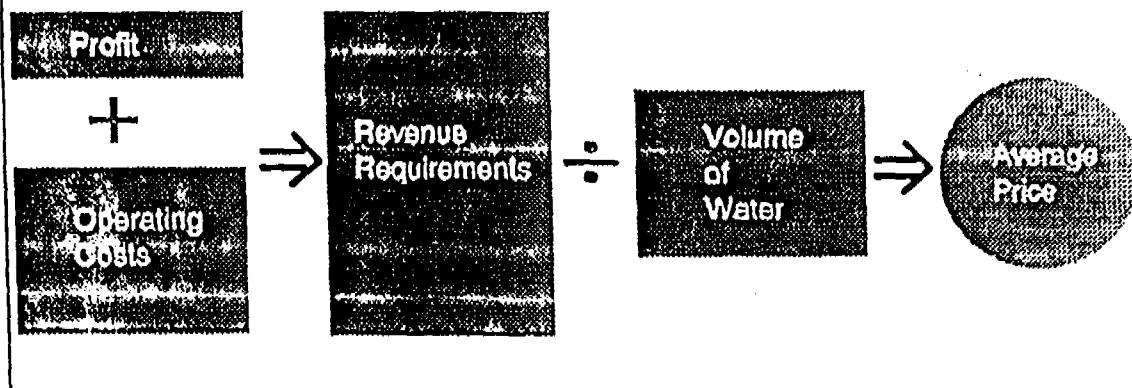


Figure 4

Calculating the Price Cap



4.3 Price Caps

At privatisation, maximum prices were set for all water companies for the next five years. The price was set to cover each company's costs, including a reasonable profit, as illustrated in Figure 4. In summary, the regulator forecast each company's operating

costs, the investments it would need to make, and the profit it would need. Adding together costs and profits gives the company's revenue requirement in each year. Dividing this revenue requirement by the forecast volume of demand gives the average allowable price.

The purpose of setting the price limit for 5 years in advance is to give the companies an incentive to reduce cost. Once prices are fixed, if a company can reduce its costs, it can keep the savings as additional profit.

Some key features in the English approach to price capping include:

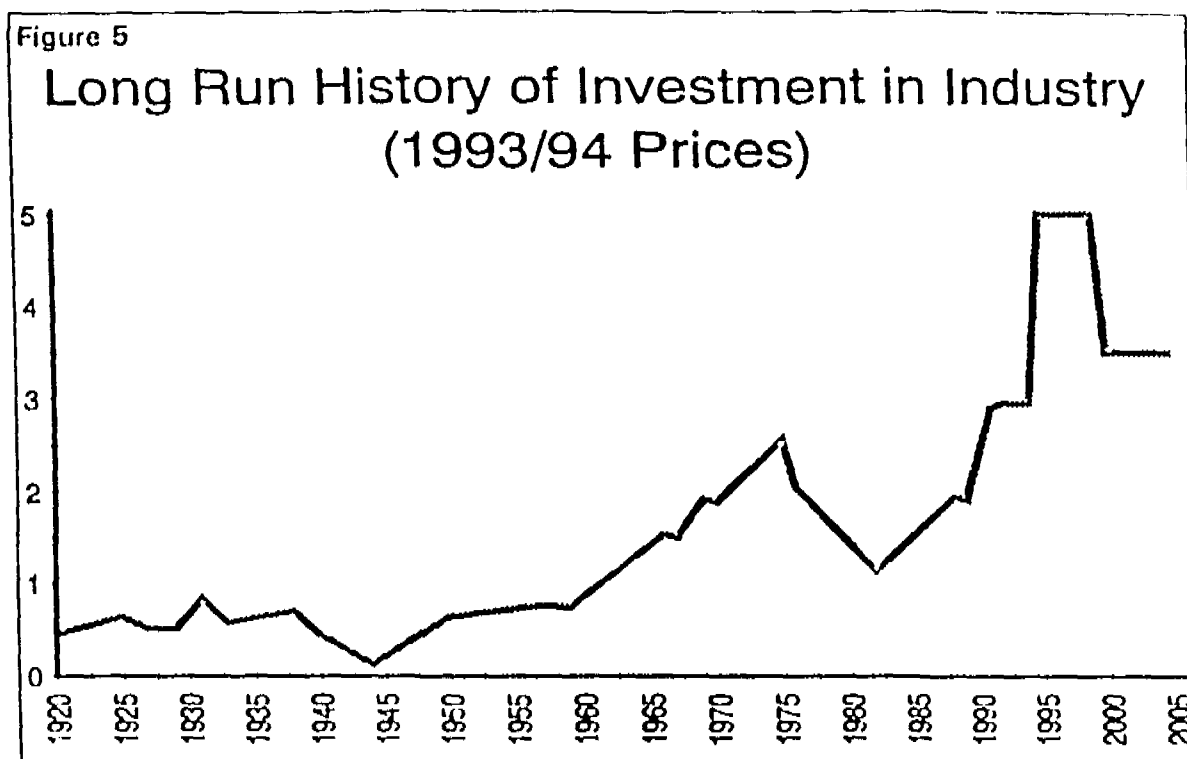
- efficiency gains - in forecasting operating costs, the regulator assumes that companies will be able to increase efficiency and make cost savings each year
- comparative competition - when price caps are set or reset, the efficiency of all the water companies is compared. Less efficient companies are expected to come up to the standard of the best performers. This means the underperformers are given more demanding efficiency targets.
- cost of capital - the regulator tries to set forecast profits at a level that is just high enough to attract the private sector to invest in the water industry
- investment - to fund the huge capital expenditure required, water companies have been borrowing money and retaining profits. This means prices have had to rise to provide investors with a return on the new investment.

5. Results

The following sections assess privatisation on 6 criteria:

- Investment
- Profits and diversification
- Standards
- Demand management
- Efficiency
- Prices

In some areas the success of the reforms is spectacular. In others, there is debate over what has been achieved.



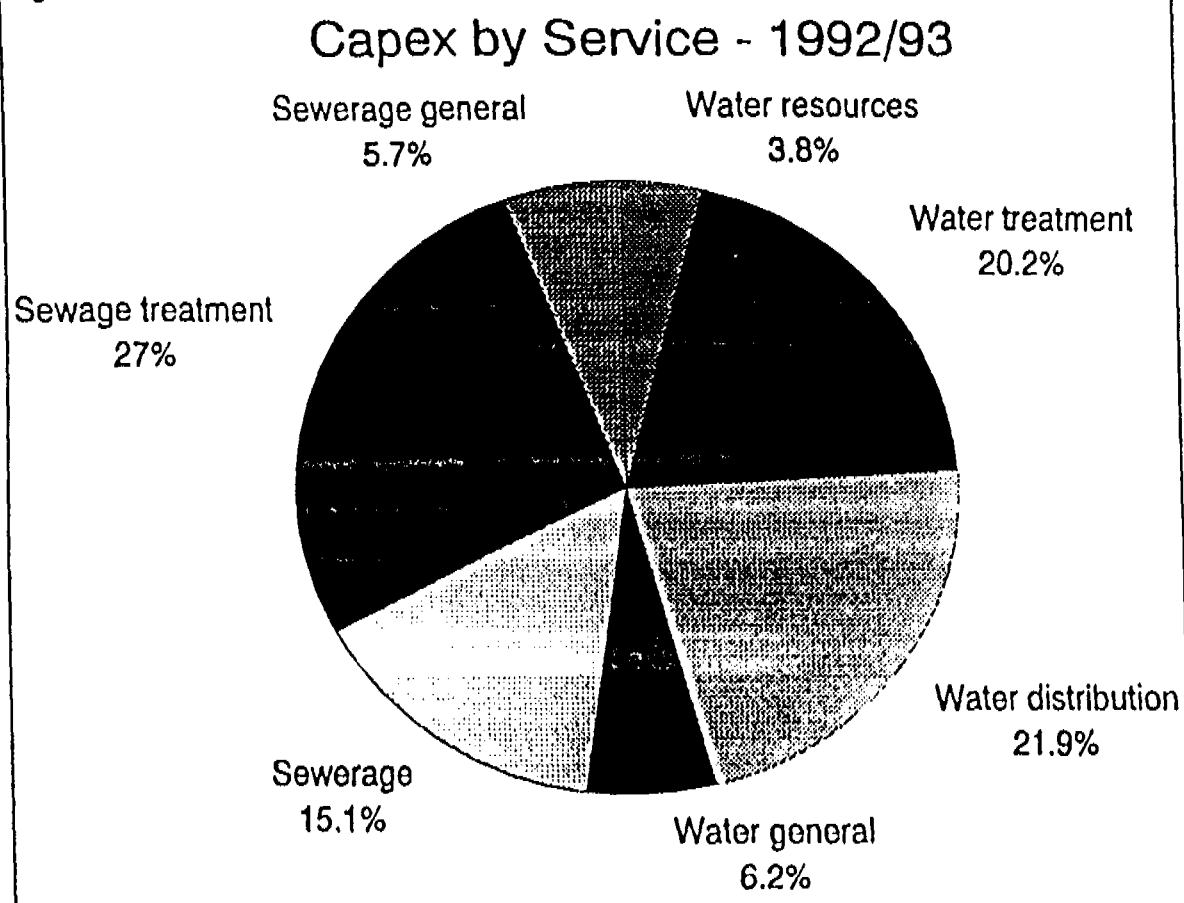
5.1 Investment

Figure 5 demonstrates the clear success of privatisation in increasing investment in the industry. In the 5 years from 1989, investment per year (in constant prices) has been higher than at any time in the industry's history. It is not clear exactly how high investment will be over the coming 5 years, but it could average around £5 billion per year, and is likely to continue at historically high levels in the first five years of the next century. It is very unlikely that the industry could have attracted this level of investment had it remained in the public sector.

As Figure 6 shows, the largest single category of investment has been sewage treatment. This is largely to do with meeting European Directives on bathing water quality. The second largest category is water distribution. Investment in this category is largely for pipe renewal and replacement, to improve quality and reduce losses. Closely behind follows investment in water treatment - for example to remove nitrates and pesticides from drinking water. Relatively little investment (3.8% of the total in 1992/93) has been for developing new water resources.

The volume of investment is impressive. There is however a question about whether it is all economically justified. The investment in water and sewerage is required to comply with environmental and drinking water standards. But no cost benefit analysis was done on the standards. It may that some of the standards are unnecessarily high. If so, it would have been better to have somewhat lower investment, lower standards, and lower water prices.

Figure 6



5.2 Profits and Diversification

Attracting such large quantities of private investment is only possible if the investors get a good return. The privatised water companies have been very profitable - more profitable than people expected in fact. This profitability has been reflected in share price increases (figure 7). The index of privatised water shares rose 160% from flotation to the start of 1994, compared to an increase of only around 40% for the top 100 companies on the stock exchange. While some of the increase in water company share prices was due the companies being underpriced when sold, the majority is a result of better than expected profit performance.

The greater freedom of the private sector has allowed water companies to diversify into new areas of business. In particular, English water companies have become important players on the world scene, making use of their technical and management expertise in many developed and developing countries. However not all diversifications into new business areas have been profitable.

Until now the big 10 water companies have been protected from takeover by special 'Golden Shares'. This protection expires at the end of 1994. There is already speculation about possible takeovers and mergers, either between water companies, or with companies outside the industry. There may be efficiency gains from a merger between a

water company and another utility, such as a Regional Electricity Company. The threat of takeover could also give managers increased incentives for efficiency gains.

5.3 Standards

- The massive investment in water and sewerage treatment has improved environmental and drinking water standards. OFWAT has devised a range of indicators designed to measure the quality of the service customers receive. The industry's performance against these service standards is summarised in Figure 8. On all but one criterion the industry has improved its performance over the last two years, often significantly. Some of this improvement may be the result of wetter weather improving supply security.

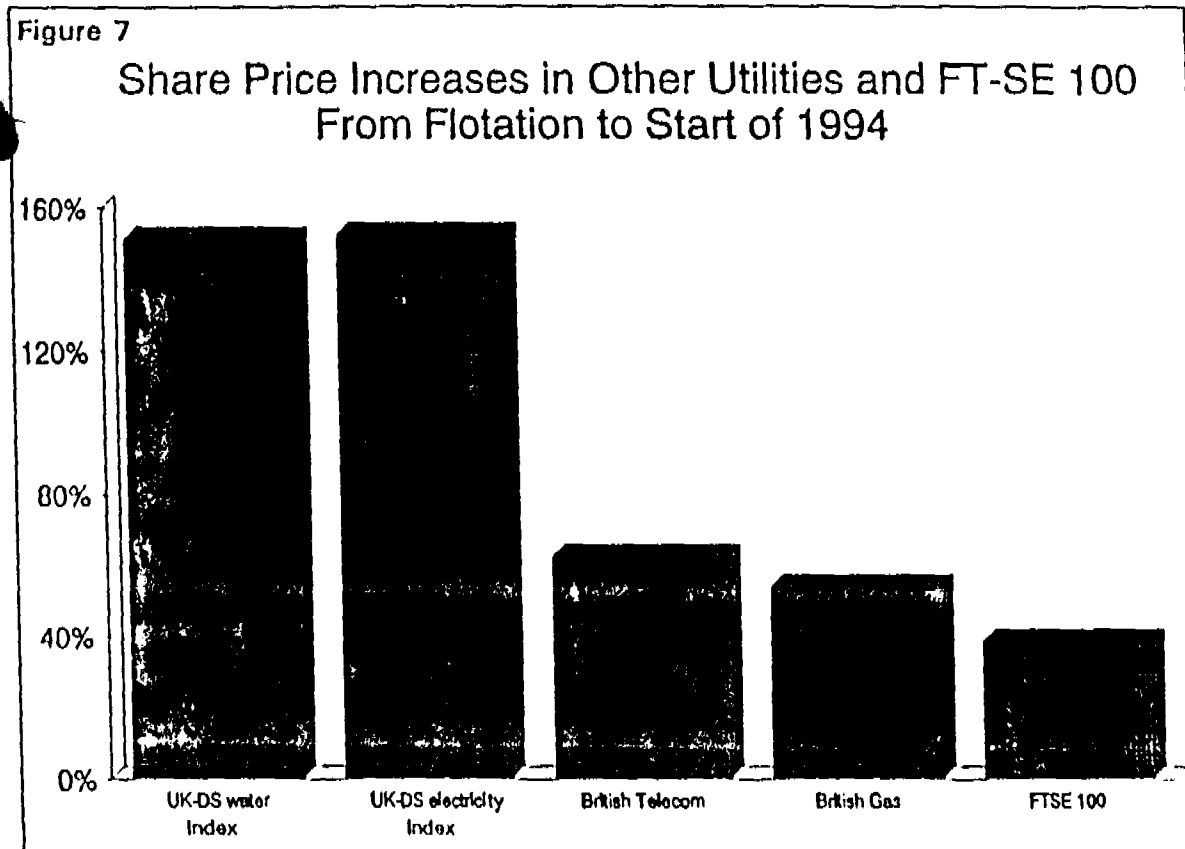


Figure 8

Service Standards 1993

	Level (%)	% Improvement Since 1991
1. Risk of water shortage	12.0	50
2. Risk of low pressure	1.3	32
3. Unplanned supply interruptions	0.3	36
4. Hosepipe bans	9.0	78
5. Risk of sewer flooding	0.1	10
6. Billing queries not responded to in 20 days	4.0	-4

5.4 Demand Management

There are two main tools for demand side management:

- metering and tariff policies
- leakage reduction measures.

The bulk of residential consumers in England are not metered. OFWAT and the NRA have been pushing for increased metering. However there is some doubt about whether the resulting water savings justify the costs of meter installation. Most companies are slowly increasing the proportion of metered customers, but only one of the large companies, Anglian, has opted for a major expansion of metering.

Leakage in England is believed to average around 22%. There are considerable differences between companies, and also some uncertainty about the accuracy of the measurements, given the lack of meters. The industry has developed methods for assessing the optimum balance between leakage control, metering and resource development in areas of short supply. Companies are investing heavily in reducing leakage, but it is not yet possible to quantify the effectiveness of this investment.

5.5 Efficiency

Here too the picture is a little unclear. We have not found clear evidence of major cost savings as a result of privatisation. However, the industry has managed to increase environmental, water and service standards without significant increases in operating costs. There are also indications that some companies will significantly reduce the number of people they employ over the next few years.

5.6 Prices

The water industry's investment boom has required substantial price increases. The average household bill for unmeasured water supply has gone up 60% over the last 4 years. Twenty seven per cent of this was due to general inflation, leaving a real price increase of around 33%. Figure 9 shows how this increase was spread over the last four years. The average household in England now pays around £88 per year for water and £97 per year for sewerage services. As Figure 10 shows, there is a large variation around these averages.

For the average household water is still very affordable (Figure 11). With price increases at the rate currently forecast, the average water and sewerage bill will stay well below 1% of average household income for the foreseeable future. An average income household in the region with the highest water and sewerage bills will still pay only 1.2% of income for water services by 2004.

For low income groups living in areas with high water and sewerage bills it is a different story. Single parents on income support will be spending close to 5% of their income on water services by 2004. For pensioners on income support the situation is even worse. Water bills which are over 5% of household income are generally considered to pose a social problem. The water industry and the government will need to tackle this problem in coming years.

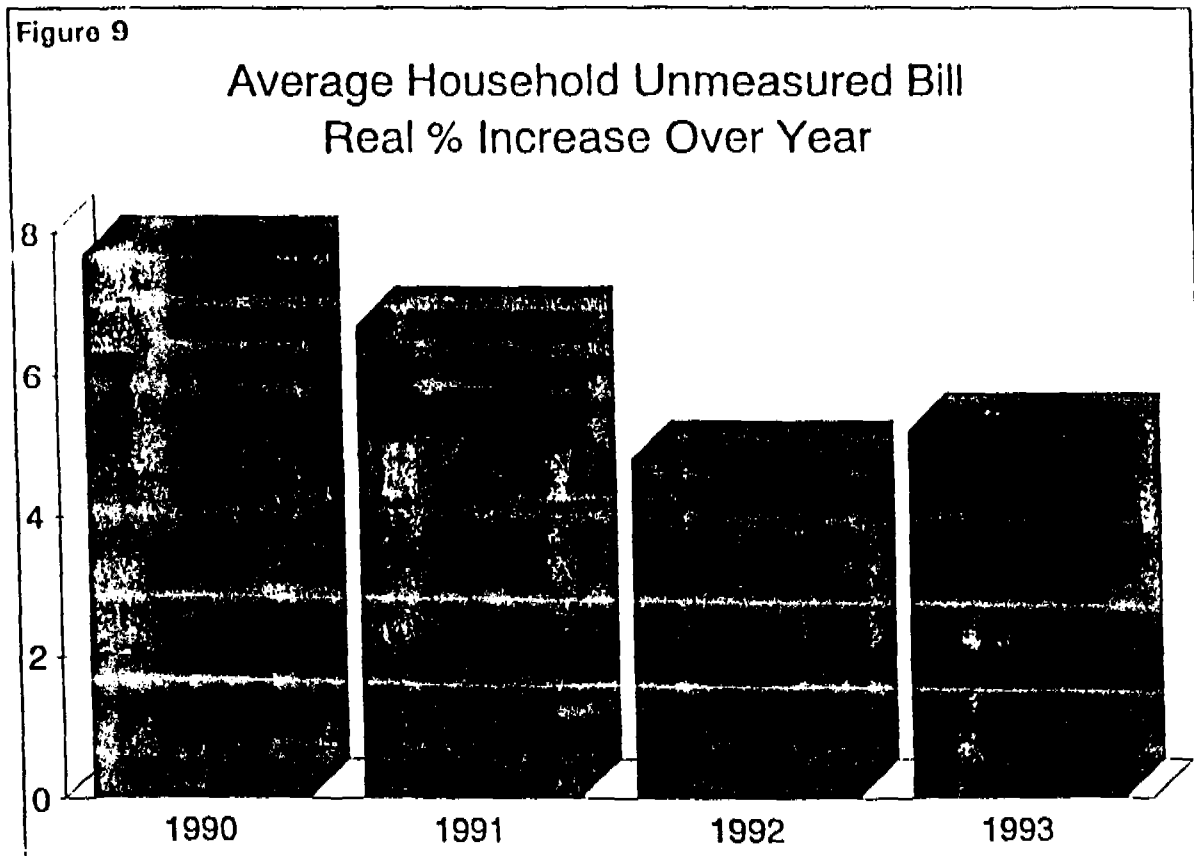


Figure 10

Bills and Prices 1993

	Units	Low	Ave.	High
Household Bill (unmeasured) - Water	£/year	£65	£88	£155
Household Bill (unmetered) - Sewerage	£/year	£77	£97	£160
Price per cubic meter - water	£/year	38p	60p	99p

Figure 11

Affordability

... a real issue for some income groups

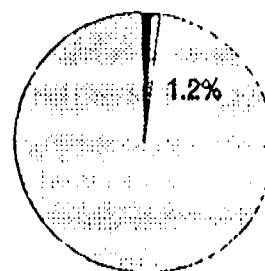
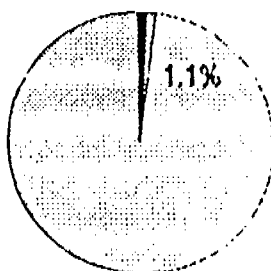
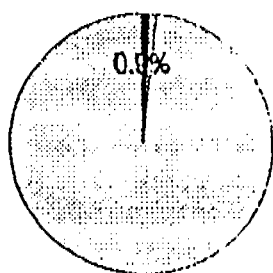
Average water and sewerage bill as % of household income

1994

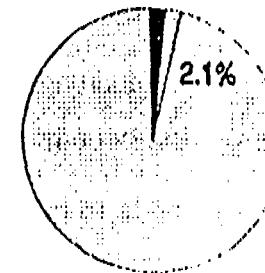
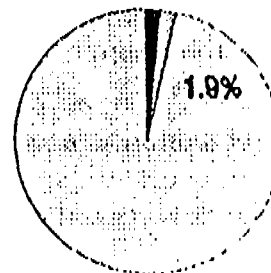
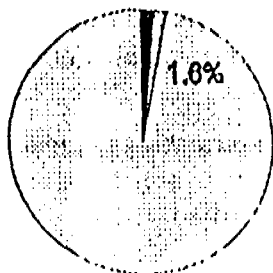
1999

2004

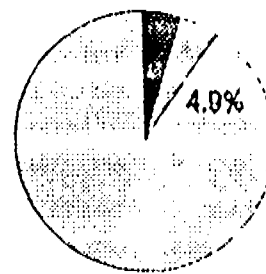
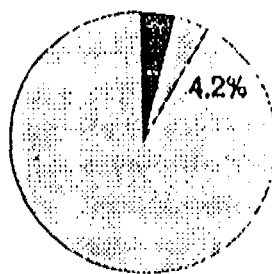
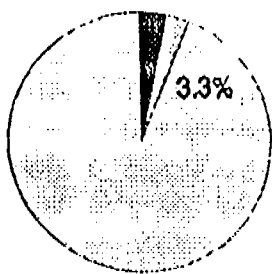
Average income



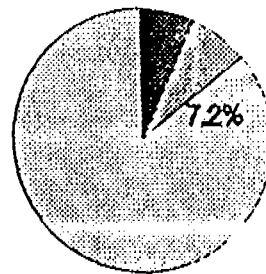
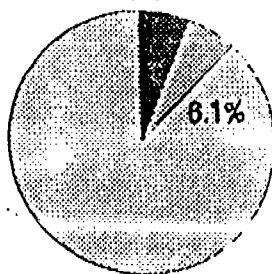
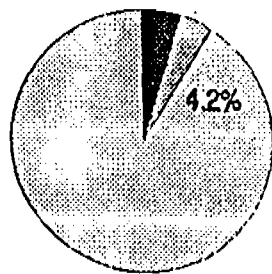
Half average income



Single parent on Income Support



Single pensioner on Income Support



Lowest water bill in E&W



Highest water bill in E&W

6. Lessons for Other Countries

Many people in the Anglo-Saxon tradition used to assume that water suppliers had to be publicly owned. The first and most basic lesson from the English experience is simply that water privatisation is possible - at least in a country with a developed capital market.

The second most important lesson is that privatisation can make possible much higher levels of investment than would be possible in the public sector. It can also transform public sector organisations into entrepreneurs competing on the world stage.

On regulation, other countries can learn from both the strengths and weaknesses of the English system. Among the strengths are:

- price-capping - setting a maximum price for a significant period ahead protects consumers while preserving incentives for efficiency gains
- comparative competition - requiring all companies to match the standards of the best goes some way to simulating the dynamic striving for efficiency which occurs in a truly competitive market.

The weaknesses include:

- the regulatory system in England is very complicated and time-consuming
- splitting responsibility for economic and environmental regulation between different bodies has caused some problems, and the economic regulator has a very difficult job in determining which investments are justified
- the lack of cost-benefit analysis on environmental and quality standards raises the risk that some standards may have been set too high, and thus that some of the investments made to meet those standards were not economically justified.

On efficiency, the evidence is mixed. Cost have been held more or less constant while the quality of service has improved, but it is not clear if this performance is better than could have been achieved in the public sector. The next five years will provide interesting evidence.

Prices have risen sharply since privatisation. The main cause was the ambitious investment programme. Efficiency gains in the private sector may have held these prices lower than they would otherwise have been. On the other hand, the industry's high profits may indicate that prices have been higher than they needed to be.

4.3 The Achievements of a Public Enterprise in a Big City of a Developing Country, EMOS S.A. Santiago, Chile

by Mrs. Raquel Alfaro, General Manager EMOS S.A.

Context and Institutional Framework

Chile is a country of some 13 millions, with an annual per capita income of 3000 US\$.

The Chilean government grants 'concessions' for the installation and indefinite operation of water and sanitation enterprises, which operate as companies by shares (General Sanitary Services Law, 1988), subdued to quality control and to technical and economic supervision of the Superintendency of Sanitary Services (SISS).

Tariffs enable the companies to be financially selfsufficient, as long as they are efficient. Studies, which result in tariff formulae, are made by SISS, applying long run marginal cost. The companies can make their own studies. An agreed arbiter will solve controversies. Tariffs are revised every five years and are adjusted for price variations applying polynomial indexes. Fix and variable charges are related to fix and variable costs. The government partially subsidises low income families. The local government (municipality) reimburses the enterprise the discount made to the subsidized people. The government also compensates enterprises if they are required to apply lower tariffs than those which have been approved.

The Production Development Corporation (CORFO), is the principal shareholder of the 13 public water and sanitation enterprises, one for each region of the country, which meet the demand of 94% of Chile's urban population. They also provide technical assistance to more than 70% of the concentrated population. Private enterprises serve some 6% of the population.

The private sector can participate through new concessions, subconcessions of public companies and transference of existing public concessions. The selection of new concessionaires or subconcessionaires is made by open tender. The private sector participates also through services lent to public companies (consultors, work contractors, meter reading, network maintenance, etc.) The subconcession is a long term service contract, for example, to run a sewage water treatment plant.

CORFO gives autonomy to the board of directors of its subsidiaries. Yet, there are some general policies which the board must apply. These are, to meet the standards of quality and to obtain good financial results in the frame of the law and regulations for water supply and sanitation enterprises and for companies by shares. Open tenders as a general principle also must be applied.

Objective

To present EMOS S.A. a successful public company.

Population and Coverage

EMOS serves a population of almost 5 millions in the urban metropolitan region. Coverage is 100% for drinking water and 97% for sewerage. A coverage of some 40% of sewage treatment is planned for the year 2000. The first works started in 1990.

Infrastructure

Annual drinking water production is about 480 millions m³, 85% is superficial water treated in plants and 15% is underground. An 8000 km water network serves some 950 000 housing connections. The sewerage network, 7000 km, serves some 920 000 sewer connections.

Activities and Achievements

Integrated Management

All EMOS' activities are oriented towards the same focus: To supply drinking water and sanitation services, meeting with efficiency, the required standards of quality, and taking into account the principles of water conservation and environment protection.

Standards of quality

EMOS S.A. meets normally all the standards and regulations established for drinking water. The rate of breakage of the water network is 0.32 l/km/year (most of the network is asbestos-cement). Motor coverage is 100%.

The treatment of sewage water is an undergoing activity, and includes the control of industrial wastes which are discharged into the sewerage system.

Tariffs

The present level of tariffs is in average 0.22 US\$ per m³ of registered drinking water, 0.11 US\$ per m³ of registered drinking water, is the average tariff for sewerage.

Efficiency

Unaccounted for water has decreased from 29% to 22% the last four years. A general policy for water conservation, both on the demand side and on the company side is being applied.

The increase of tariffs under the new law, undoubtedly caused a great impact in profitability. However, more financial resources allowed EMOS to elevate the quality standards. On the other hand, there has been a general increase of wages which compete now with market wages (workers negotiate collectively), and more funds are assigned to human resources development. Nevertheless, a general improvement in resources productivity has also been attained.

The general results over the last four years are :

Return on fixed assets raised from	5.7% to	10.9%
Return on capital raised from	5.4% to	11.2%
Profitability of sale raised from	23.4% to	36.5%

Private Participation in EMOS S.A.

Service contracts go from project design to the repair and maintenance of every type of facility. Some commercial tasks are also executed by contractors: meter reading and repair etc. Understudy is a BOT contract for a sewage treatment plant of about 1 m3 per sec.

Research and Development in EMOS S.A.

The company has invested in studies and applications to elevate the efficiency of systems. Automation and mechanization of facilities is increasing gradually. Modern instrumentation is being installed. Meter quality is increasing. Leak control and irregular connection detections is now a normal task. Education and orientation of clients to water conservation and environment care is also now a normal task. There is as well, a close link with universities to develop applied research in EMOS, through students and academic staff.

Specific Lessons Learned and Conclusions

Under a sound institutional frame and integrated management policies a public enterprise can be efficient.

The main future goals of EMOS are to meet the targets in sewage water treatment, to develop a new organisational structure and new technological developments to allow higher quality of services and higher productivity of resources. The big target is to have workers, clients and shareholders satisfied and proud of EMOS.

4.4 Urban Water Supply Sector in Morocco, Institutional Development and Management Autonomy

by Mr. Abdelali Filali Baba, Director Office National de l'Eau Potable

1. Institutional Development

The institutional evolution of Morocco's drinking water sector has been the result of a continuous adaptation to the structural constraints of this sector in front of economic development, rapid urbanization and demographic pressing whereas water resources are scarce and funds limited. This situation has demanded from the public authorities several adaptations of their water policy and the progressive creation of the necessary infrastructures as well as the relevant institutions and mechanisms.

This sector is benefiting since 1967 of a vast programme of water resource mobilization in order to respond to the food self-reliance, the satisfaction of the drinking water demand and the contribution in the hydroelectric production of the country.

The drinking water sector has been one of the main beneficiaries of that policy. A national master plan for the urban areas was elaborated and an institutional adaptation was achieved through the creation of municipal offices, the National Office of Drinking Water (ONEP) and by the regression of the private sector. This strategy has allowed an important development of infrastructures thus ensuring today in the urban areas a 80% rate of water connections, the remaining being supplied through standposts.

The drought crisis of the country of the early 80s has made it possible to prove the good foundations of the policy adopted in Morocco's water sector and the good condition of the institutional system that is followed. Yet, it is necessary to complete it by some relevant arbitration, coordination and regulatory mechanisms. This role was entrusted to the Higher Water Council which was created in 1981 and presided by the Highest Authority of the State.

This council has created a participatory dynamic between the operators in the field of the planned allocation of water resources by defining a special priority for drinking water. The themes discussed during the annual sessions have interested inter alia, the water basins master plans, sanitation, water regulations and water code etc... and more recently on the drinking water master plan for rural areas as well as waste water reutilization.

The sector of drinking water in the urban areas is a fragmented one while four Ministries share its responsibility:

- The Ministry of Public Works which is entrusted with the planning and mobilization of water resources while it ensures in the same way a technical tutelage over the National Office of Drinking Water (ONEP).
- The Ministry of Interior which ensure the tutelage over the Local Councils and the autonomous municipal companies entrusted with water distribution.
- The Ministry of Finance which ensures the financial tutelage over ONEP (budgetary subsidies, State warranty for external funding, the financial control, etc...)
- The Ministry of Health which ensures the control over the potability of water.
- The Ministry of Economic affairs which is entrusted with the study of tariff revisions.

Two major operators:

- The National Office of Drinking Water (ONEP) which is in charge of the planning of the production of drinking water at the nation's wide level for urban areas as well as its distribution in the small and medium size cities.
- Sixteen autonomous municipal companies of water distribution in 16 big cities.

In so far as the rationalization of investments and the management of public enterprises in front of the drought phenomenon (1981-1985), the country's indebtedness, the Standing Interministerial Committee for Public Enterprises and the Vigilance Committee were created. They have made it possible especially for the drinking water sector to be strengthened up by improving the autonomy of public enterprises.

In this sector, thus, a contract programme was signed in between ONEP and the State in 1987 and renewed in 1993. That contract defines the reciprocal commitments between these two parties. ONEP is therefore more and more autonomous and the State is disengaging progressively through a noteworthy reduction of its previous financial support.

2. Contract Programme between the State and ONEP

The main idea of the Contract programme is to engage the State and its public enterprise in a common and negotiated programme for a defined period of time (3 years). This programme stems from a decennial plan for investments and the rationalizing of the enterprise management. The funding of that programme is ensured by this latter in a more and more important share under the kind of cash-flow or loans. The complement is ensured by the State within the framework of progressively diminishing equipment subsidies at the long term.

This disengagement of the State is nevertheless possible only if this latter pledges an increase of the tariffs according to negotiated percentages before the signing of the contract. These rates are the result of a deep nation wide price study carried out in collaboration with all the concerned parties (Ministries, producers, distributors..).

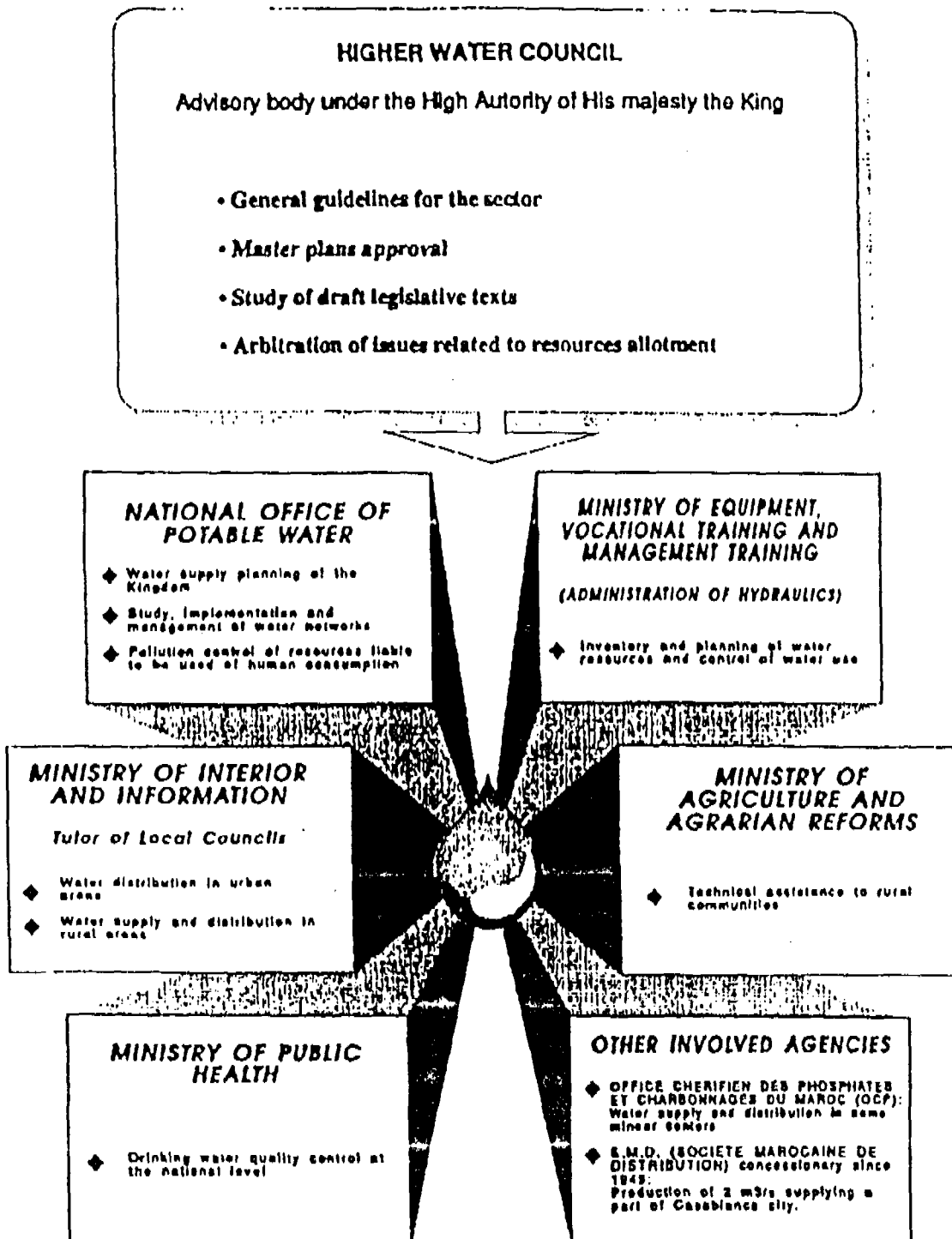
The first contract programme signed between the State and ONEP covered the 1987-1989 period. It aimed at improving the financial condition of the office in order to grant a larger autonomy in the field of management. It also demanded a progressive reduction of the priori control exercised by the State over ONEP. The negotiations prior to the signing of the contract have allowed the two parties to clarify their relations and to build up a more positive communication between them. On the other hand concrete actions were specified over the period of the contract.

At the realization of the contract, the study of the results which were obtained and piloting indicators have made it possible to engage discussions in order to explain the eventual gaps as compared with the provisions. It was also understood that both the results and the respect of the commitments from both parts were to be taken into account. Some adjustments are also brought by and by for some aspects linked to the conjuncture or to unpredictable phenomena without even though neglecting the spirit of the contract.

This first experience has been evaluated and judged as being positive. The internal cashflow by ONEP has reached 15% of the amount of investments, the State having participated for

35% while the remaining part was financed by foreign loans. This contract has also revealed the limits of the State's commitments because the State could respect them only but partially especially in the field of tariff revisions and the diminishing of the amounts of its equipment subsidies. Yet, it remains that from a qualitative and organizational point of view, the contract has been a catalyst for the detection of concrete problems and the research for an adequate approach for solving them.

A second contract programme between ONEP and the State is operational since 1993 for a period of three years with a programme of investments bigger than the first one and a bigger contribution of ONEP which represents 30% of internal cash-flow. The contribution of the State will be only 20%. In addition to its objective of improving the management of the office, it is getting committed to extend its drinking water service by allowing an increase in the nation's rate of connections. It will on the other hand absorb the water deficits in several small cities and will develop their service and connecting within the scope of a middle term plan related to local councils.



4.5 Rural Water Supply and Sanitation Project in Lumbini Zone, Nepal

by Mr. Han Heynen, IRC

Context

In the eighties Nepal's water sector was characterized by two main programmes for the delivery of water supply and sanitation services. The Department for Water Supply and Sewerage (DWSS) provided water supply services for some urban centres and for larger villages, while the Ministry of Panchayat and Local Development (MPLD) supported community water supply and sanitation (CWSS) services.

In 1989 the DWSS and MPLD programmes were merged under the newly formed Ministry of Housing and Physical Planning. This has caused a lot of damage with respect to implementation of rural water supply as the CWSS style projects now were forcibly put under the rigid policies of DWSS. Several CWSS donors reconsidered their positions and reduced funding became available for the CWSS type of projects.

Source of Funding:	
HMG/Nepal	US\$ mio. 0.8
Finnida	US\$ mio. 4.5
Location: Lumbini Zone, Nepal	
Duration: 5 years (1990-94)	
Resp. Agencies:	
Department for Water Supply and Sewerage (DWSS) and Plancenter	
Associated Agencies:	
District Development Councils, Helvetas, GARDEP/EU, World Bank, ADB, UNDP	
Decentralization Project	

In the early 90s the UNDP/World Bank programme, WHO, the Asian Development Bank and FINNIDA started to provide support to sector development in Nepal. Simultaneously calls for democratization led to a change in Nepali society and brought about demands for greater public involvement in decision making. Decentralisation and a change in the roles and responsibilities of central and professional government institutions has caused a complete overhauling of planning and implementation procedures. The initiative for community improvement lies with the people, with government and district level agencies facilitating the process rather than executing it on behalf of the people. The political realities and the support provided for these by external support agencies demand a change in attitude with DWSS in order to support the demand driven, decentralized approach.

The Department has recently adopted a new organigram at district level that reflects the new requirements (1994). Apart from an Administrative Services Section the District Water Supply Office (DWSO) has a Technical Services Section and a Human Resources and Community Development Services Section, both headed by an assistant district engineer. The Human Resources and Community Development Services Section has a Sanitation Sub-section with one overseer and one women worker and a Users Trainings Sub-section with one overseer and one water supply and sanitation technician.

Objectives

Since 1990 HMG and Finnida have been collaborating in the six districts of the Lumbini zone to test a community based approach for water supply and sanitation. The Ministry of Housing and Physical Planning (MPHH) through the Department for Water Supply and Sewerage is the lead partner in the Rural Water Supply and Sanitation Project (RWSSP). The Project was scheduled to run to the end of 1993, but has been extended to the end of 1994. The stated objectives of the project included:

- development of institutional capacity;
- the provision and promotion of use of safe, sustainable water supplies and improved sanitary facilities ... to 100 000 (later changed to 175 000) inhabitants.

To reach its objectives the Rural Water Supply and Sanitation Project has focused on five sub-projects: district water supply development plans; physical improvements; socio-economic studies, hygiene education and sanitation; training and human resources development; and community involvement.

RWSSP aims to establish a replicable and sustainable approach to water supply and sanitation development in Nepal based on community involvement and management of the facilities by the users. In the past DWSS has employed a technocratic approach in which the role of the community was often very limited. Community orientation is very much in line with present trends in Nepal in respect of democratisation and decentralisation. However, it requires technical departments to take a new look at their procedures and amend these to demands of the day. The RWSSP has tried to assist DWSS in the Lumbini zone to develop and operationalise an approach that can work at the district level.

Activities and Achievements

1. Essential to any development plan is a clear division of roles and responsibilities of the various actors involved. The step-by-step approach developed by RWSSP has proved a good way of visualizing the various inputs and actions required to plan and implement a water supply and sanitation scheme. Simultaneously it is clear that any approach is useless without clear guidelines and procedures and above all without field staff capable of applying the approach.

Key to proper project preparation is the quality of the feasibility study. During the feasibility study rapid rural appraisal like mapping techniques are used to determine the technical, economic, health and social feasibility of a proposed scheme. These resource maps are made by the villagers with facilitation by project staff and are supplemented by detailed site inspections and discussions on project implementation procedures and conditions.

2. Physical improvements amount to 80'000 people served by some 1100 shallow wells and tube wells in the terai areas of Southern Lumbini zone, and 20'000 people by around 100 small and medium size gravity schemes (150-500 pop.) in the hill districts. To enhance sustainability, equipment and hardware used in project implementation favours local materials and skills available through the local private sector.
3. RWSSP has assisted district to draft District Development Plans on water supply and

sanitation. These have proved very useful in targeting hardship areas and to lift the political discussion on water, sanitation and health to a higher qualitative level in the DDC deliberations.

Problems Encountered

1. RWSSP has been relatively successful in getting its workplans moving in this project phase. However, except for one district, no District Water Supply Office has yet adopted the step-by step approach for non-Finnida supported projects. As such the institutionalization of the approach within the DWSS system at district level has not been very successful.
2. The on-going decentralization process raises the profile of political decision-makers with respect to district development at all levels. The political leaders want the professionals to support them, consult with them and follow their instructions as agreed upon in the DDC. Nationally initiated projects in which the district has little say will find it harder to receive support at the district level.
3. The decentralization and the change in role of the DWSS leaves responsibility for water resources management at present unassigned.

Lessons Learned

1. The stop-by-stop approach assigns clear responsibilities to all partners, leading to clear discussions about inputs and expectations.
2. Community level resource mapping generates a considerable improvement in quality of project design (with respect to source, drainage, starting point for improvement).
3. Community level mapping in combination with the district development plan leads to greater political participation of community representatives at (sub) district level.
4. The coordinating role of the DDC and the number of WS&S partners (government line agencies, NGOs, donors) active at district level encourages choice of intervening agency, thus enhancing a certain degree of competition in WS&S delivery and a greater diversity in WS&S products and services.

Conclusion

The political and administrative developments in Nepal force new role on all actors. A major challenge is found in the need to carefully develop a new institutional framework and an approach that suit the changed environment. As an elected decision-making body, the District Development Committees play a lead role in district development and represent the users of water supply and environmental sanitation services and facilities. The DDC is responsible to facilitate the provision of service to the population in collaboration with other sector partners at district level. In a next phase a change in organisational set-up of the RWSSP will reflect the new realities and provide support as needed to all sector partners through district umbrella agreements: DDC, district level line agencies, NGOs and the private sector.

The step-by-step approach combined with the community level resource mapping exercise offers a great opportunity for physical improvement of WS&S facilities in a context of greater social and health awareness at household and community level, and with a great potential for taking political responsibility at sub(district) level, all contributing to enhanced sustainability of the services and facilities constructed.

To further support capacity development and service delivery the World bank is preparing a RWS&S development Fund aimed at providing grants to improve rural water supply and sanitation in parts of Nepal. Any accountable organisation which goes into contractual relation with an organized user group to support the group, can apply for financing from the Fund. The emphasis of the project is on the private sector development but it does not necessarily exclude any support organization, provided it is accountable and professionally capable. The Fund idea is in line with the global trend of privatizing and changing the role of governments from provider to facilitator as well as separating the function of water resources management, legislation and monitoring from implementation.

The role of the DWSS is re-oriented towards its function as a service agency to the users and their representatives in improving their water supply and sanitation services It should probably also become the guardian of the water resources in the country. There is also a trend to gradually separate the management of the water resources, the quality control and monitoring of the implementation of projects and the legislation from the actual implementation.

Author: Han Heynen

References:

- Evaluation Report RWSSP, March 1994, Heynen et al.
- Project Document RWSSP (formulation), March 1994, Wihuri et al.

4.6 Community Water Management in Yemen

by Mr. Piet Klop, UNDP/DGIP

Context

In many regions of the Republic of Yemen, tribes enjoy a large measure of autonomy. The country does not have a comprehensive water policy in place yet, with the departments concerned busy competing for a dominant role in water resources planning and management. But then, even if a comprehensive water policy were adopted, the central government in Yemen would not have the capacity to impose its rules and regulations on the tribes (besides the current turmoil).

Like most of the country, the region around Rada' has minimal rainfall (200 mm a year) and little surface water resources to speak of: sitting on a major water divide, most of the area is made up of small catchments.

Remittances from Yemenites working abroad paid for heavy investments in groundwater exploitation (dooptwells and pumps). Rada' in particular has over the past 20 years witnessed a vast expansion of the pump-irrigated area under 'qat', the mildly addictive and highly profitable national drug.

As a consequence of groundwater mining (discharge largely exceeds recharge), agricultural and drinking water supplies are in acute jeopardy in many places.

From 1977 the Rada' Integrated Rural Development Project has been the region's principal development authority. Although implemented under the responsibility of the Ministry of Agriculture and Water Resources, the Project operated as a largely independent entity. With Dutch financing coming to an end, it is presently being reorganized.

Objective

Water-related activities of the Project in Rada' included groundwater exploration, construction of water supply and sanitation facilities, surface water conservation, rainwater harvesting and irrigation water saving. These activities were increasingly integrated in an effort to establish sustainable water management at community level.

Activities and Achievements

The concept of drilling-free zones was introduced with a number of communities actually deciding to prohibit drilling within a certain distance from existing wells. The introduction of irrigation water saving techniques and materials led to real reductions in pumping rates. Groundwater depletion could thus be delayed (but not quite reversed).

Source of funding: DGIS,
The Netherlands

Budget (for water-related
activities, from
1987): approx. 5
mln US\$.

Location: Rada', Al Bayda
Province, Republic
of Yemen

Duration (of period under
consideration): 6
years

Responsible agency:
Ministry of
Agriculture and
Water Resources

As incentives for water saving served the 'on demand' construction of water supply and sanitary facilities, small dams and roads (all at a 30% financial contribution from the benefitting communities). The Project offered a wide range of services, too: agricultural extension, introduction of new crops and varieties, crop protection, health education.

With the water situation worsening, the Project began concentrating its efforts in retaining surface water, harvesting rainwater and saving irrigation water in selected catchments. Environmental extension and health education were geared at creating an understanding of the interdependencies between water management and long term prosperity, between water use and health.

Underlying the tentative success of this approach may be the coincidence of community borders with small catchment boundaries. Yet another important factor is the tribal authority structure, which is usually well-established and well-respected.

While understanding of the need to conserve water is indispensable, its profitability remains the very incentive to a farmer. In Rada' it actually paid to use less: saving irrigation water came with lower pumping costs, less irrigation chores, and often higher yields. It helped that in 1990 subsidies on diesel were cut and unit pumping costs almost doubled.

Problems Encountered

As a matter of fact, irrigation water saved can be expended on a larger area. Another problem was that although drip irrigation methods could be used in qat (the principal water guzzler), its introduction was long prohibited as the Government of Yemen regarded water savings in qat cultivation as support for 'our perfidious habit'.

The pressure by the different interested parties to come up with 'showable' results quickly threatened the process of securing community participation in the financing of activities, in integrated water use planning, in setting up management mechanisms, etc. With limited implementing capacity, the generous budget became a surprising liability: only by concentrating on construction works, funds could be consumed 'in time'.

Lessons Learned

Crucial is a basic understanding within a community of cause, consequence and remedy of its water crisis: water should be perceived as a communal and finite resource, impacts of current water use practices on future generations must be clear, etc.

Then, the timing of incentive and 'core activity' is important. People are opportunistic: their commitment to sustainable water management and actual assistance need to be carefully balanced. The Project learned to maintain its leverage.

Activities that address long-term problems of resource management need to be integrated with services that respond to people's short-term needs (merging 'environment' and 'development').

Project credibility is a precious thing to waste when assisting communities to plan and manage their water resources. People's initiatives and demands must swiftly be responded to, and

interventions must be sound.

Conclusions

The Yemeni government created an enabling environment by allowing communities to play a big role in water use planning and management. The Project worked, as much by design as by necessity, closely with the tribal authorities, who have proven to form a sustainable structure, along their rules and at their pace.

Short-term needs and long-term problems must be addressed in an integrated way. All parties should understand and agree, right at the beginning, where their efforts should lead to, what they will be required to do and what benefits they can expect from their input.

Over-funding is as much a threat to the process of establishing community water management as under-funding. It generates a pressure to construct things, rather than to build capacities or to invite true community participation. It also creates a non-sustainable project organization.

Author:	Piet Klop, May 1994
References:	personal experience from 1990 to 1993

4.7 Water Sector Institutional And Management Options - Ghana's Experience

by Mr. E.K.Y. Dovlo, Managing Director, Ghana Water and Sewerage Corporation

1 Background

1.1 The Country

Ghana is located on the West Coast of Africa and has a tropical climate with mean annual rainfall varying from 850 mm to 2000 mm; daily temperature range between 24°C and 35°C and relative humidity between 20 and 70.

The population of Ghana is 15.5 million with a growth rate of about 2.6% and 67% of the population live in communities with less than 5,000 people, regarded as rural and life expectancy at birth is 55.

The country attained independence from British colonial rule in 1957. It is divided into 10 regions which are further divided into 110 districts (political map). It is administered by a central government with decentralised functions to the district level.

The economy is heavily dependent on agriculture with gold, cocoa and timber as main exports. Over the past few years, GNP per capita averaged US\$ 440.

As a result of steady economic decline beginning 1976, the government launched an economic recovery programme in 1983 which has resulted in a steady GDP growth rate of about 5% since 1986.

1.2 The Water Sector

Public water supply started in Ghana in 1928. At independence in 1957 there were only 35 systems. Currently there are 209 piped systems, and 6,600 boreholes fitted with handpumps throughout the country.

Water supply coverage is 76% in urban areas and 46% in rural areas. With respect to sanitation, it is only 61% in urban areas and 11% in rural areas.

2 The Sector Institution

2.1 Introduction

The Ghana Water and Sewerage Corporation (GWSC) evolved from previous division and departments responsible for water supply. GWSC was established by an Act of Parliament in 1965 to:

- i) plan, construct and operate water supply and sewerage systems throughout the country.
- ii) cause its affairs to be managed in accordance with the practices observed in public utility enterprises and ensure that, taking one year with another, its revenues are equal or greater than its outgoings.

The Corporation was mandated to have preference over other authorities in the use of water resources for public, domestic and industrial purposes.

2.2 Past Arrangements

When set up in 1965, the organisational control was central consisting of the Board of Directors, the Managing Director and six Head Office departments namely: Staff Services; Planning and Programming, Design and Construction, Operations, Finance and General Services. Each of the ten regions was headed by a regional engineer.

There were subsequent changes in structure in 1970 and 1981. Figs 1-1, 1-2 and 1-3 show typical Head Office and Regional/District Structures in 1981.

The various departments and divisions had specified missions aimed at the corporate success of the Corporation. The regional and district offices were entrusted with the day-to-day operation of the Corporation's facilities throughout the country.

The regional and district offices gave greater attention to urban water supply to the detriment of the rural population which constitutes 67% of the country's population.

The rural population's demand for greater attention was not met by the organisation and management structure then in place hence further review became inevitable.

2.3 Current Institutional Set-up

The current organisational structure of GWSC was introduced in 1988 after a study sponsored by the World Bank and modifications to typical organisation structure recommended for state owned enterprises in Ghana. Figure 11-1 and 11-2 show the organisation structures at the National (Head Office), Regional/District levels respectively. New feature introduced include a second Deputy Managing Director for Finance and Administration; the first for operations and engineering. Also there is a new Rural Water Department in Head Office and the regions and a Corporate Planning Department in Head Office.

The current framework is conducive for improved water supply delivery and most important enhanced decentralisation.

Decentralisation has been categorised into four types; deconcentration, delegation, devolution and privatisation. The category into which GWSC's falls is delegation. This means simply the transfer of managerial responsibility for specifically defined functions to the regions and districts with defined limits of authority.

The current structure of GWSC, its functional nature and intent is a marked departure from past practices. Though there is emphasis on decentralisation, policy making, monitoring and evaluation. Thus Head Office Department Heads have no direct managerial control over the regional heads who now report to the Deputy Managing Director of Operations. However regional heads follow rules regulations, systems, procedures, reporting formats and schedules, operating and managerial standards prescribed by Head Office Department Heads.

Regional Directors have direct managerial responsibilities for effective running of their regions on a day-to-day basis. They are the principal line managers of the Corporation since it is at their level that the work and mission of the Corporation is centred.

To enhance decentralisation, policy guidelines, procedures and authority limits were introduced for personal management and engineering project management. Similar documents are in preparation for operation and maintenance management and for purchasing and stores management.

Under the State Owned Enterprises Reform Programme, the Corporation prepares a four year rolling corporate plan and signs performance contracts with its sole shareholder, the Government of Ghana.

3 Recent Developments

An organisational structure is not a static entity. It is subject to a number of internal and external influences. Changes in Corporate or national policy, personnel changes, economic factors etc. do affect an organisation and its structure can change to be better placed to solve perceived problems and implement new plans and programmes.

Community organisation is an integral part of the tradition and culture of Ghana. Women have also been playing significant economic roles in Ghana. These entities are getting more involved in all aspects of water supply delivery now.

3.1 National Community Water and Sanitation Strategy

This new programme will be managed by up-grading the existing Rural Water Department of GWSC to a semi-autonomous Community Water and Sanitation Department. Services will be provided on a demand-driven approach.

The prime objectives of the strategy are:

- (i) To provide basic water services to communities that would contribute towards the capital cost and pay the normal O&M costs of their facilities.
- (ii) To ensure sustainability of these facilities through community ownership and management including active involvement of women, the private and public sector.
- (iii) To maximise health benefits by integrating water, sanitation and hygiene education interventions.

3.2 Urban Water Supply Strategy and Organisation

GWSC's prime objective is to provide and maintain acceptable levels of service to the consuming public along economically viable especially in the urban areas.

Based on above goals, management strives to: improve water production and productivity, increase operating profit, expand services and coverage, improve efficiency of operations and improve corporate performance.

The sector strategy formulated to achieve set goals are to rehabilitate systems to

restore lost capacities, manpower improvement programmes, institution of appropriate cost recovery policy by charging adequate, fair and affordable tariffs and institutional reforms like the setting up of a Projects and Construction Management Unit to effectively supervise GWSC's Urban Investment programme.

Institutional restructuring is proposed and includes decentralisation of decision making, seeking greater autonomy for the regions and introducing private sector participation where appropriate.

4 Prospect for Sustainability and Accelerated Growth

4.1 Future Needs and Priorities

A national water and sanitation Master Plan is to be prepared for the period 1995-2005. The target coverage by 2005 is 100% for urban areas and 85% for Rural areas with respect to water supply.

4.2 Future Institutional and Management Options

With current trends the future management of the sector will involve the main sector institution, the private sector, district assemblies and beneficiary communities. It is an unending process and linkages will be better defined in the near future.

4.3 Prospects

The Ghana Government attaches great importance to the provision of good drinking water. The sector institution is thus being continuously assessed, re-organised and strengthened. With a policy of decentralisation, self reliance, mobilization of local resources and donor support, the sector is making visible impacts on peoples standard of living.

It is hoped that access to potable water and safe sanitation will become a reality for the majority of our people in the next decade through common participation and dynamic management.

4.8 Buguta/Makwasinyi Community Water and Sanitation Project, Kenya

by Mrs. Ilse Marks, UNIFEM

Context

The Buguta/Makwasinyi Community Water and Sanitation Project is located in the Voi Division of the Taita-Taveta District in the Southern part of Kenya. The project covers 8 villages in an area of approximately 88 square km. The annual rainfall in this semi-arid area ranges between 480 mm and 650 mm. The sandy soil is suitable for dry land farming and ranging.

The project area is a newly settled area, inhabited by indigenous people from the region and immigrants from upcountry and coastal areas. The current population of Buguta-Makwasinyi is estimated at 12,000 people (ref. trial census 1989). The population is divided in three major ethnic groups. Most people belong to low-income families relying on subsistence farming with livestock as a major source of income.

Source of funding:
WaterAid (London)

Budget: \$ 80,000

Location: Taita-Taveta
District, Kenya

Duration: 5 years

Responsible agencies:
KWAHO, Ministry for
Water Development

The project area has a poor ground water potential and the only water sources available are small springs in the Kasigau Hills. Women have to travel between 6 to 20 km a day to fetch water from the springs. This means a tremendous burden on the women, who are not only responsible for water collection and other household activities but are also involved in farming and income generating activities.

The area is administered by the Makwasinyi sub-location assistant chief, assisted by village elders, public leaders and other civil servants. A number of NGOs, including the Kenya Water for Health Organization (KWAHO), act as intermediaries between the communities and the regional and national governmental organizations.

Objectives

The development objective of the Community Water and Sanitation Project is to improve the quality of life of the community of Buguta/Makwasinyi.

This case study focuses on the main immediate objectives of the project: to improve the availability of clean and safe drinking water and to decrease women's workload.

Activities and Achievements

The project has been initiated by the women who are organized in women's groups. The women felt that an improved water supply system could improve the health situation in their villages and increase their time and energy available for income generating activities.

The women approached the Kenya Water for Health Organization (KWAHO) for assistance.

KWAHO and the Ministries of Water Development, Health and Culture and Social Services organized a meeting with representatives of the communities in order to plan the development and implementation of the project. During the project formulation, special attention was given to the development of an appropriate community management system and a manageable local financing mechanism in order to ensure the sustainability of the project.

With the financial support of WaterAid (London) and the technical assistance of KWAHO, the communities were able to establish a gravity water supply system with 35 km of main and distribution water pipelines, water storage tanks, water kiosks in each village and demonstration sanitary facilities around each water kiosk. The water supply system is serving about 10,000 people.

All involved villages have selected a man and a woman to represent their community in the Water Management Committee. The committee is responsible for the overall management of the water supply system, including the financial management. All households are required to pay a monthly membership fee which covers the maintenance costs of the system and the salaries of the kiosk attendants. The kiosk attendants are trained in operation and maintenance of the water supply system and are responsible for the equal distribution of scarce water. The attendants only provide water to those who can show proof of payment of the membership fee.

The villages have elected the chief of the administrative area to act as chief advisor to the project and provide the link between the communities and KWAHO and the responsible ministries after the phasing out of the project.

As a result of the project, the majority of the population now have easy access to clean and safe drinking water. Through the health education programme, hygiene standards in the community have improved, therefore improving the health condition of the families.

Given women's responsibility for water collection, the project had a very significant impact on women's lives, decreasing their workload and improving the health situation. Women use the extra time for income-generating activities.

The formation of a water management committee and its training in management, operation and maintenance was of utmost importance for the success of the project. The establishment of a local financing mechanism contributed to the sustainability of the project.

Problems Encountered

After the completion of the construction of the water supply scheme some community members were not willing to pay their monthly fees. This problem was tackled through the introduction of the membership card, which enabled the kiosk attendant to deny access to people without this proof of payment.

Lessons Learned

Involvement of the community, with special emphasis on women, right from the identification of their problems and prioritization of their needs to the project implementation improves the sustainability of a community project.

There is a need to develop a continuous link between the community and the implementing agency. In this case, the community selected the area chief to act as the patron which supervises all project activities and provides the link between the community and KWAHO.

It is important to plan a phase-out period during which the community takes over the operation, maintenance and management of the system. The patron plays a crucial role in this period.

Conclusions

This project is a clear example of how community management and a local financing system can promote the sustainability of a rural water supply and sanitation project.

Author:	Ilse Marks
References:	Interregional Workshop on the Role of Women in Environmentally Sound and Sustainable Development, 1992, UNDES and INSTRAW Case study by Margareth Mwangola, Executive Director KWAHO.

4.9 Polish Water Supply and Sewage Disposal Companies - Their Organisation and Ownership Transformations

by Prof. Marek Roman, Warsaw University of Technology

1. The Conditions of Water Supply and Sewage Disposal Services in Poland

The fulfilment of the population needs concerning the supply of drinking water can be generally illustrated by the scope of households connections to water supply networks and by the standards of water supply installations in the households. The data in Table 1 is composed to illustrate the changes taking place in this field in Poland during 1960-1992. The percentage of the urban population supplied by the water supply and sewage disposal networks depends on the size of the town and is significantly larger in big cities than in the small ones, what is presented in Table 2. In rural areas the network water supply and sewage disposal systems are significantly less common than in towns. According to the data of 1987 only about 43% of the rural areas population were served by the water supply networks and about 11% by the sewage disposal systems.

Table 3 presents data concerning the overall length of the water supply and sewage disposal system networks in urban and rural areas. It can be noticed that the length of the sewage disposal networks is significantly shorter than that of water supply networks. It is due to the fact that in small settlements and in the rural areas, equipped with water supply network the sewage is often discharged via local solutions such as effluent-free pits and seeping drainage.

Table 4 illustrates the unit changes in water consumption in the households. It can be generally said that in towns the consumption of tap water is high, however the standard of the water supply installations in the households is not especially high. In a lot of cases it is due to lack of adequate maintenance of the in-house water supply installations. It is assessed that water losses in in-house installations often constitute 30% or more of the whole water uptake in the residential building. In the recent years, however, one can notice some reduction in water consumption by the households. This can be the result of the new economical conditions and very sharp rise in water prices in Poland.

The quality standards of drinking water are set in Poland according to the guidelines from World Health Organisation. However, the quality of the water supplied by the central water supply system is not always satisfactory. According to the data from 1992, based on the results of the controls carried out by the National Sanitary Inspection in towns 3.6% of water supply systems were supplying bad water and 7.1% uncertain water; for the rural areas the values were respectively 4.5% and 7.6%. The situation of population obtaining water directly from wells is significantly worse in this respect. The Table 5 presents sanitary condition of the water obtained from the wells - according to the data from 1992.

Table 6 presents the situation in equipping Polish towns with sewage treatment plants. On this basis it can be said that on 835 towns only 338 have mechanical and biological treatment plants and the same number (also 338) discharges the sewage without any treatment.

2. Organisational Structure of the Water Supply and Sewage Disposal Systems in Poland during 1918-1990

After regaining the independence in 1918 the local authorities were set up, in Poland, having its legal rights and right to own property - the communal property. In the field of water supply and sewage disposal the organisational units which were operating after 1918 usually jointly covered both water supply and sewage disposal. They had their own place among various legal and organisational forms found within communal companies which were classified as follows:

1. Companies remaining under their own control
 - public and legal (not separated or separated from local authorities),
 - private and legal (operating in form of the share or limited company)
2. Mixed companies - having private or co-operative funds operating in form of share or limited company.
3. Licensed or leased companies.

The communal water supply and sewage works usually had the organisational and legal form of the company under the control of the town as units separated or not from the local authorities. They did not have their own legal rights and its assets were the communal property. The companies separated from the local authorities had some degree of independence but it was limited by the lack of legal rights. The companies not separated from the local authorities were forming one of the municipal departments. The separated companies were generally created in big towns and not separated in the small ones. Special legal and organisational solutions were used in relation to the water works in Silesia in 1924 the "National Water Works of Upper Silesia" were formed. It obtained its own legal rights in 1928 and obtained the status of public services company. The region of operations of this company covered: Katowice, Krolowska Huta, Sosnowiec, Bedzin and Dabrowa Gornicza and Swietochlowice, Tarnogora, Katowice, Bedzin and Chrzanow regions.

After the Second World War, after initial reactivation of the previous forms of local authorities, in 1950 the decree of local uniform authorities were introduced which eliminated the communal property and did not allow for towns to have legal rights. The municipal water and sewage works were run as companies operating under rules of so called economical calculations in form of single discipline companies or within the scope of multidiscipline company or as budget-founded works or units. The multi or single discipline companies were operating as national companies and in 1981 were given the status of public services companies. The same legal and organisational status of the municipal water and sewage works was existing until 8th of March 1990 when Polish parliament passed the decree on local authorities.

At the beginning of 1990, prior to introduction of the local authorities decree there were about 50 single discipline water and sewage companies, out of which 80% had provincial or regional character. In smaller towns not covered by the provincial and regional companies the water and sewage works were operated within the multi-discipline companies - so called communal services or communal services and housing companies, in which structure there often were individual departments separated to carry out services in individual disciplines - as water and sewage works, town cleaning, greenery and others. Apart from that in small towns the water and sewage works were operated not within the companies but as budget-founded works or units.

3. The Organisational and Ownership Changes in the Municipal Water and Sewage Work Introduced in 1990

On the basis of the local authorities decrees the water supply and sewage disposal companies became, in 1990, the property of local authorities. Previously they were national - the municipal or communal often found in their names did not relate to their actual situation as they were neither the property of towns nor local authorities.

The local authorities took over the water and sewage works as their own communal property, obtained on the basis of the local authorities decree and simultaneously there were the obligatory tasks defined by that decree to fulfil the needs of the local population concerning the supply of water and disposal and neutralisation of the sewage. The decree has legalised and obliged the local authorities to choose the legal and organisational form of conducting the economical activities in this filed setting the deadline by which the choice should have been made. However, this deadline is continuously extended by the subsequent amendments to that decree. Until this deadline the companies, although renamed as communal and being the property of the local authorities have to operate on the basis of regulations for the national companies.

The following organisational and legal forms can be taken theoretically into consideration in transformation of the existing communal companies:

1. Companies under public control
 - a) separated from the local authorities
 - b) not separated from local authorities
2. Companies under private control
 - a) share companies
 - b) limited companies
 - c) licensees and leases to legal or physical person.

In order to investigate how transformed are municipal water and sewage works in practice, the Institute of Water Supply and Water Construction of Warsaw Technical University carried out, at the end of 1993, a questionnaire sent to 539 institutions running communal water and sewage works. The answers were received from about 40% of the questioned companies. During that it became apparent that significant proportion of the institutions underwent such changes that their previous addresses were out of date and it was difficult to find the addresses of their new institutions which took over the function of the previous ones.

On the basis of the carried out questionnaire the various legal and organisational forms were identified amongst 223 institution that had send the information - they are presented in Table 7. Table 8, however, presents the process of transformations of the municipal water and sewage works after introduction of the local authorities decrees, that is from 1990 to IIIrd quarter of 1993.

The data obtained from the questionnaires indicates that by September 1993 81 of the previously existing municipal water supply and sewage disposal companies did not undergo transformations. That constitutes 36% of the total number of municipal water supply and sewage disposal companies that provided information on this subject. Those companies operate on the basis of regulations for national public services companies, although due to the decree they have changed their ownership forms and stopped being the property of the state

and became the property of local governments.

So far 142 out of 223 companies which sent the answers to the questionnaire have undergone transformation. The most often chosen, by the local authorities, solutions concerning the organisational and legal forms were: budget-founded works (47% out of 142 transformed companies) and one-person partnership of the local authority funds (37%). It can be assumed that these both forms constitute the first stage of the transformation of those, in total, 113 institutions. With this background in mind it has to be noted that local authorities approach with great care and reserve all the transformations taking the water supply and sewage disposal out of the public (communal) ownership sector and out of public (subordinate to local authorities) management.

It is interesting to note one special case of forming large, regional national company, which aim is to provide water to smaller companies dealing with distributing water to the receivers. This is the result of transformation of the Provincial Water Supply and Sewage Disposal Company in Katowice into Upper Silesia Water Supply and Sewage Disposal Company in Katowice. Such solution is in agreement with the decree on local authorities, as it allows for formation of the national company in the communal sector, if its scope of activities exceeds the area of one province. In the above mentioned case the following layout was formed: wholesaler (central company) - retail saler (local companies - named in this case as area companies). It is difficult to asses so far whether this solution is more favourable than the previous one. It would require a complex analysis and assessment of this type of restructurisation.

The conclusion can be drawn from the presented situation regarding the transformation of the municipal water supply and sewage disposal companies that there was not a single company formed as a water supply and sewage disposal company under the direct control of local authority, though this is the natural form and used to a good effect in other countries, among others in Germany. Sadly in the current legal situation there is no clear place for such form of communal companies. The obstacle is that there is no decree about the economical activities of the local governments.

4. Comments and Final Conclusions

1. The presented here results and progress of the transformations regarding the legal and organisational structure of municipal water supply and sewage disposal companies during 1991-1993 have to be treated as some sort of approximate description of the situation, as it is the result of the studies based on the questionnaires, in which the information from about 220 institutions dealing with the problem of water supply and sewage disposal in towns. In Poland there are 835 towns (according to the data from 1992) - the quantitative range of matters is significantly wider than it was possible to present in the studies carried out.
2. It arises from the carried out analysis that majority of the transformations carried out is down to use of two ownership and organisational forms: 1) local authority budget-founded works and 2) one person partnership of the local authority funds. Those two forms covered over 80% of the water supply and sewage disposal companies transformed (this relates to the group of companies which have sent replies to the questionnaire). It indicates that local authorities do not intend to take the municipal

water and sewage works out of public sector of ownership and public management. Large proportion of local authorities still has not carried out transformation in their water supply and sewage disposal companies (36%).

3. It is urgently necessary to correct and amend the legal regulations in such a way as to allow local authorities to transform their water and sewage works using various legal and organisational forms of conducting the activities within that field as follows:
 1. budget-founded works within the local authority structure,
 2. communal company owned by local authority,
 3. limited or share company,
 4. licensees and leases,
 5. national public services company.The regulations should not favour anyone of the possible solutions and only create possibility for taking decisions by the local authorities or their organisations or by the national administration (this in case of national companies).
4. The leading rule should be conduction of such a transformation which would not destroy reasonably well functioning organisational structures and worsening the condition of fulfilment of the needs of the local community.
5. It is desirable to carry out systematical and wide studies on progress and results of the ownership transformations of both urban and rural water supply and sewage disposal companies.

Table 1 Changes in water supply installations in the households during 1960-1992

details	years				
	1960	1970	1980	1990	1992
1. households equipped with water supply installations in % 1)					
in total	29.9	47.7	65.5	85.9	87.6
in towns	65.4	75.2	87.8	95.3	95.9
in rural areas	3.7	12.1	37.4	67.6	71.2
2. households having bathroom in %					
in total	13.9	30.7	54.6	73.6	75.5
in towns	26.0	48.4	71.0	83.5	84.7
in rural areas	1.4	5.8	27.1	64.2	67.3

1) % in relation to the total number of all households in a given group

Table 2 Population in the towns equipped with water supply and sewage disposal networks in 1992

town size group (number of inhabitants)	population using water supply network % 1)	population using sewage disposal network % 1)
less than 5000	61.0	30.4
5000-9999	77.1	50.9
10000-19999	81.4	68.6
20000-49999	88.0	79.0
50000-99999	91.0	83.3
100000-199999	94.9	89.0
200000 and more	90.0	91.5
in total	90.5	81.5

1) % in relation to the total number of all households in a given group

Table 3 The length of the water supply and sewage disposal network in Polish towns

details	years			
	1980	1990	1991	1992
distributive water supply network				
towns km	27700	37400	39309	
rural areas km	25400	55700	62393	
in total km	53100	93100	100707	112611
sewage disposal network				
towns km	18000	23700	24300	
rural areas km	2500	3000	3500	
in total km	20500	26700	27800	28815

Table 4 The changes in water consumption in households using water supply systems during 1980-1992

years	unit water consumption in l/day for 1 inhabitant	
	towns	rural areas
1980	203.6	29.0
1985	214.2	39.2
1986	217.5	41.1
1987	218.4	45.0
1988	219.2	49.0
1989	216.4	54.8
1990	209.6	57.5
1991	203.0	50.7
1992	203.0	62.8

Table 5 The sanitary assessment of the water taken by the population from wells in 1992

type of well	water quality in % of the controlled wells		
	good water	uncertain water	bad water
public wells			
towns	30.0	20.8	43.2
rural areas	25.9	19.9	45.8
private wells			
towns	50.1	7.2	42.7
rural areas	38.2	8.2	53.6

Table 6 Urban sewage treatment plants in Poland (acc. to data from 1992)

details	years			
	1980	1990	1991	1992
1. total number of towns	804	830	833	835
2. number of towns served by treatment plants				
a) mechanical only	357	467	478	497
b) mechanical and biological	158	165	160	159
	199	302	318	338
3. number of towns not served by the sewage treatment plants	447	363	355	338

Table 7 The ownership and organisational forms in communal water supply and sewage disposal companies in Poland at the end of 1993 1)

ownership and organisational form	number of institutions with a given ownership and organisational form
1. communal companies on conditions for national companies	81 (36.6 %)
2. local authority budget-founded works	67 (30.05%)
3. one-person partnership of local authority fund	53 (23.8%)
4. multi-person capital partnership	2 (0.9%)
5. share company	5 (2.25%)
6. company with foreign capital	1 (0.45%)
7. providing services on basis of agreement with local authorities	1 (0.45%)
8. others	13 (5.8%)
In total	223 (100.0%)

1) Data on basis of the questionnaire answers sent by 223 municipal water supply and sewage disposal companies

Table 8 Changes in ownership and organisational character in municipal water supply and sewage disposal companies during 1990-1993 1)

years and quarters	number of institutions transformed		number of institutions left not transformed
	in a given time period	together with previous period	
before 1991	1	1	222
1991			
I quarter	3	4	219
II quarter	7	11	212
III quarter	11	22	201
IV quarter	13	35	188
1992			
I quarter	35	70	153
II quarter	17	87	136
III quarter	16	103	120
IV quarter	8	111	112
1993			
I quarter	19	130	93
II quarter	4	134	89
III quarter	8	142	81

1) Data on basis of the questionnaire answers sent by 223 municipal water supply and sewage disposal companies

4.10 Project of Irrigation of New Zone of Golodnaya Steppe, Aral Sea basin, Uzbekistan

by Dr. N.I. Goroskov, Deputy Director SPA SANIIRI

Source of funding:	State budget
Budget:	2974 million US\$
Location:	Uzbekistan, Syrdarya river
Duration:	16 years
Responsible agencies:	GLAVSREDAZIRSOVHOZSTROY

The irrigation has the age-old traditions in Central Asia and the agriculture was always being the main water consumer with a tendency to the increase of water consumption. In 1960 the level of water consumption reached the critical limit (61% from total flow in Aral sea basin - 120 km³), although the ecological situation in region was stable as yet. The fast increase of population (1960 - 14.2 mln, 1975 - 24.8 mln, 1990 - 36.4 mln) and the inertness of economy development of region have determined the permanent building up of irrigation areas with the weak tendency to decrease a water consumption per unit of agriculture production and per unit of irrigation area (12...25 th.m³/ha).

In 1980 the water intake in region reached 121.7 km³ (taking into account the return water) and it became the reason of Aral sea crises. Side by side with the water deficiency the qualitative characteristics of water in sources have changed, especially this processes affected on middle and lower reaches of rivers. For example the mineralization of water in Syrdarya river increased upto 1.12 g/l and 1.73 g/l respectively in vegetation period and upto 1.41 g/l and 1.70 g/l in nonvegetation period. Apart from the common increase of mineralization the exceeding of utmost permissible concentration (UPC) of matters which connected with the application fertilizers, pesticides and defoliators was registered. The industrial and urban effluents also cause the pollution of water, for instance UPC for oil-products has been exceeded in 5 times.

Objectives

The main object of this project is the complex development of virgin lands to ensure the maximum saving of nature resources by way of a practical application of scientific-technical achievements to create the conditions for high water productivity and normal life of population.

The main results of project: The net irrigated area is 316.3 th.ha. The length of main distribution canals is about 716 km., including 74% with the antifiltration lining. The on-farm irrigation network is 3722 km, including 87% flume canals and about 13% of irrigated pipelines. Most part of area is irrigated by surface irrigation and the flexible hoses and other control systems of watering are used for water distribution into furrows. The area is drained by the modern types of drainage: subsurface drains (on the average 50 m/ha) or systems of vertical drains (about 200 wells).

Thanks to the high irrigation efficiency (0.82), water application efficiency (0.75) and the drainage system the optimal moisture of soils is provided with the summary water consumption which exceeds the irrigation water-supply on 17...35% taking into consideration

the precipitation. With result that the water exchange between the zone of aeration and groundwaters is minimum, no exceeding 15% of absolute value, and consequently the drainage flow with bad quality of water is minimum too. The project provided the runoff of more part of water with bad quality to Arnasay depression of Kyzilkum desert and prevents the pollution of Syrdaraya river. If to compare the specific water intake in new zone of Golodnaya steppe (8500 m³/ha) and one in its old part (14000 m³/ha) then taking into consideration same productivities after the reconstruction of old irrigation systems it's possible to save upto 30% water for improvement of environment and the development of new lands in conditions of water limitations for all states of region. The production of raw cotton on project area reached 500 th.t. All expenses were justified in 16th year from the beginning of development.

The ramified infrastructure was created in region: roads - 2 th.km, lines of high-voltage electro-transmission 1.5 th.km, gas-main - 560 km, water-mains - more than 700 km, communication lines - 700 km, modern settlements - 49 (with a schoolhouse, a hospital, shops and another facilities), 90 th. new working places.

Problems Encountered

The real rate of lift of groundwater table was in 2...3 times more than it was forecasted by the project. In consequence of which the terms of drainage construction have been corrected and moreover a new technology for the construction of subsurface drainage with high groundwater level and trenchless drainer (DT-252) were created.

Conclusions

The method of the complex development of virgin lands, which was worked out in Uzbekistan, allows considerably to decrease a specific water consumption and negative influence on water sources with the expansion of irrigated lands.

In process of the perfection of irrigation systems of alluvial valley it is necessary to watch that the rate of reduction of specific water consumption accords strictly with the possibility of reduction of leaching quota, otherwise it may be to intensify the process of salt accumulation in soils.

Additions

The Interstate Coordination Water Commission was created to regulate the water distribution between 5 new independent states of region and to develop the strategy of water management in the future taking into consideration the socio-economic development of the region.

However, on the republic level, we have no material change in the system of management water resources. There exist only approaches to the decentralization, paid water use and privatization.

4.11 Organisation des Systèmes de Gestion de l'Eau Potable en Algérie

by Mr. Benblidia, Administrateur - Fonds de Participation Construction

Depuis l'indépendance, l'organisation du secteur de l'eau potable en Algérie a connu une évolution importante, marquée par une série de modifications, de restructurations et de créations d'entreprises. Ces nombreux changements traduisent d'une part les préoccupations d'adaptation au contexte politique (socialisme et planification centralisée) et à son évolution (décentralisation, ouverture sur l'économie de marché à partir de 1988) et d'autre part, le souci de satisfaire au mieux des besoins croissants de la population (taux d'accroissement démographique supérieur de 3%) et surtout des demandes des villes.

Evolution de l'Organisation du Secteur de l'Eau Potable

De 1962 à 1970: mis à part certains ensembles complexes, réalisés et gérés par l'Etat, l'exploitation des installations relève exclusivement des communes. très nombreux opérateurs (services communaux, régies, sociétés intercommunales, sociétés privées). On assiste à une dégradation constante de la situation, en raison des moyens financiers faibles des communes et de leurs services techniques.

En 1970: Regroupement de toute l'activité hydraulique et création d'une société nationale SONADE - chargée de la distribution de l'eau potable et industrielle sur tout le territoire.

De 1970 à 1988: la mise en oeuvre de la politique de décentralisation conduit à modifier les attributions de SONADE en 1974 on lui assurant les responsabilités des activités de production mais en redonnant la fonction distribution aux communes.

En 1983: Nouvelle modification dictée par le constat de l'échec de la politique de séparation de la fonction adduction (SONADE) de la fonction distribution (communes). Création de 13 entreprises régionales chargées de la gestion des installations (dans un certain nombre de Wilayas) de la production, de la distribution l'eau potable et industrielle et de l'assainissement.

En 1987: pour assurer la couverture de l'ensemble du territoire, le gouvernement décide en 1987 de modifier encore l'organisation du secteur en créant 26 entreprises de Wilaya, coexistant avec 9 entreprises nationales à caractère régional.

Ces 35 entreprises publiques (EPIC) représentant 80% de la production globale de l'eau potable dans le pays (le reste étant assuré par des régies communales).

Au plan institutionnel, un facteur favorable pour la conduite d'une politique cohérente de l'eau se trouve dans l'unicité de responsabilité gouvernementale confiée au Ministre de l'Equipement en matière d'alimentation en eau potable.

Il existe un code de l'eau et un code de l'environnement qui fournissent un cadre juridique et réglementaire complet. Le code de l'eau accorde la priorité à l'eau potable par rapport aux autres usages.

Amélioration de l'Organisation du Secteur de l'Eau Potable et de l'Assainissement

La situation actuelle des entreprises de gestion de l'eau potable et de l'assainissement (qui sont toutes des entreprises publiques) est caractérisée par:

- une qualité de service très hétérogène selon les régions (parfois excellente, souvent médiocre)
- une certaine surcharge de personnels de qualification moyenne
- un comptage en évolution mais encore insuffisant
- une sensibilisation insuffisante des usagers aux économies d'eau.

Les modifications successives n'ont pas permis la stabilité nécessaire à la mise en place des systèmes performants de gestion et surtout à la formation des hommes et des équipes nécessaires. Il y a lieu de noter cependant que grâce à des investissements importants de l'Etat, et à de nombreux grands travaux d'adduction et d'extension de réseaux, la situation au plan de la fourniture de l'eau aux usagers s'est considérablement améliorée. Il est certain qu'une organisation de la gestion basée sur la formation des hommes, et sur la participation accrue et réelle des usagers permettrait d'améliorer convenablement l'efficacité de l'alimentation en eau potable en différenciant les nouveaux investissements qu'appelle la croissance urbaine.

Un projet de financement par un prêt de la Banque Mondiale est en cours de mise au point - Il porte essentiellement sur la réhabilitation des infrastructures existantes tant en matière d'eau potable (pour la résorption des fuites) qu'en matière d'assainissement pour la remise en état des stations d'épuration à l'arrêt.

Dans le cadre de ce prêt, des financements sont réservés au renforcement des moyens humains, organisationnels et matériels des établissements en charge de l'exploitation de ces infrastructures.

Une évaluation de l'ensemble des entreprises de conduite d'eau régionale et de Wilaya doit être faite pour:

- évaluer l'efficacité technique
- évaluer l'efficacité financière
- définir les améliorations au plan des équipes et des hommes
- définir les améliorations au plan de la planification des usagers.

Les réformes actuelles dans lesquelles s'est engagée l'Algérie offrent les conditions de participation privée dans la gestion et même dans le financement des infrastructures d'eau potable et d'assainissement.

4.12 Projet d'Appui aux Villages Dotés de Points d'Eau Modernes: Animation et Sensibilisation à l'Assainissement autour du Point d'Eau, Hygiène et Utilisation Rationnelle de l'Eau, Mali

by Mrs. Assa Soumare, Présidente de l'ONG AID

durée: 3 ans
 source de financement: Caritas Centrale Vienne (Autriche)
 coordination: ONG AID (Assistance aux Initiatives de Développement)

Contexte et Situation Socio-économique

La Zone du Projet

Le projet se situe dans la zone d'intervention de Mali Aqua Viva. Elle couvre 5 cercles (Bla, Kouiala, San, Tominian, et Yorosso) et 2 régions (Ségou et Sikasso).

Les types de population intéressés par le projet sont: les Banbara, Bobo, Marka, Minianka et Peulh. Les habitants de ces régions sont principalement des agriculteurs et éleveurs. L'artisanat et le petit commerce sont pratiqués par les hommes et les femmes.

Le Projet d'Appui aux Villages Dotés de Points d'Eau Modernes

Depuis 20 ans Mali Aqua Viva réalise des forages, installe des pompes et forme les réparateurs villageois. Compte tenu de la permanence du projet Mali Aqua Viva, les zones d'intervention sont en effet les mieux couvertes en points d'eau modernes du Mali (4000 forages réalisés).

Les pompes tombent fréquemment en panne faute de bonne maintenance. Les pièces de rechange sont disponibles sur le marché dans un cercle. Les artisans-réparateurs existent déjà pour faire des réparations courantes.

C'est à partir du potentiel qui existe en points d'eau modernes que l'ONG AID (Assistance aux Initiatives de Développement) s'est fixée comme l'objectif principal, la mise sur pied d'équipes spécialisées dans le domaine de l'animation et la sensibilisation. La finalité est d'aider les villageois à mieux s'occuper de leurs points d'eau (surtout les femmes)

Contraintes Dominantes

Les objectifs des programmes d'hydraulique villageoise étaient de sécuriser les villages dans le minimum de temps, par la création de points d'eau modernes : forages équipés de pompes pour les populations, puits à grand diamètre pour l'abreuvement des animaux, sans tenir compte des charges récurrentes liées à la maintenance des installations.

Au fil des années, les pannes successives des moyens d'exhaure ont contraint les différents intervenants à trouver les solutions qui leur semblaient les mieux appropriées.

- l'uniformisation du matériel de travail et d'exhaure
- la mise en place d'un service après vente de pièces détachées

- la formation des artisans-réparateurs
- la mise en place des comités de gestion d'eau dans chaque localité.

Toutes ces solutions ont été envisagées en vue de responsabiliser les bénéficiaires des ouvrages qui en sont aussi les propriétaires.

Dans la majorité des cas, ces démarches ont conduit à la prise en charge partielle ou totale des frais d'entretien et de réparation des moyens d'exhaure par les villageois eux-mêmes.

Objectifs

- généraux:
- améliorer la qualité d'eau pour les enfants et la population en général
 - améliorer les conditions d'hygiène et d'assainissement autour du point d'eau
 - améliorer le niveau d'organisation des villages afin d'atteindre l'auto-développement.
- spécifiques:
- permettre aux populations de disposer de suffisamment d'eau potable pour la consommation,
 - faire le petit arrosage (arbres, pépinières...)
 - promouvoir des actions d'éducation pour le traitement de l'eau de boisson (javellisation, filtrage, désinfection des récipients...)
 - faire le maraîchage avec les femmes à partir des excédents d'eau
 - créer les comités d'hygiène autour des points d'eau (petits aménagements autour du point d'eau, antibourbiers, construction des aires de lavage...)

Activités et Réalisations

- Animation: le projet d'appui au villages dotés de points d'eau modernes cherche à responsabiliser les villages pour que ceux-ci puissent:
 - 1 apprécier l'avantage de l'eau potable par rapport aux eaux de surface
 - 2 s'engager pleinement dans le système de gestion des pompes afin de réduire leur dépendance du projet d'hydraulique villageoise.
 Au cours des causeries débats dans les villages, nous avons remarqué qu'une information et une éducation sanitaire sont indispensables pour motiver les populations à consommer l'eau de la pompe. Pour ce faire, le technicien du service d'hygiène est sollicité pour travailler avec l'équipe du projet.
- Formation et recyclage des artisans ruraux, du personnel du projet et des services impliqués.
- Alphabétisation des membres du comité de gestion de l'eau et des femmes.
- Redynamisation des comités de gestion des points d'eau.

Résultats en Termes Quantitatif et Qualitatif

Pour le moment on ne peut pas parler de résultats, car le projet a démarré il y a juste 4 mois. Sur 60 pompes à pied visitées, 35 sont fonctionnelles et 25 non fonctionnelles, sur les 5 pompes solaires vues, 4 marchent et une est en panne. Suite à la sensibilisation et à l'animation, des caisses pour l'entretien des points d'eau sont créées.

Impact sur les Couches Sociales

- amélioration des conditions d'hygiène autour du point d'eau
- diminution des maladies liées à l'eau
- création d'activités génératrices de revenus pour les femmes (maraîchage...)
- prise de conscience des collectivités à la notion d'eau potable et d'assainissement.

Un des problèmes que l'animation cherche à résoudre, c'est de changer les mentalités en ce qui concerne l'hygiène et la santé. Ce changement de mentalité touche surtout les femmes.

En campagne, la femme veut le point d'eau à proximité de sa maison. Dans certains cas, les points d'eau sont éloignés du village. En ce moment, la femme préfère s'approvisionner en eau à partir du puits traditionnel ou de la mare plus proche des habitations car elle est surchargée par les travaux domestiques (corvée de bois, de mouture et d'eau).

En milieu rural, la femme ne mesure pas encore de nos jours les relations entre eau et santé. Les relations entre la qualité de l'eau et les maladies liées à l'eau sont encore très mal perçues par les populations rurales, principalement les femmes.

Un adage dit en milieux bambara "Il y a des mauvaises gens, mais pas de mauvaise eau". Si en sortant du forage l'eau est très bonne qualité, elle peut être contaminée aussi facilement lorsque le récipient pour son transport et sa conservation ne respecte pas certaines conditions d'hygiène (désinfection, javellisation, filtrage...) La femme en milieu rural ne fait pas attention à la propreté de l'eau.

En milieu rural, le point d'eau est un ouvrage collectif contrairement au milieu urbain où l'ouvrage est individuel et privé. Les femmes se retrouvent alors autour du point d'eau pour échanger des nouvelles. La réalité est qu'elles souhaiteraient avoir leurs puits ou leur forage privé dans leurs concessions. Les coûts élevés de ces ouvrages poussent les collectivités rurales à réaliser des points d'eau collectifs dans les villages. Toute la population y participe en fournissant la main-d'œuvre, soit en faisant une contribution financière.

Or l'exploitation des ouvrages collectifs causent les problèmes ci-après:

- encombrement à certaines heures de la journée
- création de borbier favorisant la pollution de l'ouvrage
- mauvaise utilisation des moyens d'exhaure entraînant des pannes fréquentes
- manque d'hygiène et insalubrité des eaux liées à la fréquentation des animaux autour du point d'eau (le cas de puits mixtes: villageois et pastoral)
- l'eau du puits souillée par les cordes qui traînent dans le borbier.

Ces problèmes favorisent la détérioration de la qualité de l'eau dans la plupart des ouvrages traditionnels et même des ouvrages modernes équipés de pompes.

Pour remédier à cette situation, une sensibilisation des utilisateurs aux règles élémentaires d'hygiène et de propreté est nécessaire. Aussi une éducation sanitaire dans ces domaines s'avère indispensable.

Ces actions concernent surtout les femmes qui sont les pourvoyeuses d'eau. L'hygiène et l'assainissement du point d'eau doivent être des soucis constants.

Raisons du Succès

- Suivi régulier
- séances d'animation et de sensibilisation
- causeries débats sur l'hygiène, la maintenance des ouvrages et l'utilisation rationnelle de l'eau
- Implication des hommes et des femmes dans la gestion des points d'eau.

Problèmes Rencontrés et Expériences Recues

Il n'y a pas eu de problèmes majeurs dans l'exécution du projet. Le projet étant à ses débuts, on ne peut pas tirer de leçon pour le moment.

La Gestion du Point d'Eau en Milieu Rural - Conclusions

La gestion est en général confiée à un comité qui est formé au niveau du village. Les femmes sont faiblement représentées dans les comités de gestion du point d'eau. Cela s'explique par le fait que ce sont les hommes qui cotisent pour l'achat des pièces et pour la réparation de la pompe en cas de panne.

La gestion se limite en réalité à la réparation en cas des pannes, étant donné que la vente de l'eau n'est pas encore rentrée dans les coutumes en campagne. Pour faire face aux frais de réparation, des prestations de service sont faites par les jeunes dans les champs pendant l'hivernage, tantôt des cotisations sont fixées par famille ou par nombre d'imposables.

Les seuls cas de vente d'eau se font autour des pompes solaires, mais la gestion des recettes cause des problèmes car il n'y a pas de banque dans les villages pour sécuriser l'argent.

Actuellement, à la suite de l'animation faite par notre ONG, les femmes acceptent de payer pour l'eau et même les hommes.

Les prix varient d'un village à un autre (50 FCFA pour 200 l = 1 fut = une barrique, 25 FCFA pour 200 l d'eau dans d'autres villages...). L'eau sera vendue à tout utilisateur, une caisse pour la gestion de l'eau sera constituée, ce qui facilitera les entretiens et les réparations des ouvrages.

Il faut tenir compte des dimensions culturelles. Dans les campagnes, la répartition des tâches est faite selon le sexe. Pour les actions communautaires mixtes, la gestion des fonds est confiée aux hommes (cas des puits par exemple). Les femmes ne sont même pas consultées quant à l'utilisation des fonds et ne sont pas souvent informées. Elles acceptent cette façon de faire, car elles trouvent que ce sont les hommes qui payent les frais de réparation des pompes.

Participation

Il y a des reliquats de fonds à rembourser par les collectivités pour l'installation des pompes (manuelles, à pied, solaires). Beaucoup de collectivités ont payé leur participation à l'installation des pompes. Les populations participent à la prise en charge de l'équipe de forage (nourriture, logement...).

4.13 Plan Directeur de Développement du Secteur Eau et Assainissement 1991-2010, Zaïre

by Mr. Tshiongo Tshibinkubula wa Tumba, PDG de la Regideso

Contexte

Conditions socio-économiques et culturelles: Pays en voie de développement.

Arrangement institutionnel: BAD - Gouvernement Zaïrois.

Contraintes globales:

- Retards dans le décaissement de fonds en devises;
- Déblocage non assuré des fonds en monnaie locale;
- Difficultés de tous genres dans la finalisation de l'étude à cause de retards dans la remise des rapports intermédiaires entraînant des prestations supplémentaires et un surcroît des coûts.

Source de financement:
BAD/Gouvernement
Zaïrois

Budget:

Localisation:
Rep. du Zaïre

Durée: 6 ans

Agence Responsable:
Comité National d'Action
de l'Eau et de
l'Assainissement
"CNAEA"

Objectifs

Doter le Zaïre d'un Plan Directeur Bi-Décennal du Secteur Eau et Assainissement. Les objectifs du Plan Directeur Bi-Décennal:

	AEP		ASN	
	urbain	rural	urbain	rural
Desserte	100%	80%	40%	100%
Dotation	80 l/hab/jr	20 l/hab/jr	-	-

Activités et Attentes

Résultats en Termes Quantitatifs et Qualitatifs

- . Elaboration de 11 Plans Directeurs Régionaux;
- . Identification de 3.945 projets répartis dans les 11 Régions;
- . Valorisation des investissements nécessaires par Régions pour atteindre les objectifs en 20 ans.

Impact sur les Groupes Sociaux

- . Le Plan Directeur identifie des projets couvrant l'ensemble de la population;
- . L'augmentation du taux de couverture entraîne une diminution de la corvée de l'eau pour la femme;
- . Education de la population à la gestion du point d'eau; développement des activités communautaires.

Raisons Fondamentales pour le Succès

- . Organisation de l'étude qui ayant permis la visite de 181 centres pour 348 centres urbains et ruraux identifiés, a donné lieu à une planification à partir de la base;
- . Adoption d'une stratégie basée sur la participation communautaire dans les projets identifiés dans le plan;
- . Agencement des projets en 4 plans quinquennaux disponibles pour une Conférence des Bailleurs de Fonds.

Problèmes Rencontrés

- . Turbulences sur le plan politique et social;
- . Instabilité gouvernementale;
- . Certains Bureaux d'Etudes n'ont pas mis, dès le départ, assez de sérieux pour le travail demandé;
- . Les 2 premiers points ont entraîné un allongement des études;
- . départs des Bureaux d'Etudes après les troubles de 1991;
- . Arrêt de la coopération internationale ayant entraîné la suspension de plus de 48 projets d'un coût global de plus de 175 millions \$ pour l'ensemble des s/secteurs.

Leçons Tirées

- . Il est avantageux de planifier sur une longue période;
- . Vu la superficie du pays, il est indispensable de prévoir une planification par Région et une planification partant de la base.

Conclusions Générales

- . Les études du Plan Directeur ont pu être achevées malgré les difficultés rencontrées grâce à la ténacité et à l'efficacité des Experts Zaïrois, à la compréhension des Bureaux d'Etudes et surtout à la présence et à la continuité du financement de la BAD;
- . Le Zaïre est pour la première fois de son histoire, doté d'un Plan Directeur du secteur Eau et Assainissement.

4.14 Mise en Place d'un Cadre Juridique de la Gestion du Service Public de l'Eau Potable (et de l'Energie Electrique) au Gabon

by Mr. François Ombanda, Directeur Général SEEG Gabon

* Caractéristiques du Gabon

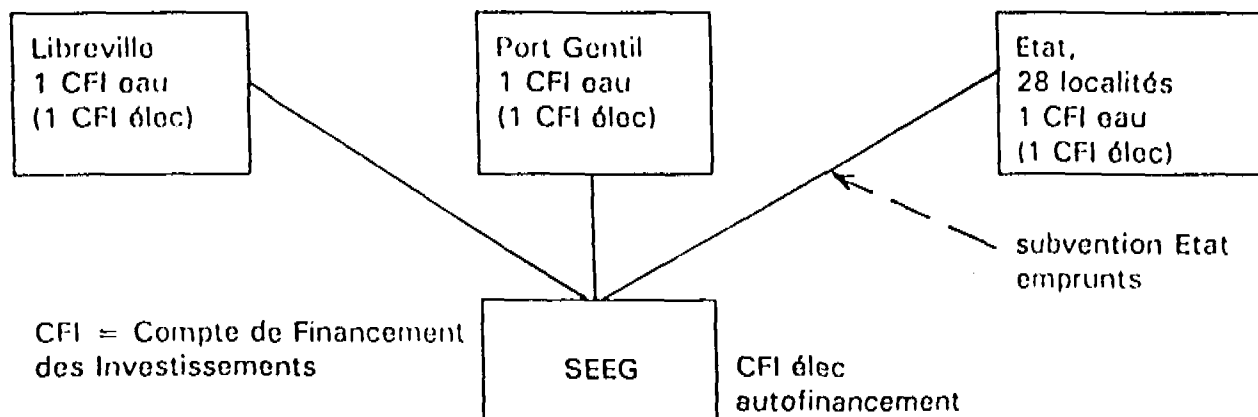
- . 250 000 km²
- . 1 million habitants
- . 50 localités administratives
- . capitale: Libreville (300 à 350 000 habitants)

Activité Eau

- . 30 millions m par an produits
- . 50 000 abonnés
- . capitale: 60% de l'activité
- . volume vendu: environ 80%

Avant 1993

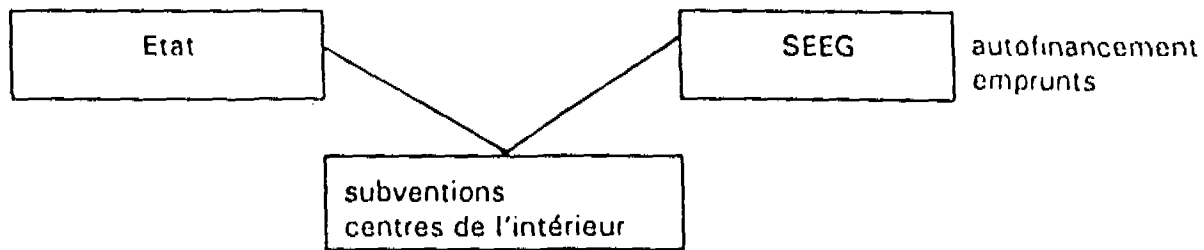
- . 3 autorités responsables (Libreville, Port Gentil et l'Etat sur la reste du territoire)
- . 1 concessionnaire SEEG: société d'économie mixte: 65% Etat et 36% banques et industriels



Inconvénients:

- . Multiples modalités de financement
- . Plusieurs tarification
- . Plusieurs centres de décision
- . Incohérence d'ensemble

Après 1993



Avantages:

- . modalités de financement limitées
- . tarification harmonisée
- . cohérence plus facile à obtenir

Perspectives

- . préparation désengagement de l'Etat dans la gestion de l'activité

4.15 Revenue Enhancement, a Neglected Procedure of Public Waterworks, Malaysia

by Mr. Kam U Tee, waterworks management consultant

Abstract: Although demand management has been achieved in Malaysia, nevertheless, waterworks are run less efficiently due to lack of attention to the commercial aspects of a supply organization. This paper argues that revenue enhancement procedures, hitherto neglected aspect of operations has to be made into a main business priority.

Introduction

Demand Management: an Attained Objective

All waterworks in Malaysia have adopted a full regime of meter reading and billing, some of them as long as 50 years ago. As a result, per capita domestic consumption has been stabilized between 200 to 230 liters per capita per day (lcd). In contrast, some waterworks in neighboring countries that do not supply through meters would, if a full day's pressure could be maintained, return per capita consumptions in excess of 400 lcd. In such cases, however, wastage leads to inadequate supplies and many areas obtain supplies only for a few hours a day, and this had been achieved by allocating inordinate manpower resources to manipulate valves to distribute available water. This daily quest for water can get so intense that local ward politicians have been known to take over control of the valve manipulation crews in order to secure supplies to their wards.

Failure of the Malaysian Systems

Despite the above successes in controlling demand, the process of reading meters, issuing bills and ensuring collections has been, comparatively speaking, neglected over the last 30 years. A 1987 National Non Revenue Water (NRW) study estimates NRW to vary between 40% to 50% in many States of Malaysia. Penang is an exception, with only 20% NRW.

It is now argued that where losses over 40% occur, about 20% of this can be attributed to Under Registration and Under Billing compounded by low efficiencies of collection. The remaining half can be attributed to theft or to physical losses but even so, in the Malaysian context where over 60% of mains are of asbestos cement of over 30 years age, some of them of immediate post World War II vintage, many are now beyond their economic life spans. These pipes have been attacked by acid and sulphate ground waters; the cement matrix of these pipes have been softened and the pipes weakened. Recurrent bursts rather than long standing leaks contribute to losses to the ground. (At a burst rate of 1 pipe burst/km/year, a 6000 km system will have 6000 bursts per annum or 16 bursts per day. If each burst remains unattended for 24 hours, which is common, a considerable wastage from bursts results)

A prioritied pipe replacement program, based on analysis of frequency of bursts and type of breakages, rather than a costly but inconclusive leak detection exercise is required. This is a long term exercise which is more amenable to an annual budgetary provision, made say, from depreciation allowances rather than from a massive injection of capital raised from a loan and

to be implemented within a few years.

Revenue Enhancement: an Immediate Objective

Revenue enhancement procedures - long neglected in the post independence period because of the mind-set that water is an amenity that should be provided either free or at least in highly subsidized form to the new electorate by governments, must now be given priority. Because social welfare costs have been heavy and because growth has been high-up to 7% per annum or a doubling of demand every 10 years, there has never been enough money available to pay for renewals and replacements - the emphasis being on new constructions and more and more mains and capacity. As a result, service has been poor and standards have spiralled downwards.

Revenue Enhancement will focus on the commercial aspects of a water supply. A commodity is supplied, for which certain agreed standards of pressure, flow and quality are assured. In return, supply is metered; bills are issued and payment is expected: if necessary enforcement procedures are implemented. Much of this is the outcome of internal control, such as meter maintenance and audit of readings, externalities relate to consumer satisfaction, consumer consumption profiles, and pricing policies to ensure the product is affordable. Where neglect is manifest in internal processes - these can be remedied with comparatively low expenditures, but with immediate and sometimes spectacular returns of investments.

The following observations are based on a composite study of waterworks encountered over the last 20 years in Malaysia and some neighboring countries.

The Consumer Profile

A. The Rural Demand

Due to increasing pollution of streams and surface wells, and as a matter of social policy, a drive to supply 100% of population with piped water has put pressure on waterworks. In the case of widely dispersed rural populations, it is not economic to supply individual services to households, however stand-pipe supplies are frequently abused and self closing taps are immobilized leading to waste.

Much thought has been given to meet this problem, but so far, the best solution is the Philippines Barangay Water Cooperative, where a village forms a cooperative under the auspices of the water Supply Company, they are given a subsidized bulk supply which is metered and they in turn sell water to their constituents at fixed prices (about P 0.07 per US gallon) - any profits made assure regular payment of water bills, and excess profits are shared by the members.

B. The Urban Slums

In the case of urban slums, (up to 20% to 50% of urban population in Asian cities may be so classified), due to density of population, privacy of users is a problem. Usually stand-pipe taps are immobilized and rubber hoses, which keep branching in binary fission, are laid to households. This again leads to waste and danger of contaminated water. A good solution practiced for many years in Penang and now almost universal in Malaysia is to give interest

free loans to consumers to make connections to their houses, and to input instalment payments, some of them lasting over 5 years into their water bills. This has proved successful and there are few defaults of payments. But what of their capacity to pay?

C. A Social Survey of Consumers

The ability of consumers to pay, is a prerequisite for a successful billing system. A social survey carried out in Penang in the early 70s was the basis of a three stepped domestic tariff in Malaysia. Arising out of a survey carried out between the then City Water Department and the newly formed University Science, a profile of consumers at that time can be summarized in the following table:

Table A: Consumption Profile, Penang Island 1972

type of dwelling	sample size	avg. month consumed	avg. no. heads	avg. per capita consumption
fishing village	50	28 m ³	7	136 lcd
squatter slum	52	30 m ³	8	116 lcd
detached bungalows	38	71 m ³	5	440 lcd
housing estate	56	39 m ³	6	230 lcd
shop houses	98	69 m ³	10	220 lcd
city terrace houses	51	53 m ³	9	200 lcd
total	345	50 m ³	8	208 lcd

D. Affordability of Water

It is to be noted that although the above sample was not exactly representative, nevertheless, the average monthly consumption of 50 m³ was average for domestic consumers as a whole. By 1990 the average occupancy per customer account was nearer to 6 heads due no doubt to the proliferation of flatted condominiums and speculative ownership of these, nevertheless, average per capita demand remains at 230 lcd and average monthly consumption had dropped to 42 m³/month. This process is a common occurrence in the cities of South East Asia.

Notwithstanding the above, a recent survey (1989) indicated that slum density remained at 8 heads per account. The difference between 120 lcd for slums and 220 lcd for city houses must be due to the existence of a water flushing cistern or otherwise.

Because of this, it was successfully argued that significant concessions could be given to the low income consumers by charging the first 20 m³ of consumptions at a subsidized rate, the next 20 m³ consumed at an "average" cost and consumption above 40 m³ at the cost of new water - the same as charges for industry/commercial premises.

E. The Three Tiered Domestic Tariff

If the first block were charged at RM 0.35 and the next block at RM 0.60, the impact on squatter slums would be as follows:

0 - 20 m ³	20 x 0.35 =	RM 7.00
20 - 29 m ³	9 x 0.60 =	RM 5.40

		RM 12.40

Assuming a family income of RM 300 per month, the above represents 4% of monthly income.

In other States, average occupancy per consumer premises can be nearer to 5 heads, it is therefore usual to have lower cut-off points such as 215 m³ and 30 m³ respectively.

A case can be made that even if average costs go up to over RM 1.50 (which will happen when water needs be ported over 100 km) water can still be affordable. In such a scenario, the first block can be reduced to 10 m³/month to be charged at RM 0.50/m³ and the next block between 10 to 30 m³/month, charged at RM 1.20/m³ whilst the 3rd block as well as industrial/commercial consumers can be charged at RM 2.00/m³.

For such a case, a marginal user must reduce his consumption to 16 m³/month, when he pays:

0 - 10 m ³	10 x 0.50 =	RM 5.00
10 - 16 m ³	6 x 1.20 =	RM 7.20

		RM 12.20 or an average of RM 0.76/m ³

This is still better than the Barangay Association charge of P 0.07 per US gallon which works out to be RM 1.9/m³ for which they could only afford 7 m³ of usage per month. (4 jerrycans of water of 50 liters may be a limit of transportability).

F. Industrial / Commercial Water

This can vary between 10% of total demand to 40% of total demand, which is an average for the three cities of Bangkok, Singapore and Penang.

The average consumption per industrial/commercial account in Penang is 200 m³/month; that of Bangkok is only 100 m³/month. Even at RM 2.00 per m³, the average monthly bill is RM 400 per month - less than the pay of a labourer.

In a recent analysis, the industrial ratio in Kuala Lumpur was shown to be only 27%. If it were 37% instead of 27% an increase of 10% metered water of 300 million m³ at a charge rate of RM 1.20 would mean an increase in revenue of RM 36 million per annum. Considering there were only 70 000 industry/commerce meters out of a total of 700,000 meters a good strategy would be to concentrate on the meter reading process and meter change process on these 70,000 meters. This could achieve an immediate and most cost effective return on effort and investment. The returns on this effort can be re-invested in control of the remaining 630,000 domestic meters.

Revenue Enhancement Processes

The Billing Process

The poor results of reading and billing crept up on Malaysian Waterworks in the late 60s and early 70s when billing was done by Addressograph machines and payments posted into electro-mechanical ledger card machines. Growths in excess of 7% per annum were experienced, but this was not reflected in the staffing ratios of the Addressograph operators nor of the ledger card machines. Moreover, mechanical ledger card machines were getting obsolete and no new purchases were added - no spares were readily available. Posting of payments fell behind the issue of bills by 5 months or more. This made it nearly impossible to enforce payments, and collection efficiencies dropped to below 80%. Again, the process of input output of cards was so cumbersome that no analysis of billing statistics were possible - low reading efficiencies and poor control of meter readers resulted. Computers were introduced in the late 70s but there was a slow learning curve, and it was not until the 80s that collection efficiencies rose to above 95%.

The billing process is a scheduled and batch controlled process - reading is organized into reading blocks, each of which should be read in a fixed schedule. No straggling blocks can be allowed. Early attempts at billing, which only catered to systems analysts and their machines, failed. The interposition of a data control and in-put section, controlled by a disciplined "sergeant major", was necessary between the computer room and the meter readers. Internal control of process is vital - Penang Waterworks provided the necessary controls and succeeded the first time around; KL waterworks did not, and several degrees of failures ensued over the years.

Collection Procedures

In order to service consumers, some waterworks employed bill collectors who went to consumers premises. Apart from poor security, it was not possible to keep track of consumers who did not pay on first or second visits. It became impossible to tell whether a non-updated payment was due to non-collection or due to the collector not reporting payments on time. Such a dilemma was solved in Bangkok, by the collector leaving a bill if no payments were made after the first visit. Subsequently it became the responsibility of the consumer to go to the waterworks branch office to pay his bill. Collection efficiencies of over 90% became possible. Computerized receipting machines and tight communication procedures followed by stringent enforcement subsequently improved collection efficiencies to above 48%. In Penang, efficiencies of collection are consistently above 99.5%.

Consumer Satisfaction

Enforcement procedures can become a cat and mouse game between consumers and meter disconnectors. In the end, the axiom that a satisfied customer is willing to pay for goods received holds true. For collection efficiencies above 95%, a satisfactory service, both as regards to pressure and quality is a prerequisite. Often a fall in services is followed by poor payments which further exacerbate the situation. Very close coordination between capacity building and revenue enhancement and improvement of distribution systems has to be incorporated into an integrated plan. This means integrated and competent management.

A Need for Integrated and Competent Management

The practice so prevalent in Malaysia of privatisation only involving the privatisation of the treatment processes, followed by bulk sales to the water undertaking, without due regard to the overall business practices of the organization is therefore very short sighted. Under these circumstances it is hard to see how privatisation can bring the effects of improved efficiency to waterworks.

Analysis of Data

This has been shown necessary to transform a poorly controlled billing system into a viable system. Types and sizes of meters; date of fixing in consumer premises, serial numbers of meters - these and other strategic information can be stored in computer memory available for reference within an instant. Other statistical data such as consumption per premises and ratio of industrial/commercial consumptions, give invaluable information for management.

However, the storage of more data is also a double edged sword. A well controlled system of inputting changes must be devised. For example, when meters are changed and the new meter readings are not input into the computer, some astronomical sums may be billed to consumers.

Lately, there has been much talk that privatisation by itself, can lead to improved performances of waterworks. The immediate riposte to such claims is that many do not see how the replacement of a public monopoly by a private monopoly can lead to improved efficiencies. It has been agreed that some form of standardized performance parameters can be used to measure efficiencies, but not much progress has been made. The waterworks of Bangkok, Singapore and Penang have cooperated in this field and some performance parameters have been incorporated into their annual reports. Some graphs are included in the Appendices to indicate some of these parameters and how they may be used to induce comparison, competition and encouragement between water undertakings.

As another example, even before the output meters in filtration plants in Perlis, (which were subject to a 5 year maintenance programme by a private company) could be read accurately, a control of the average meter consumptions per consumer account per meter reading block, enabled control to be placed on meter readers in Perlis. Over a 1 year period, average returns per account increased from 23 m³/month to 27 m³/month. (See Table B)

Conclusions

It is agreed that long term planning and capacity building is necessary to keep up with demand of the burgeoning populations of Asian cities. However, after the consultants walk away, the waterworks must be run to achieve adequate returns on the investments. The only proper way to achieve this is to focus on the commercial aspects of waterworks, taking into account the whole gamut of processes from collection of water, treatment of water, distribution, billing collection and customer relations, inclusive of enforcement of payments.

The current trend to equate privatisation as a means to achieve commercialization, but stopping with BOT schemes is not satisfactory.

Table B: Analysis of Consumptions: Perlis Supply C2.1993

	m ³	accounts	m ³ /month	comments
Sanglang	90,122	3,832	23.5	rural
Berembang	28,911	1,281	22.5	rural
Kl. Perlis	119,551	4,316	27.7	commerce
Arau	170,887	7,419	23.0	residential
Kangar	249,621	9,498	26.3	city
Santan	204,212	6,992	29.2	industrial
P. Besar	44,022	3,303	13.3	water stress
etc. etc.				
total	1,829,778	67,826	27.0	
average cost	RM 0.417/m ³			

4.16 Innovation and Management of Water, Sanitation and Environmental Problems in Urban Areas - an Integrated Flood Control, Water and Park Policy - the Case of Curitiba, Brazil

by Mr. Jonas Rabinovitch, UNDP

Context

Location

Curitiba, Brazil (Pop. 1.6 million in 1992)

Physical Setting

The city of Curitiba is located at 25 degrees South and 49 degrees West. The setting is characterized by rolling hills with plateaus to the North, South and Southeast towards the Iguazu basin, main river of South America's South Cone region. The municipality has an area of 432 km², situated 87 km West of the Atlantic Ocean at an average altitude of 908 meters. The climate is subtropical and the area of the municipality is composed of a series of micro river basins. The abundance of water bodies also explains the development of the city in the region.

Socio-economic / Cultural Aspects

A minimum wage in Brazil is approximately US\$ 75. The table below illustrates the socio-economic conditions in Curitiba, in comparison to Sao Paulo (biggest Brazilian city with 9 million inhabitants) and Brazil (including socially contrasting rural areas).

Table 1: Income Distribution - Curitiba, Sao Paulo, and Brazil

number of minimum wages (monthly)	Curitiba (% of households)	Sao Paulo (% of households)	Brazil (% of households)
1	4.9	4.4	18.0
2-3	28.1	29.9	38.5
4-5	25.7	17.6	18.4
6-10	25.6	27.2	14.1
11-20	11.4	13.6	6.8
21 +	4.3	7.0	4.0

Source: IPPUC household survey 1990 (Curitiba); IBGE National Census, 1990

Constraints

The constraints were mainly of a financial and managerial nature. During the 60s, the city of Curitiba was spending the 'average cost of an automobile per linear meter of underground drainage ducts', according to a city official. The technological decisions were made by bureaucratic layers within city hall. Expensive, conventional and unnecessary solutions were being suggested by administrative personnel who were physically, technically and managerially distant from the problem. The city experienced constant and serious flooding

problems, while proposed conventional solutions were much more expensive than the municipal budget could afford. The creation of the Curitiba Research and Urban Planning Institute, and its coordination with the Municipal Secretariat for the Environment, under the leadership of a progressive mayor, allowed for more direct and creative action.

Objectives

Among other urban development objectives, the city aimed at controlling the flooding problem, while, at the same time implementing a sustainable environmental policy. This policy resulted in the substantive increase of the green area ratio per inhabitant and in the effective control of urban growth.

Results and Achievements

During the last twenty years, green space per capita has increased from 0.5 m² to 52 m². The flood control programme was successfully implemented at a reasonable cost. Artificial lakes were built in most of the new 16 parks, which, in practice, also work as gigantic water stabilization ponds, helping with drainage objectives. The area of these parks vary from the large Iguazu (8 million m²), to the medium-sized Barigui (1.4 million m²) and the small Barreirinha (80,000 m²). Land use legislation was gradually enacted to protect river/stream bottom valleys, allowing for a policy to implement cycleways lining the various park. The average total cost of implementing these works was at least five times less than conventional drainage facilities. It also resulted in a self-financed approach, as the real estate property tax paid by those who settled near to the parks helped fund this initiative. The managerial coordination of IPPUC also allowed for the spatial relationship between park implementation and the configuration of the Curitiba Integrated Public Transport Network.

Problems Encountered

Many areas had private owners and juridical processes had to be undertaken so that the municipality could legally buy those areas and turn them into public parks. The formation of the correct managerial equation was a time-consuming exercise and did not happen instantaneously.

Lessons Learned

The case study seems to demonstrate that it makes institutional/managerial sense to separate the institution that develops the planning from the institution that executes the works. It also demonstrates that technological solutions are dependent on a balanced administrative/managerial organization, with a clear definition of responsibilities. It also demonstrates that water/sanitation/drainage interventions can and should be integrated to environmental policies, allowing for other positive by-products such as bicycle planning, land use control and implementation of green areas.

Conclusions

Cities of the developing world (and increasingly the ones of the developed world) do not have the financial resources to provide conventional infrastructure services to its growing populations, mainly to the lower income segments. If there are no financial resources to solve

problems conventionally, a strategic approach involving non-conventional technologies should be managed. Creative and integrated solutions, counting on a well defined planning and implementation scheme, can be developed at a fraction of the cost of conventional approaches, provided the correct institutional and managerial equation is developed.

Notes

Funding - Provided by the municipality budget, which is of the order of US\$ 250 million annually.

Cost - Total costs are not available.

Executing Agency - The programmes were planned by the Curitiba Research and Urban Planning Institute (IPPUC) and executed by the Municipal Secretariat for the Environment (SMMA), in coordination with Urbanization of Curitiba (URBS - Public Transport).

Duration - The paper does not refer to a specific project, but to a whole programme that virtually changed the spatial configuration of the city throughout two decades of continuous work.

4.17 Institutional Strengthening: Hyderabad Metropolitan Water Supply and Sewerage Project, India

by Mr. V. Lakshmiopathy, RCUES-OU

1. Context

Hyderabad - composed of the twin cities of Hyderabad and Secunderabad - is the capital city of the state of Andhra Pradesh, India. The service constituency (the Municipal Corporation of Hyderabad, the 9 municipalities (towns), Cantonment and a few villages in the Hyderabad Metropolitan Area) for provision of water supply by the Hyderabad Metropolitan Water Supply and Sewerage Board, is spread over an area of 169 km².

The city acquired the status of state capital in 1956, and became the centre for development/ location of industries, trade & commerce and educational institutions. The consequential rise in employment opportunities attracted large scale influx of population from the other regions of the state as well as the other parts of the country, adding to the burden of the already extended service of water supply.

Even after the completion of major water exploitation works, a deficit of 30.5 mld is expected to continue. The Government of Andhra Pradesh, therefore, constituted an expert committee, to explore new sources of supply, and possibilities of further augmentation of water supply to the city. The expert committee carried out detailed studies and identified the river Krishna (at 125 km from the city) as the potential source. The rising demand, by tradition as can be seen, was always sought to be met by additional impoundments from time to time.

The city population grew from 0.5 mln in 1911 to 3 mln in 1991, at a rate of almost 40% over the last decade. The urban agglomeration is projected to increase at an even faster rate up to 10 mln inhabitants in 2011.

Despite the numerous additions, the gap between demand and supply persisted, leading to increasing exploitation of ground water. The two strategic approaches to improve the level and quality of service viz. 'demand driven management' and 'management of unaccounted for water' and the tools and techniques for their adoption are yet to be appreciated in the organisation.

Source of funding: World Bank

Budget: Rs 34.911 millions
(relevant component only)

Location: Hyderabad, India

Duration 5 years (estimated)

Responsible agencies:

Hyderabad Metropolitan Water
Supply and Sewerage Board &
Regional Centre for Urban and
Environmental Studies, Osmania
University.

The projected demand for water supply by the year 2011 is profiled in the table below.

demand category	in mld
domestic requirements 70% population @ 175 lpcd, 30% @ 85 lpcd	1480
industrial requirements @ 15% of the domestic demand	222
fire fighting and miscellaneous	10
enroute villages and fringe areas	23
total	222
supply from existing sources	682
net additional demand by 2011	1053

Administrative organisation: Water Supply and Sanitation Service is a part of the mandate of Local Government in the State (AP). However, the state government, following the tradition of the founding fathers of the city, took it upon itself to administer the water supply component of the service to the extent of the city though being the only city of corporation class. The sanitation component was assigned to the MCH.

In the year 1986, financial assistance of the World Bank was sought for augmenting the city water supply and on the suggestion of the Bank, an independent and autonomous organisation -the Hyderabad Metropolitan Water Supply and Sewerage Board- was created by an Act of State Legislature. The sanitation component of the service which was with the Municipal Corporation of Hyderabad all along the time, was also transferred to the newly constituted Board.

2. Hyderabad Metropolitan Water Supply and Sewerage Board, Corporate Objectives

The HMWSSB is charged with the responsibility of achieving the following objectives:

- i. Planning, designing and construction of capital works for water supply;
- ii. Planning, designing and construction of capital works for sewerage;
- iii. Maintenance and operation of both water supply and sewerage facilities in the city;
- iv. Collection and accounting of revenues, in manner to ensure HMWSSB as a financially viable organisation;
- v. Planning and implementation of the low-cost sanitation program under the project; and
- vi. Planning and organizing comprehensive employee knowledge and skill development programmes through the establishment of a captive training centre.

3. The Project

The project is conceived to improve the services of water supply, sewerage and sanitation as well as the environment and health in the city. 'Manjira Phase III Stage 2', as originally presented to the Bank Group, envisaged financial and technical assistance from the Bank. Each stage was planned to supplement the existing supply by 135 mld of treated water. The project was arranged into the following 6 components:

- Manjira Phase III Stage 2;
- Rehabilitation and Strengthening of the Existing Water System;
- Rehabilitation and Strengthening of the Existing Sewerage System;

- Low Cost Sanitation;
- Resettlement and Rehabilitation;
- Institutional Strengthening.

4. Organisational Weaknesses

- 4.1 The conceptual trap imposed by tradition and historical practices of increasing the supply to meet growing demand.
- 4.2 The organisational stance of a provider rather than a service entity, arising out of administering the service as a government department.
- 4.3 The limitations on management autonomy arising out of being a government department.
- 4.4 Institutional reluctance to step out of the zone of comfort arising out of the principle of bureaucratic anonymity of a govt department.
- 4.5 Absence of the need or responsibility to generate adequate revenues, to sustain service operations characteristic of public grant and expenditure systems.
- 4.6 The conflict arising out of the need for operational flexibility to ensure cost effectiveness and efficiency and the traditional rigidity characteristic of the government systems pertaining to personnel, administration, finance and accounting, materials and stores, function/ reporting relationships.
- 4.7 The traditional reluctance coupled with lack of systems as well as personnel skills and abilities, to estimate the 'cost' of providing the service, to define and to modify tariff structure for generating adequate revenue returns as against the traditional concept of treating water as a 'gift from God', and therefore, should not be charged.
- 4.8 Lack of expertise to modify and redefine the existing procedures for financing and accounting which are more in accordance with the features of public grant and expenditure (Government Revenue Administration) rather than shaping them as 'management tools' to maintain effectiveness and efficiency in delivering the service.
- 4.9 The traditional practices of personnel induction where in the employees acquire necessary skills through on-job learning rather than deliberately designed training systems.
- 4.10 Limitations on personnel management imposed by absence or non availability of tools and skills to carry out job analysis, job description, job specification, performance standards, manpower planning, recruitment, positioning, performance evaluation, job rotation and enrichment, career planning, data generation and documentation.
- 4.11 Systemic inability to view training as a developmental input to improve efficiency and effectiveness.
- 4.12 The unique political system of 'zoning' - a historical legacy on manpower deployment and the welfare oriented policies on recruitment, career advancement created a bind on the organisation against the implementation of a need based policy on deployment as well as career advancement resulting in litigation and frustration amongst the employees
- 4.13 The handicap of lack of exposure and experience of working with ESAs e.g. Being the first of the Bank aided Projects in the state, even the senior level personnel were at a disadvantage in introducing organisational or function changes and working styles, to suit the Bank's systems and procedures pertaining to project formulation, appraisal, implementation, management, accounting, evaluation and documentation.

5. Human Resource Development and Management, a Diagnostic Study

As can be seen, the government of Andhra Pradesh, initiated the important administrative reform of reorganisation of the institution, from a department to an independent and autonomous board, with a view to improve systemic efficiency and effectiveness of the city water supply and sewerage service. The emergent board was empowered to formulate and adopt policies, programmes, projects and schemes free from external interference or control. A board of directors with the chief minister of the state as the chairman and other directors of the level of secretaries/heads of departments from the related organisations was constituted, to facilitate inter-agency coordination in implementing the schemes and action plans of the Board. The newly constituted board, initiated various administrative measures to implement the project within a time bound horizon. The top management appreciated the fact that effective implementation of the project stipulate integrated management of various functions such as project planning, survey and investigation, construction, storage, treatment, distribution, leak detection, pollution control and quality assurance, technology transfer, materials and inventory control, operations and maintenance of tools, plants and systems, personnel, revenue, finance and accounting, information systems, etc.

The RCUES-OU, being the nodal agency in the sector, was identified as the resource institution and entrusted with the task of carrying out the diagnostic study to provide inputs for human resource development and management and to formulate a scientific Training Action Plan (TAP), with the objective of enhancing staff abilities to meet the emergent performance demands. The diagnostic study was undertaken by the RCUES-OU, primarily to develop policies, strategies and plans for efficient and effective utilisation of the available human resource, to develop an inventory of training needs in the context of the ongoing project and to formulate the TAP, under the component 6: Institutional Strengthening.

6. Study Approach

Based upon preliminary meetings with sample segments of employees from all categories, the following were identified as the thrust areas for immediate action by the HMWSSB:

- i. Improvement of the service delivery system, to make it more effective and efficient; and
- ii. Improvement in the quality of work environment in the Board through formulation and implementation of personnel policies in tune with contemporary concepts on Human Resource Development and Management.

7. Task Group

A task group consisting of members from RCUES-OU and the Project Management Group (PMG) of the HMWSSB, was constituted to develop the detailed study design and action plans.

The strategy of involving the senior managerial personnel in every phase of the study and to encourage intensive participation and interaction with all other categories of employees was adopted to minimise confusion pertaining to the purpose and objectives of the study and for gaining corporate consensus on the potential plans for action and implementation.

Methodology: an extensive field survey of various units of the HMWSSB, was carried out

which led to the identification of the following for a systematic study and analysis immediately:

- i. Job content of all the positions - operating, supervisory, middle and top levels in the technical and administrative segments;
- ii. Job profiles - descriptions, specifications, contents, standards and methods of performance evaluation;
- iii. Personnel performance with a focus on gaps between the actual and expected standards/norms;
- iv. Blockades - institutional, individual and environmental -effecting the corporate/employee performance; and
- v. Training needs - identification, development of appropriate inputs for improving personnel performance.

The techniques for analysis included 'on-job-observation', structured interviews and open ended discussions with the employees of all levels, categories and functions, participatory workshops, group discussions on simulated scenarios, problem analysis and identification exercises, primary literature survey, and study of policy documentation.

Concurrently, a HRDM orientation program for the first and middle level personnel was also conducted to facilitate familiarity with the study purpose and techniques in order to remove apprehensions if any on the part of the employees.

At the same time a study on 'Level and Quality of Service- User Perceptions' was carried out on a sample of 2000 users spread out through the entire distribution network, for developing employee sensitivity to user participation and to design the techniques for improving the staff-user interface and to develop appropriate training material.

8. Achievements

- 8.1 Development of a new Corporate Charter for the HMWSSB, covering the following organisational elements:
 - a. the corporate mandate to provide the direction for extending the services.
 - b. management ethics
 - c. quality and consumer orientation
 - d. public relations
 - e. business environment- structure and staff
 - f. productivity
 - g. work culture
 - h. research and development
- 8.2 Need analysis and formulation of the following:
 - a. new job nomenclature, activities, responsibilities, descriptions, classifications, evolved through direct participation and consensus.
 - b. clear cut inventories of employee training needs arising out of the emerging demand and scale of skills especially with reference to the goal of becoming an autonomous business organisation in the sector.
 - c. the design and action plan for establishing a captive training centre which in due course of time reduces dependence on external institutions for employee training.

9. Immediate Output

- 9.1 A comprehensive corporate plan prepared through employee participation and within a short period of one year.
- 9.2 Creation of a full-fledged training division within the Board.
- 9.3 Greater appreciation of the need to share knowledge and skills with colleagues, on the part of knowledgeable employees as demonstrated through their offer to prepare learning material for various modules.

10. Underlying Reasons for Success

- 10.1 Transparency of the study efforts.
- 10.2 Support, commitment, involvement and participation of the top management group in the study efforts.
- 10.3 Employee involvement, participation and consensus at every stage of the study.
- 10.4 The work philosophy of RCUES-OU, in designing and planing the implementation of reforms on a participatory basis and the close rapport between the two organisations at every stage of implementation and monitoring.

11. Problems Encountered

- 11.1 Short tenure of the chief executives of the target organisation. With a change of the chief executive the organisational priorities were changing.
- 11.2 Inter-function conflict between the line and staff, especially in respect of roles, responsibilities, importance and authority.
- 11.3 Lack of familiarity with research methodologies and procedures.
- 11.4 Expectation of quick results from the training inputs.
- 11.5 Reluctance of specialists within the organisation to step out of the precincts of specialisation.
- 11.6 Employee reluctance to contribute meaningfully, as a result of the preconceived notion of threat potential of the removal of function overlap and redesigning of the organisation. The perceived loss of power caused a high degree of suspicion on the objectives of the development inputs and reforms. The top management as well as the study group were attributed with motives of bias against employees.
- 11.7 Lack of a exposure to the culture of action research because of which the diagnostic attempts at times suffered the odium of camouflaged departmental investigation to weed out 'the unwanted'. Consequently, the employee at times were reluctant to contribute information. Data generation was therefore very slow and cumbersome.

12. The Present Scenario

- 12.1 Over sixty percent of the supervisory cadre of the employees have already undergone the first phase of orientation training.
- 12.2 A perceivable change in the employee outlook on the role of the funding agency, the utility of training and the need for interaction with the consumers.
- 12.3 Greater visibility of the willingness on the part of the employees to share their knowledge and experience with their colleagues- as measured through increasing contribution and willingness to participate in developing training materials and the formation of a full-fledged training division.

12.4 Considerable reduction in the level of user grievances in the category of lack of sensitivity to their difficulties.

13. The Future Scenario

- 13.1 Enlarged scope for action oriented research and sustenance of the university and user linkages on a longer time frame, rather than being confined to the present project.
- 13.2 The RCUES-OU, having been accorded the status of centre for excellence in research and advanced studies by the University Grants Commission, Government of India, leading to increased availability and access to professional education programmes in the Urban Utility Sector.
- 13.3 The nascent training centre in the HMWSSB may emerge as a sector institution in the state of Andhra Pradesh.
- 13.4 The project is also expected to have a useful demonstration effect on the other projects in the country.

References:

1. Training Action Plan, RCUES-OU and HMWSSB, 1992
2. Water Supply and Sewerage System in Hyderabad: Level and Quality of Service -User Perceptions, RCUES-OU, 1993
3. Service Regulations - HMWSSB, RCUES-OU and HMWSSB, 1992

4.18 Institutional Arrangements in Water Supply and Sanitation in Brazil

by Prof. Alex Abiko, University of Sao Paulo

Socio-economic Context

	Brazil	France
area (km ²)	8,511,99	543,965
population (1991; million)	151,6	57,0
urban population (1991;% total)	75	74
population density (1991; per km ²)	17,8	105,0
pop in cities > 1 million (% urban population)	47	26
GNP (1990; US\$ billion)	402,8	1,100
GNP per capita (1990; US\$)	2,680	19,590
infant mortality (1991; per 1,000 live births)	59	7
maternal mortality rate (1988; per 100,000 live births)	230	13

Water Supply and Sanitation

- before 1969, the responsibility for water and sewerage was of the local authorities (Municipalities) that couldn't solve the deficit of these services;
- in 1969, the military government (that took power in 1964) created PLANASA (National Sanitation Programme), under the jurisdiction of the BNH (Housing National Bank), centralizing all the financial and normative activities;
- PLANASA decided to work with States (24) rather than Municipalities (4200) having in mind the following advantages:
 - . operational facilities;
 - . basin management;
 - . possibility to introduce cross subsidies for the consumers and/or Municipalities.
- the fall of the military government in 1985 is a result of various crisis in the Brazilian institutions including the biggest, the financial crisis that remains until nowadays with high inflation rates (42% last month of April);
- in 1986 BNH and PLANASA were extinct; since 1976 the central government established the price of water, with readjustments below the inflation rates; this resulted in an expressive deficit for the water companies;
- PLANASA indicators:
 - . total investments: US\$10 billion
 - . additional customers reached: 56 million
 - . additional households served: 15 million
 - . financial resources:
 - . from BNH (compulsory saving as % of all the salaries): 50.95%
 - . from States and Municipalities: 40.30%
 - . World Bank and international agencies: 8.75%
- since 1986 when of the extinction of PLANASA, there is no centralized institution that coordinates the water supply and sanitation in Brazil; what has thus occurred forced by demand pressures is the involvement of State and Municipal authorities, as well as central government that participates in a less influential way that it did in the past;

- through the numbers and the graph shown below it is possible to trace the achievements attained during PLANASA existence (1967/1986); the goals obtained in such a period have been eroded by the financial crisis and the institutional indefiniteness;
- during the water decade (1980/1990), the percentage of the population served by water supply remained unchanged; however there has been a greater attention paid to aspects referring to the sewerage system;
- the new Constitution of 1988 establishes enhanced attributions of the Municipalities, as well as endowing them with a larger amount of financial resources; with regards to water supply and sewerage the Municipalities are autonomous to implement their systems, directly or through state-owned companies.

Population, Water Supply and Sewerage

	1960	1970	1980	1990	2000
population (million)	72.6	93.1	119.0	151.0	172.8
urban pop. (million)	32.7 (45%)	52.1 (56%)	81.0 (68%)	113.7 (75%)	140.0 (81%)
access to water (million)	39.3 (54.1%)	53.4 (57.4%)	100.8 (84.7%)	127.8 (84.3%)	-
access to sewerage (million)	17.3 (23.8%)	24.6 (26.4%)	47.1 (39.6%)	84.1 (55.5%)	-

Institutional Arrangements

- at present day, Brazil is moving from a centralized state, with rigid and inflexible procedures to a decentralized state, with flexible procedures and heterogeneous options; to put these ideas into practice it is necessary to implement a radical institutional reform;
- the difficulties exist due to disagreement between technical, administrative, political and financial parties and to the enormous social and economical differences within the country;
- in the urban system it is pointed out that segmentation of the sectorial policies is responsible for the accumulation of inefficiencies;
- the institutional arrangement in water supply and sewerage in Brazil should have as basic principles the elimination of inefficiencies and the optimization of production processes, distribution and commercialization of services, through instruments that:
 - . create conditions to supply water and sewerage to all the population, mainly to low income people;
 - . create public agencies acting with a business like approach not leaving aside the compatibility between economical rationality and social objectives;
 - . stimulate the participation of the private sector, in an open and transparent competitive basis, with a strong regulatory system;
 - . enable greater institutional flexibility in the supply of public services;
 - . ensure the social control by the consumers of the public services;
 - . create alternative resources to finance the expansion of the supply.

- there is a rising trend of projects that take into account environmental sanitation in opposition to basic sanitation; the recent projects include solid waste, drainage and other aspects of the environmental theme (in Brazil, only 8% of the sewage is treated); the institutional arrangement should be prepared for this challenge;
- an example is the Integrated Environmental Sanitation Project for the Guarapiranga Reservoir Basin, in the metropolitan region of Grande Sao Paulo, that aims at controlling and rehabilitating the water quality of the reservoir through the progressive improvement of the environmental conditions of the reservoir basin; in order to reach this objective the project proposes integrated interventions having in mind the conservation of natural resources with the promotion of activities that give sustainability to different kinds of basin protection.

4.19 Water Sector Restructuring Study, Jordan

by Mr. Nabil Sweis, Ministry of Planning

Socio-economic and Cultural Conditions and Overall Constraints

Jordan is a small country of four million people with an economy of \$4 billion. It has few natural resources, very limited water resources, little agricultural land and its short history is one of unexpected challenges.

The economy grew during the 1970s and early 1980s. Assisted by foreign transfers and remittances of Jordanian workers abroad, Jordan based its development on a skilled labor force, expansion of state institutions and public investment and employment. Literacy became widespread. Universities and polytechnic institutions were built and staffed. Health standards rose and, by the mid-1980s, poverty was negligible.

In the late 1980s, external and internal factors shocked the economy and burdened the poor. Regional tensions and conflict required high military expenditure. The private sector was weak and reliance was on government to create employment. The Gulf War disrupted trade patterns and about 300,000 Jordanians returned from living and working abroad. Workers' remittances and transfers from outside were interrupted. The world-wide economic slow down was unfavourable for exports. The government's reform programme has stabilized the economy but it has not resolved underlying structural problems. Poverty and unemployment became pressing social issues.

Institutional Setting

The Ministry of Water and Irrigation (MWI) has emerged from a number of largely independent organizations that had specific roles in the water sector. Most of these bodies were created with donor supported projects. Beginning in the 1980s, a series of mergers were begun which eventually resulted in two semi-autonomous bodies, the Water Authority of Jordan (WAJ) which is responsible for municipal and industrial water supplies and waste water; and the Jordan Valley Authority (JVA) which is responsible for irrigation water. Until 1988, these authorities were independent, each with its own operating procedures and personnel system.

In early 1988 the Ministry for Water and Irrigation was created, bringing the Water Authority and the Jordan Valley Authority under one umbrella, with a Minister who is Chairman of the Board of Directors for both. The Secretary General of each authority is the Vice-Chairman of the other authority's board.

Since the merger referred to in (2) above, MWI has been studying the roles and functions to determine which should be ministry-wide and which should remain with the authorities (WAJ & JVA) and whether to create a new structure integrating the two authorities within the ministry. The ministry has an estimated 8,700 staff. It is becoming very urgent to streamline the activities of MWI and suggest a future institutional framework, thus MWI initiated an institutional and financial restructuring study.

Objectives of the Study

The main objectives of the study are: (a) to strengthen the newly established Secretariat at MWI to enable it to develop and manage: a long-term water policy; a water resources data bank; a water quality control program; and strategic planning and development of water resources programs, which would serve as a foundation stone for integrating policy formulation and development in urban, industrial and agricultural sectors; and (b) to reorient the management of the services agencies to enable them to provide good quality, efficient and financially viable services. In this regard, consideration should be given to the role the private sector can play in the effective and efficient management of utility services.

Scope of Work

The scope of work involves the following services:

Phase I

- (a) review existing water policy objectives and legislation;
- (b) review the role of JVA as it regards integrated management of the Jordan Valley;
- (c) review existing organizational structures and resources at MWI (new secretariat), WAJ and JVA with the purpose of: defining functions and responsibilities, staff qualifications and needed facilities at MWI; identifying overlapping functions and gaps at WAJ, JVA and MWI's new Secretariat; assessing staff qualifications at WAJ and JVA with a view to identifying staff resources that could be transferred to MWI and to strengthening them; and identifying available facilities and equipment at WAJ and JVA which should or should not be transferred to MWI;
- (d) propose recommendations for: (i) transferring qualified staff and facilities from WAJ and JVA to MWI; (ii) keeping and strengthening complementary functions at WAJ and JVA and recommending procedures for working together; and (iii) amending water policy and legislation regarding the role of WAJ and JVA as operating entities, and, if JVA, should reinstate its functions, give specific recommendations to strengthen integrated management of resources in the Jordan Valley; and
- (e) propose options for restructuring WAJ and JVA;

Phase II

- (f) develop detailed restructuring programs of organizational changes at MWI;
- (g) develop detailed restructuring programs for WAJ and JVA based on the preferred option;
- (h) develop WAJ's and JVA's financial viability and operating efficiency programs.

Phase III

- (i) provide technical assistance for implementing the proposed recommendations.

Status of Study

A contract for consulting and professional services has been signed with Deloitte and Touche Management Consultants and financed by the Canadian International Development Agency (CIDA). The estimated cost of the work is about 1.5 m Canadian dollars and the responsible Jordanian agencies are the Ministry of Water and Irrigation (MWI) and the Ministry of Planning (MOP). This study (Phases I & II) will take 14 months to complete, so the results should be available by August 1995.

4.20 Quelques Notes sur la Présentation du Père Verspieren, Mali

Le Mali, pays de 1.25 millions km², au coeur de l'ouest africain, est un pays aride:

- la moitié du territoire est occupée par le désert du Sahara
- un quart, la zone sahélienne, reçoit moins de 600 mm, de pluie par an
- seul le dernier quart, la zone soudanaise au sud du pays, reçoit plus de 600 mm, pendant "l'hivernage" entre juin et septembre.

Le Père Bernard Verspieren, arrivé au Mali en 1950, a d'abord été missionnaire dans la région de San (400 km au Nord Est de Bamako, à la limite de la zone sahélienne). L'arrivée de la sécheresse en 1975 le conduisit à créer une association, Mali Aqua Viva, pour alimenter en eau les villages de la région et apprendre aux villageois à exploiter au mieux les ressources en eau disponibles.

Cette structure avait pour objet de réaliser les forages en mesure d'exploiter les nappes d'eau souterraines (les eaux de surface sont rares car il ne pleut que trois mois par an); il fallait aussi fournir les moyens d'exhaure (sans pompe un forage ne sert à rien): pompe à pied 'Vergnet' à la maintenance aisée, pompes solaires photovoltaïques immergées ou de surface, ...

Mali Aqua Viva étendait ensuite ses activités à l'utilisation de l'eau sous tous ses aspects: fermes modèles, reboisement, pisciculture, santé, écoles, oeuvres pour handicapés,: la liste des actions entreprises depuis 20 ans par le Père Verspieren est trop longue pour figurer dans une note aussi brève.

Pour situer l'oeuvre entreprise un seul chiffre: en 20 ans Mali Aqua Viva et les diverses associations travaillant avec cette ONG, ont investi au Mali plus de 100 millions US\$ fournis, pour l'essentiel, par des dons de particuliers, d'entreprises et d'associations d'Europe ou d'Amérique.

Mali Aqua Viva dotée à l'origine d'un atelier de forage moderne, s'est progressivement agrandie en faisant fonctionner jusqu'à quatre ateliers: aussi elle a réalisé en 20 ans plus de 3000 forages d'une profondeur moyenne supérieure à 60 m. Ils permettent d'alimenter en eau environ 1 million d'habitants des campagnes soit 10% de la population du Mali. Cela représente un investissement, pour les seuls forages, d'environ 40 millions US\$.

Ils sont équipés de pompes à pied choisies pour leur facilité de maintenance: des mécaniciens spécialement formés peuvent, sur appel des villages, remplacer les pièces défectueuses. Ces pompes au débit moyen d'1 m³/h équipent les forages peu productifs. Les bons forages sont dotés de pompes solaires immergées en mesure de donner 40 à 50 m³/jour d'eau: on peut alors créer, pour les écoles, des jardins irrigués exploitées par les écoliers. En 20 ans l'investissement en pompes (à pied et solaires) de Mali Aqua Viva présente la plus forte densité au monde de pompes solaires photovoltaïques.

Leçons de cette expérience: au cours du séminaire de Louveciennes le Père Verspieren a rapidement décrit Mali Aqua Viva; il a ensuite présenté les enseignements tirés de ses 40 ans au service des populations pauvres du pays, et de ses 20 ans de fourniture aux villages du service de l'eau essentiel dans un pays où il ne pleut pas.

En premier il constate que les ouvrages donnés à une collectivité ont une durée de vie généralement faible: aucun habitant ne trouvant son intérêt dans un fonctionnement permanent, personne ne sera incité à réparer une panne. Le "Comité de gestion" ne lui paraît donc pas une solution. Mais il y a plus grave, en particulier avec les équipements les plus coûteux comme les pompes solaires: depuis peu on vole les panneaux solaires car les habitants ont découvert que le vol est plus rentable et moins fatigant que le travail avec l'eau produite par la pompe.

En second il constate que les ouvrages donnés à un particulier ont une pérennité mieux garantie: le particulier fera attention à l'équipement mis à sa disposition et essaiera d'en tirer le bénéfice maximum. Mais donner ces équipements lourds à des particuliers provoque la jalousie surtout si le bénéficiaire gagne de l'argent par son travail. Des voisins envieux peuvent alors être incités à casser (ou voler) l'outil.

Aussi le Père Verspieren considère que ces équipements doivent être donnés à la collectivité (pour éviter les jalousies), alors que leur exploitation doit être donnée à des particuliers. Pour éviter tout abus des bénéficiaires, cette "propriété limitée" (ou concession en langage juridique français) doit être soigneusement définie par la collectivité.

En conclusion il souhaiterait voir une assemblée analogue consacrée aux plus pauvres: il va falloir utiliser les connaissances et l'expérience des grandes entreprises pour le service des foules innombrables (des campagnes et des zones périurbaines) qui vont se presser demain aux portes de nos villes.

5. HIGHLIGHTS OF PRESENTATIONS AND CASE STUDIES

1. Sur la Dimension Internationale des Services Urbains, by Mr. Dominique Lorrain

There is a continuum of various public-private partnerships, which differ in the degree of financial involvement of the operating enterprise as well as in the length of period for which the rights are conferred. Regulatory arrangements vary accordingly. Total privatisation is merely the case of maximum and permanent financial involvement of the private sector. Governments can gradually extend private sector involvement. A well-defined enabling environment is imperative.

2. The English Experience of Water Privatisation, by Mr. David Ehrhardt

Total privatisation requires a developed capital market. It has made possible much higher levels of investment. Prices have risen sharply, while profits are high and shares have soared. Affordability has become an issue. So far, there is not much evidence of efficiency gains, but the quality of services has improved. Centralised regulatory system is fragmented and complicated.

3. The Achievements of a Public Enterprise in a Big City of a Developing Country, EMOS S.A. Santiago, Chile, by Mrs. Raquel Alfaro

Concessions for operation of water supply and sanitation are awarded to public or private companies. A regulatory body sets standards and tariffs. The government subsidises lower incomes. The public company for Santiago is productive and efficient thanks to sound institutional framework and integrated management policies (incl. water conservation).

4. Urban Water Supply Sector in Morocco, Institutional Development and Management Autonomy, by Mr. Abdolali Filali Baba

Administrative reform yielded a National Office for Drinking Water (ONEP) and High Water Council. By a contract programme the State is disengaging, gradually reducing subsidies to a more autonomous ONEP. Tariffs are set among all concerned parties, enabling ONEP to increase its revenues.

5. Rural Water Supply and Sanitation Project in Lumbini Zone, Nepal, by Mr. Han Heynen

In line with trends in society, government retired to a decentralized, demand-driven strategy. Water supply and sanitation are now planned at district level. Gradual evolution of a community-based approach. Central department may be charged with water resources management (to be separated from project implementation).

6. Community Water Management in Yemen, by Mr. Piet Klop

Creating an enabling environment meant facilitating 'tribal water management'. This required integration of people's short term needs with their long term problems.

7. Water Sector Institutional and Management Options, Ghana's Experience, by Mr. E.K.Y. Dovlo

The public Ghana Water and Sewerage Corporation restructured to become more demand-responsive by delegating responsibilities to more autonomous districts, according to specific guidelines, procedures, authority limits. Rural water supply and sanitation strategy includes community ownership and management. Private sector is involved where appropriate.

8. Buguta/Makwasinyi Community Water and Sanitation Project, Kenya, by Mrs. Ilse Marks

NGO acts as intermediary between rural communities and government. Special attention was given to the development of a community management and local financing mechanism. Kiosk attendants only serve those who can prove payment of membership fee.

9. Polish Water Supply and Sewage Disposal Companies - Their Organisation and Ownership Transformations, by Prof. Marek Roman

Water supply and sanitation companies are now owned by local authorities. However, legal vacuum hampers transformations. Two arrangements dominate: local authority budget-founded services and one-person partnership of local authority funds. Local authorities tend to adhere to public ownership and management.

10. Project of Irrigation of New Zone of Golodnaya Steppe, Aral Sea basin, Uzbekistan, by Mr. Goroskov

5 newly independent states in the Aral Sea basin have set up a Water Commission to develop a water management strategy. Careful approaches are made towards decentralisation, paid water use and privatisation, but focus remains on developing more efficient irrigation techniques.

11. Organisation des Systèmes de Gestion de l'Eau Potable en Algérie, by Mr. Benblidia

Regional and local public water supply enterprises have been created and are overseen by a single national ministry. Heavy investments improved water supply situation. Efficiency would require more capacity building and public participation. Present reforms facilitate private sector involvement.

12. Projet d'Appui aux Villages Dotés de Points d'Eau Modernes: Animation et Sensibilisation à l'Assainissement autour du Point d'Eau, Hygiène et Utilisation Rationnelle de l'Eau, Mali, by Mrs. Assa Soumare

Improving rural water supply and sanitation by standardisation of hardware, 'after-sales' service, vocational training, establishment water management committees, health information and education. Provision of money deposit facilities.

13. Plan Directeur de Développement du Secteur Eau et Assainissement 1991-2010, Zaire, by Mr. Tshiongo Tshibinkubula wa Tumba

Rigorous planning and active coordination by the government (who remains the partner of donor agencies). Need for regulatory framework and rationalization before privatization. After failed privatization, Regideso (urban water supply agency) became a public agency again. Present masterplan opts for maximum decentralization. Political and social turbulence, and the current financial crisis hardly make for an enabling environment.

14. Mise en Place d'un Cadre Juridique de la Gestion du Service Public de l'Eau Potable (et de l'Energie Electrique) au Gabon, by Mr. François Ombanda

In a simplified judicial framework, the public/private (64/36) concessionaire deals with fewer responsible authorities.

15. Revenue Enhancement, a Neglected Procedure of Public Waterworks, Malaysia, by Mr. Kam U Tee

Revenues can be enhanced by management reforms, i.e. disciplined meter reading and billing, revenue collection and recording. Rural water supply: water company sells a metered volume of water at subsidized rate to village cooperative that in turn sells to its constituents at fixed prices. Peri-urban water supply may benefit from interest-free loans. Good service is a prerequisite for commercial management as there is a close relation between capacity building and revenue enhancement. Data collection induces comparison and competition between water companies.

16. Innovation and Management of Water, Sanitation and Environmental Problems in Urban Areas - an Integrated Flood Control, Water and Park Policy - the Case of Curitiba, Brazil, by Mr. Jonas Rabinovitch

Water and sanitation and drainage interventions are to be integrated in environmental policies to facilitate creative cross-sectoral solutions.

17. Institutional Strengthening: Hyderabad Metropolitan Water Supply and Sewerage Project, India, by Mr. V. Lakshmi pathy

Water Supply and Sanitation Service was transformed into an autonomous Board. A thorough analysis of human resources and managerial needs was carried out. Managerial reforms included: job profiles, personnel performance evaluation, formal training. Staff was involved throughout. Reforms were agreed upon by consensus.

18. Institutional Arrangements in Water Supply and Sanitation in Brazil, by Prof. Alex Abiko

Water supply and sanitation used to be organised by limited number of states (24), rather than municipalities (2400). Good results were obtained under centralized management. Current decentralisation proves difficult due to the financial crisis, huge social discrepancies and technical as well as political disagreements.

19. Water Sector Restructuring Study, Jordan, by Mr. Nabil Sweis

Administrative reform: merging water supply and irrigation authorities.

20. Quelques Notes sur la Présentation du Père Verspiere, Mali

In rural water supply, hardware may be given to communities, but operation shall be trusted to individual(s), under a community-accepted arrangement.

by Mr. Piet Klop

6. POSSIBLE FRAMEWORK FOR FURTHER DISCUSSION

1. institutional development

- decentralization
 - public-private partnerships (ranging from private management to private ownership)
 - level of private sector involvement
 - checks and balances by democratic or regulatory mechanisms
 - social implications (price increases)
 - stakeholder participation
 - identification of stakeholders (governmental agencies, user groups, women, NGOs)
- gains for the government and its enabling role
- extent, pace and ways of institutional reform
- effectiveness and efficiency of participation
 - integration of short-term community needs and long-term problems
- options when there is no effective government, policy or legal framework

2. managerial and human resources development

- managerial implications of turning a corporation (aimed at continuity) into a company (aimed at efficiency)
- private sector preparedness and capacity building
- collecting data on system efficiency: competition by information

3. enabling environment

- investment risks
- prerequisites for successfully involving the private sector
 - river basin management: condition or complication?
- reaching out to policy makers

by Mr. Piet Klop

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SAN

Promotion of Sanitation

**Working Group of the Water Supply and Sanitation
Collaborative Council**

Report for consideration at the Barbados Meeting
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Volume 2: Main Report

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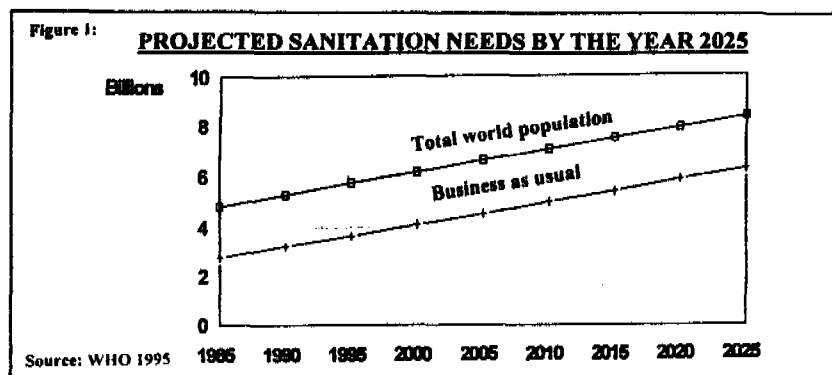
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1. THE BURDEN OF POOR SANITATION

- 1.1 Every year, 2.5 million children die from diarrhoea that could have been prevented by good sanitation. Millions more suffer the nutritional, educational and economic loss because of diseases which improved sanitation can prevent. Poor sanitation has led to the infestation of nearly a billion people, largely children, with a variety of worm infections, with corresponding costs in health and energy. Human excreta are also responsible for the transmission of schistosomiasis, cholera, typhoid, and many other infectious diseases affecting hundreds of millions. Overall, WHO estimates that about 3.6 thousand million people die annually and about 1.5 thousand million suffer at any one time from infections stemming from human excreta, waste water and solid waste in the environment (WHO 1995). Heavy investments have been made in water supply since 1980, but the resulting health benefits have been severely limited by the poor progress in sanitation. Besides this toll of sickness and disease, lack of sanitation is a major environmental threat to water resource systems and a fundamental denial of human dignity.
- 1.2 Today about 1.7 thousand million people, by conservative estimates, lack access to latrines and other forms of good sanitation. However, even among those having some sanitation coverage, the "latrine mortality rate" is very high, with latrines not being used as intended or closed to use altogether. Hygiene behaviours have not been stressed in programmes leading to an extreme hardware bias without accompanying hygiene education. This results in the continued spread of disease even where infrastructure exists. This situation affects all of mankind, rich and poor alike, because it puts everyone at risk of disease, and curing and controlling these diseases, including the increasing cost of cleaning polluted water, is a financial burden for all.
- 1.3 The gap between population growth and provision of sanitation is holding steady (see Figure 1). Projections of human population growth rates predict that, with "business as usual" in promoting and providing sanitation, about two thousand million people will be unserved in the year 2025. The sector clearly needs new approaches and increased emphasis.
- 1.4 During the International Drinking Water Supply and Sanitation Decade it was thought that sanitation could be combined with water supply projects and that the more attractive water would pull along sanitation. Some projects required that communities first build latrines before the water supply project would begin. Others believed that the communities higher priority for water should be met first before discussing with them sanitation. Little attention has been given to hygiene behaviours within projects. Despite a heightened awareness and greater efforts during the Decade, sanitation lagged behind water supply. Could it be that sanitation requires a special approach?
- 1.5 In response to this situation, the Water Supply and Sanitation Collaborative Council formed a Working Group on the "Promotion of Sanitation" to look into the problem and advise the Council on what might be done to raise the profile of the sector (see Annex A). Reported here are the findings and recommendations of that Working Group. The Working Group's Terms of Reference are found in Annex B.



2. PROBLEMS AND PROMISE OF THE SECTOR

- 2.1 Among the main problems in the sector are a lack of political will at all levels, low prestige of the sector, poor policy at all levels, poor institutional frameworks for implementing sanitation, inappropriate approaches which focus on single solutions and ignore the diversity of needs and contexts, neglect of consumer preferences, lack of enough good technical solutions, and lack of a gender focus. Many of those most in need of sanitation, the rural and urban poor, have the least voice and power in society so that their demand for services, where it exists, is often not effectively expressed. A concise paper entitled "The Problem of Sanitation" was produced by the Working Group which discusses problems of the sector in greater detail (see Annex D).
- 2.2 In order to promote sanitation, we must do better programmes which demonstrate success and sustainability. There has not been a great deal of analysis of the sector and one conclusion of the Working Group is that there is still much to be learned about how to do better programmes.
- 2.3 The Working Group identified what seem to be the features of better sanitation programmes, i.e. those in which the community has become fully involved and which are leading to or have led to change (see Box 1 page 4).
- 2.4 From these features and other literature (Cairncross 1992, La Fond 1995, WHO 1993), the Working Group observed a growing consensus around a set of guiding principles for better programmes (see Box 2 page 5).
- 2.5 Following this exercise, the Working Group agreed that sanitation programmes are often based upon numerous wrong assumptions which lead to failure (see Box 3 page 6). This could be avoided if the sector as a whole had its own set of principles based upon experience and agreed upon by professional consensus.
- 2.6 The Working Group found the exercise of searching for such principles to be extremely useful and believes that existing programmes of any size can be improved by examining their own underlying assumptions and by considering what appear to be the principles behind more successful programmes. The search for principles is important because principles should govern sanitation policy, how a programme is designed and eventually run, what mechanisms a programme uses to reach communities and households, and how it does planning, design, implementation, monitoring and evaluation.
- 2.7 *Institutions are encouraged to go through a process of reflection about:*
- the underlying assumptions and principles of their current programmes
 - principles which may result in better programmes in their own local context.
- 2.8 Some of the most important principles to be respected are:
- a) sanitation programmes should be based upon demand,
 - b) sanitation improvements should be approached incrementally, starting from where people are and helping them to improve according to what they can afford and sustain,
 - c) sanitation programmes should take a gender-sensitive approach at all stages and all levels,
 - d) good sanitation is a well-functioning "bio-cultural" system.
- 2.9 Users of the principles should be national institutions implementing sanitation programmes, external support agencies, sector professionals (extension workers, consultants, evaluators, commercial sector), NGOs, local councils and organizations, village committees, and the public at large.

Box 1: Features of better sanitation programmes identified by the Working Group

- ▲ They take a learning approach. They flex, change and innovate until they get it right.
- ▲ They are focussed on demand creation.
- ▲ They use social marketing and participatory approaches together.
- ▲ They create an environment whereby private producers can thrive.
- ▲ They have relaxed the definition of what constitutes "acceptable" latrines and obtained the highest political support for a less rigid range of good technologies.
- ▲ They consider what people are already doing and help them to do it better. This includes building upon existing good technologies.
- ▲ They offer a range of technical options that can be afforded by most people without subsidy.
- ▲ They introduce new latrine options through slightly wealthier, higher status people in the community. This is because community members in most places expect wealthier and higher status people to take risks and to be the first to try new things.
- ▲ They let the community know that the sanitation programmes has political support from the very top. This is because community members want to follow programmes that are endorsed from the top.
- ▲ They involve schools, school children or community children. Many use schools as the entry point to the community.
- ▲ They combine facilities with behaviour change strategies.
- ▲ They build upon existing community organizations rather than creating new ones.
- ▲ They encourage community groups to formulate their own hygiene education programme, their own messages and their own methods.
- ▲ They use both female and male extension workers.
- ▲ They build capacity for community management of the project.
- ▲ They involve a strong training and human resources development component at all levels.

Box 2: Guiding principles to better sanitation programmes identified by the Working Group

- ▲ From an epidemiological point of view, sanitation is the first barrier to many faecally transmitted diseases and its effectiveness improves when integrated with improved water supply and behaviour change. However, improvements in hygiene behaviours alone can result in disease reduction and can serve as a valid programme objective.
- ▲ Sanitation comprises both behaviours and facilities, which should be promoted together to maximize health and socio-economic benefits.
- ▲ From an implementation point of view, sanitation should be treated as a priority issue in its own right and not simply as an add-on to more attractive water supply programmes. Sanitation requires its own resources and its own time-frame to achieve optimal results.
- ▲ Political will at all levels is necessary for sanitation programmes to be effective. Communities are more motivated to change when they know political will exists.
- ▲ Communities are bio-cultural systems. A sanitary environment is a successful interaction of the key parts of that system: the waste, the natural environment with its unique physical, chemical and biological processes, local cultural beliefs and practices, a sanitation technology and the management practices applied to the technology.
- ▲ Sanitation programmes should be based upon generating demand, with all of its implications for education and participation, rather than provision of free or subsidized infrastructure. Governments should be responsible for the protection of public health. Government sanitation policy should be one of creating demand for services, facilitating and enhancing partnership among the private sector, NGOs, based organizations, local authorities and removing obstacles in the paths of each of these and households in the achievement of improved sanitation.
- ▲ Sanitation programmes should equally address the needs, preferences and behaviours of children, women and men. Programmes should take a gender-sensitive approach but, learning from the mistakes of other sectors, should guard against directing messages only to women or placing the burden of improved sanitation primarily upon women.
- ▲ Sanitation improvements should be approached incrementally, based on local beliefs and practices and working toward small lasting improvements that are sustainable at each step, rather than wholesale introduction of new systems.
- ▲ User ownership of sanitation decisions is vital to sustainability. Empowerment is often a necessary step to achieving a sense of ownership and responsibility for sanitation improvements.
- ▲ Good methods of public health education and participation, especially social marketing, social mobilization, promotion through schools and children, exist to promote and sustain sanitation improvements.
- ▲ Sanitation services should be prioritized for high risk under-served groups in countries where universal coverage seems unlikely in the foreseeable future. Hygiene promotion should be targeted to all.
- ▲ Latrines are consumer products and their design and promotion should follow good marketing principles, including a range of options, designs attractive to consumers and therefore based upon consumer preferences, affordable, and appropriate to local environmental conditions. Basic marketing research and participation in design will likely be necessary to good programmes. Market forces are best understood by the private sector.
- ▲ As in all other public health programmes aimed at preventing disease, the promotion of sanitation should be a continuous activity. This continuous promotion is necessary to sustain past achievements and to ensure that future generations do not become complacent as diseases decrease.

Box 3: Commonly held wrong assumptions about sanitation

At all levels:

- ▲ Improved water supply alone leads to better health. There is no need for sanitation.
- ▲ There are minimal health benefits and no socio-economic benefits to sanitation improvements.
- ▲ All good sanitation options are expensive and difficult to implement.
- ▲ Water, air and soil are free goods and therefore we should not have to pay for improving them.

At the level of donors and implementing agencies:

- ▲ Safe and adequate water supply is a pre-condition of good sanitation.
- ▲ Message-giving will change behaviours and automatically create demand.
- ▲ Sanitation improvements means simply building latrines.
- ▲ People are not willing to pay for sanitation improvements.
- ▲ Design and construction of a latrine is simple and does not require any expertise.
- ▲ There are standard formulas and quick fixes to achieve sanitation, which can be universally applied.
- ▲ There are two "right" technologies: VIP latrines and pour flush latrines.
- ▲ Traditional cultural attitudes are a barrier to good sanitation practices.
- ▲ Water supply institutions will automatically be suitable for sanitation development.
- ▲ The private sector is not interested in sanitation.
- ▲ People are not capable of moving fast enough to meet programme goals.
- ▲ There is no need for additional specific research since the situation in developing countries now is the same as that of industrialized countries at the beginning of the century. We just apply the same solutions.

At the level of beneficiaries:

- ▲ There is no immediate benefit in improved sanitation.
- ▲ Sanitation systems are never reliable.
- ▲ Responsibility for sanitation lies somewhere else.
- ▲ Children's faeces are harmless.

3. THE WAY FORWARD - A "SANITATION REVOLUTION"

3.1 After considerable analysis of the problems and promises of the sector, the Working Group recognized that advocacy alone would never raise the status of the sector nor close the gap between population growth and sanitation coverage. It concluded that a positive new vision was needed and this new vision includes *three imperatives* that must be met:

- *people-centered, principle-based programmes,*
- *increased political commitment, and*
- *more rigorous professionalism and a focus on the science of sanitation.*

3.2 The Working Group felt that the sector needs a "sanitation revolution". Activities in these three areas, if done simultaneously, would be a step in the right direction. Sanitation professionals must be the driving force to make the three objectives happen, while users are key actors in designing better sanitation programmes.

3.3 It is common in the sector to equate sanitation with latrine coverage and this limited view often excludes not only the other areas of sanitation so important to health and environment, such as waste water and solid waste, but also seems to diminish the importance of hygiene behaviours. The sector should reaffirm a classic definition of sanitation: "Good sanitation is a state of cleanliness and a healthy environment, free from contamination. Sanitation is the process of creating and maintaining these conditions."

4. THE FIRST IMPERATIVE: TO ACHIEVE PEOPLE-CENTERED, PRINCIPLE-BASED PROGRAMMES

Achieving a people-centered, sustainable sanitation programme requires applying principles. This section is essentially a discussion of some of the principles and why they are important.

- Adopt a "demand-driven" model of sanitation promotion, seeking to create demand where necessary and to create an enabling environment for households and communities to change; build upon what people are already doing and improve upon that incrementally; and offer a range of technical options for different environments and consumers, and encourage private sector response to demand.
- Employ better methods for user participation and public health communications to empower users and to create demand, such as participatory hygiene and sanitation promotion, social marketing, social mobilization, and school and child-focused approaches, all of which are known to be more successful than other approaches.
- Recognize that good sanitation is a well functioning "bio-cultural system".

"Demand-driven" sanitation promotion

4.1 Large scale sanitation programmes tend to be supply-driven and are concerned with provision of hardware and subsidies. They are driven by the need to reach targets rather than by development goals which would stress sustainability. This approach leads to much of the "*under-five mortality rate of latrines*." The reasons why latrines are not sustained need to be examined for lessons learned. If latrine designs and hygiene behaviours promoted in project areas are not spontaneously copied by non-project areas, it may signal that they are inappropriate and unsustainable.

- 4.2 Better sanitation programmes use a demand-driven approach. In some places effective demand does not exist, either because people are powerless to express it even though it is there, or because sanitation takes a lower priority than their other pressing needs. A demand-driven approach implies that programmes may have to create demand or assist people in expressing their demand through empowerment. In its broadest sense, empowerment means enabling users through information, skills development, and access to credit and by removing obstacles which may prevent them from taking action. Obstacles blocking change may include, especially in urban areas, lack of land tenure.
- 4.3 A demand-driven approach implies that sanitation must be marketed. The Working Group suggests that sanitation needs to be marketed as a "valued concept" while latrines and other facilities should be marketed as consumer products, taking into account consumer needs and preferences. Consistent with the demand-driven approach is the principle that *a range of latrine options need to be available to consumers and sanction for these options is required at the highest political level*. Experience shows that "one latrine design" programmes will have limited impact. As in all consumer products, a single design may attract and be appropriate for only a small fraction of the population.

Methods for user participation and public health communications

- 4.4 Better sanitation programmes are not only people-centered and principle-based, focused on generating demand rather than being supply-driven, but *they also select and apply methodologies that reflect these principles*. Good methods for empowerment of users and demand creation exist but are usually applied only on a small scale. Ways need to be found for applying them in larger programmes. Methodologies focused on empowering users and creating demand include participatory methods, social marketing and social mobilization, and approaches through schools and with children. It is imperative that any method chosen be gender-sensitive.
- 4.5 The intensive methods used at community level, such as participatory methods and school and child-focused methods, can be complementary to mass campaign methods such as social marketing and social mobilization. Social marketing should be used to help create demand for something that people can afford. It creates an information-rich environment so that people can know how and where to get more information and assistance. Social mobilization organizes people from many different kinds of institutions to work together. Participatory methods help create the self-esteem necessary for people to act. They also help people to identify local resources, plan their activities and implement collectively. Schools are often an excellent entry point to communities and children and youth frequently serve as strong advocates for change. Methods for enabling users to afford infrastructure are often of paramount importance. Appropriate financing mechanisms, such as savings and credit schemes for low-income households, once demand is created, are nearly always essential. Subsidies, on the other hand should be introduced with caution because of the multitude of problems they create.
- 4.6 Private sector involvement in meeting demand needs to be encouraged. Two main obstacles to the private sector's involvement in sanitation are government programmes with their subsidies and a lack of attractive, affordable products. The private sector may develop products to meet consumer preferences if their efforts are encouraged by the public sector.

Box 4:

Better Methodologies for User Participation in Sanitation

- participatory approaches
- child and school approaches
- social marketing
- social mobilization
- household financing schemes

4.7 Examples of better mechanisms for working with communities were collected by the Working Group and follow:

4.7.1 Sulabh International Sanitation Programme, India

Sulabh International Social Service Organisation is the largest non-profit voluntary social organisation in India with more than 35,000 people from different disciplines working all over the country. It is dedicated to the promotion of sanitation, environmental improvement and social reforms. Sulabh has developed an efficient marketing and delivery system with back up support in training, motivation, sanitation education and community participation. Sulabh has so far constructed over seven hundred thousand toilets used by over 10 million people daily. The system works because the toilets and bathing facilities are not free - users pay. Some toilet facilities have been expanded into social centers providing other services such as primary health care, health education, telephones, and drinking water, and some community toilets produce biogas for cooking, lighting, warm water and heat for winter. An important focus of Sulabh efforts is the liberation of scavengers from the manual handling of human excreta and training them for new professions.

4.7.2 SARAR Participatory Hygiene and Sanitation Transformation (PHAST) methodology, Eastern and Southern Africa

The UNDP/World Bank Water and Sanitation Program and WHO joined forces in 1993 to try and develop a new approach for hygiene education which was participatory and built upon existing beliefs and practices. Under the Program, PROWWESS¹ had already developed a network of sector specialists and core trainers in Eastern and Southern Africa with experience in the SARAR methodology under the PROWWESS programme. Building upon those accomplishments, two workshops in 1993 developed a prototype set of participatory tools, drawing upon existing techniques and materials and creating new ones. The approach was tested by governments and NGO programmes in 16 sites in Kenya, Uganda, Zimbabwe and Botswana and all sites were extremely successful in the short term. Follow-up is required to see how sustainable the changes will be and whether the methodology can be used at the national scale. WHO is currently preparing a tool kit on the methodology for wide dissemination. A Manager's Guide and video are planned for completion in early 1996. (Sawyer, Simpson-Hebert and Clarke, 1995; Chatterjee, Clarke and Sawyer, 1995)

4.7.3 HESAWA School Health & Sanitation Package, Tanzania

The objective of this programme is to reach households and communities through schools. Projects begin with a health screening of school children for sanitation-related diseases. A health report card is sent home to parents and a parents' meeting is called to discuss the collective results. Parents are surprised to learn the severity and extent of the health problems in the community as a whole. Projects take a "problem-based learning" approach with parents. The problem is the school and community environment being contaminated with human excreta and the parents are encouraged to take responsibility for resolving this situation. HESAWA staff are trained in adult education techniques and help guide the community in action planning. They provide technical advice and training to a Village Health Committee and Village Health Workers. They also assist in improving the health education curriculum at school and the establishment of a School Health Club. An external evaluation of the programme states that it has made "remarkable progress in promotion of the use of available materials and in increasing sanitary facilities." (Mwasha 1994)

¹ PROWWESS is a project of the UNDP/World Bank. It stands for the Promotion of Women in Water and Environmental Sanitation Services.

4.7.4 Lombok Indonesia Sanitation Programme

The sanitation programme on Lombok Island has shown remarkable success by moving from a supply-driven to a demand-driven programme and focussing on provision from the private sector. The programme looked at market principles including design of the facilities, color of the facilities (consumers prefer blue latrines), the design of moulds so that producers can increase their daily output of slabs, and the cost per unit. In less than three years, some 46 private entrepreneurs are producing latrine components. A healthy competition among producers has helped to lower the cost of latrines from US\$5 to \$2 with significant improvement in the quality of the product. Import of latrines from the Java Island has stopped. Communities now have easy access to components in the neighborhood. Coverage has increased from 8 percent three years ago to about 60 percent today, with 20 000 latrines being built each year. The main channel for demand creation is through hygiene education transmitted by Muslim religious leaders. The leaders use the book "Water, Sanitation and Islam" compiled by Indonesian religious scholars to deliver sermons at mosques and informal Koran reading groups. Encouraged by the Lombok success, on World Health Day 1994, President Soeharto launched the "Clean Friday" movement as a national movement. The West Lombok water and sanitation programme was managed by the Women's Welfare Movement (PKK) with technical support from the Ministries of Health and Public Works and UNICEF. (Mathur 1995)

4.7.5 Mvulamanzi Trust Sanitation Programme, Zimbabwe

The Mvulamanzi Trust Sanitation Programme focusses on improving sanitation in rural households by promoting the Ventilated Improved Pit Latrine, developed originally at the Blair Research Institute in Harare. The Trust combines what they consider to be elements of a successful rural sanitation programme: training to local artisans in construction and hygiene education so they can sell their services and a minimum materials subsidy to households. The programme believes in starting where people are and helping them to improve upon what they have. They continually carry out research on consumer preferences and design features to improve upon the technologies they promote. Their current latrine design includes a hand-washing facility.

4.7.6 Kumasi Sanitation Project, Ghana

Urban sanitation can be particularly challenging because of different types of housing and density conditions in different parts of a city and different abilities to pay. The Kumasi project was a departure from the urban master plan approach, used for so many years in the sector and often prone to problems. It sought to tailor technical options to each broad type of housing area in the city, to consider user preferences and willingness-to-pay, to use a short planning horizon of 10-15 years and to break the overall plan into smaller projects that can be implemented separately but incrementally providing total coverage. There was a mix of technologies including home latrines, a simple sewerage system for one community and public latrines with private management. This successful approach has been extended to other cities in Ghana and West Africa.

4.7.7 The SanPlat Package

The Sanplat is a very simple and inexpensive way to upgrade an existing pit latrine or introduce a "first step" technology into households and communities. A slab, which has foot rests, sloping surfaces and a covered hole, is placed over a pit. The hole cover has a handle which is lifted with the foot. The technology was designed in the African context where it has proved to be very popular. Of particular interest is the way in which it is promoted. The designer of the Sanplat, Björn Brandberg, has found that more success in adoption is achieved when the Sanplat is promoted through people in the community who are "slightly" wealthier or more influential. Several other sources confirm that promotion through wealthier and more influential members of society gives

status to a new product. If these people, who are known to be more successful, adopt a new idea, then others want to follow them. The Sanplat approach also puts great emphasis on environmental hygiene education for sanitation promotion, maximum community participation, and health benefits (Brandberg 1994).

4.7.8 Approaches Through Children

Nearly half of the world's population is age 18 or under, yet in most contemporary programs aimed at youth, children are considered to be pupils rather than partners. Given the complexity of many development issues, entering into partnerships and learning from one another might be a wiser approach. A review of literature undertaken by Bronckhorst for the Working Group found that sanitation programmes that worked with children were quite rare (Bronckhorst 1995).

However, one example comes from India where an NGO reached out to households by sending two children from house-to-house to talk with women about sanitation. One child, a six-year old, is dressed in a sanitation poster (which had been previously discarded for being ineffective) while the other child, normally a 12-year-old, gives the message to the women. Women are charmed by the approach and later contact the NGO for follow-up. This approach is considered by the NGO to be the most successful to date in stimulating demand for sanitation (Kapadia-Kundu 1995).

The Working Group felt that approaches through children, such as Child-to-Child (an international movement), hold much promise for the sector.

Recognize the "bio-cultural" system

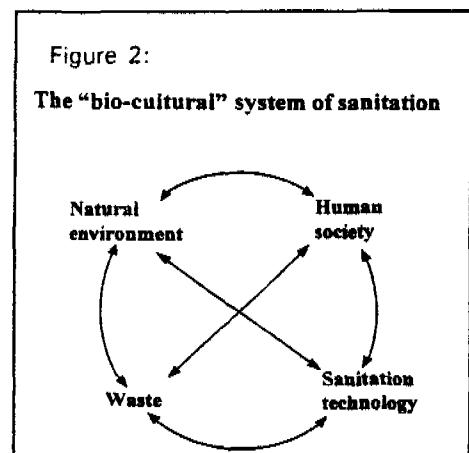
4.10 Better sanitation programmes recognize the principle that communities are bio-cultural systems. A sanitary environment is a successful interaction of the key parts of that system:

- the local human society with its unique cultural beliefs and practices;
- the waste of that society;
- the natural environment with its unique physical, chemical and biological processes;
- a sanitation technology.

4.11 Adoption of this systems approach involves understanding fully, in each context, the bio-cultural environment. The purpose of external support should be to assist households and communities to achieve the optimal sanitation system within their bio-cultural context. This implies application of some of the principles identified by the Working Group, such as the need for a variety of technical options, an appropriate time-frame for incremental change, and a gender-sensitive understanding of the respective roles of men and women in the society.

4.12 This systems model implies that the sector may be resource poor with regard to latrine designs and that much more research and innovation could take place.

With increasing pressure on water resources, dry latrine systems need to be given more attention. Most "low-cost" latrine designs promoted today are far too expensive for the urban and rural poor, and often require subsidies to make them affordable. More attention should be given to promoting designs that are completely affordable to most consumers, as has been done in Bangladesh with the promotion of the "do-it-yourself" home-made latrines.



5. SECOND IMPERATIVE: TO ACHIEVE POLITICAL COMMITMENT

- Formulate and employ strong advocacy statements
- Employ other techniques such as conferences, awards and showing success cases and sites to politicians
- Monitor and evaluate results of advocacy

5.1 *While small disconnected efforts in sanitation may be valuable, reaching an entire national population with sanitation improvements requires a major political commitment at all levels, especially from highest levels of government.* Government's most important role is to protect public health while the private sector must play a major role in the provision of services. Government should commit not just to sanitation coverage but to sanitation which is appropriate and affordable to users. Government's most important role, therefore, is to create the best possible conditions for sanitation to happen without being the major provider. Government should be involved primarily in demand creation, enabling communities by identifying and removing the constraints faced by communities, and enabling, monitoring and setting and controlling standards in the private sector.

Advocacy statements

5.2 *Obtaining political commitment to sanitation requires strong advocacy, employing statements which provide indisputable justification for investing in sanitation on the basis of health, human rights and dignity, safe reuse, cost savings to society and public image.* The following paragraphs provide some main ideas, but, more importantly, advocacy statements should be moulded for the country concerned (i.e. "there are 300,000 child deaths annually in country X and daily health care costs of US\$50,000 owing to poor sanitation").

- *Sanitation and health are closely intertwined.* The primary reason for promoting sanitation is because it is fundamental to the prevention of a number of serious diseases. Sanitation is the first barrier against diseases associated with human excreta. The tremendous importance of this fundamental reason, while well known in many professional circles, is sometimes lost at the political level. Politicians should be told that when we neglect the development and maintenance of good environmental sanitation, we reap poor health and epidemics. The costs to society in general and national governments in particular are tremendous.
- *A lack of good sanitation (including hygiene behaviours) puts all people at risk of disease and epidemics and is a cost to all of society, rich and poor alike.* Costs involve curing and controlling sanitation related diseases and the ever increasing cost of cleaning polluted water.
- *A sanitary environment is a human right and necessary for human dignity.*
- *Dirty toilets, lack of toilets and generally poor environmental sanitation produce a poor public image.*
- *About one-third of the world's population reuses human excreta for fertilizer.* This is a harmful practice only when the users are exposed to dangerous pathogens contained within the excreta. As there are ways to render human excreta harmless, good sanitation should promote the safe use of human excreta as fertilizer in cultures and areas of the world where this is acceptable.

5.3 Accurate information and research are the keys to good and effective advocacy. On-going monitoring in a scientific way provides essential feedback into on-going programmes. Types of information useful for advocacy are latrine coverage, child deaths due to diarrhea, tons of faeces deposited daily in the environment, existing hygiene behaviours, user preferences and private sector activities.

Other advocacy techniques

- 5.4 Targets of advocacy are the media (journalists, radio, TV), political figures such as the president, the prime minister, other ministers, parliamentarians, political parties, administrative personnel such as the cabinet secretary, other secretaries, and commissioners, representatives of external support agencies such as UNICEF, WHO, UNDP and bilateral donors, the leaders of major NGOs and service clubs such as Rotary and Lions. "The object is to turn these people into advocates themselves - voices who will take the opportunity to speak through their own channels of influence in their own words" (McKee 1995).
- 5.5 Obtaining political commitment also involves employing techniques which attract the attention of decision-makers, such as:
- Giving a sanitation/hygiene education award to leaders, or making sanitation performance a criterion of job performance
 - Bringing politicians to successful sites
 - Putting sanitation and hygiene education on the agenda of other sectors and their conferences
 - Advocating that ministries should have clean usable toilets and good sanitation in and around their buildings
 - Holding high level conferences

Some examples of these techniques follow:

5.5.1 *Job performance*

In Indonesia in 1993, the political commitment of provincial governors was obtained by making the infant mortality rate a factor on which job performance was assessed. Governors were advised that there are several factors responsible for high infant mortality. One of the major ones is diarrheal disease and the best prevention for diarrheal disease is high latrine coverage and better hygiene behaviours. Awards are given to governors whose provinces have low rates of infant mortality. (S. Mathur, UNICEF/Indonesia, personal communication).

5.5.2 *Putting sanitation into the agenda of other sectors*

In 1994, the Indonesian Department of Health launched the Clean Friday Movement aimed at mobilizing the support of religious leaders for sanitation and improved hygiene behaviours. While the movement was to involve all government departments concerned with sanitation, NGOs and political leaders, the movement was designed especially to call upon religious values to create a clean environment. Religious leaders were asked to lead the movement from their Friday sermons. The movement was formally launched by the President of Indonesia.

5.5.3 *Bringing politicians to successful sites*

In Zimbabwe in 1994, in order to expand an innovative and very successful approach to sanitation and hygiene behaviour change (called the PHAST initiative), political leaders were taken to successful project sites to see progress and to hear from consumers how success was achieved. Zimbabwe has decided to expand the approach nationally (Mr. Temba, MOH Zimbabwe, personal communication).

5.5.5 *National high level conferences*

In Bangladesh in 1992, the Prime Minister inaugurated a national conference on Social Mobilization for Sanitation and Hygiene. This was nationally televised and greatly strengthened the promotion of sanitation and hygiene in the country. In 1994, the Prime Minister launched a National Sanitation Week to promote sanitation and hygiene nationwide. During the inaugural function, the Prime Minister called for a new Mid-Decade Goal of 50% coverage by 1995 as the Mid-Decade Goal of 35% sanitation coverage had been achieved in early 1994. The Minister of Finance immediately responded to the promotion of sanitation by allocation of substantial funds for sanitation activities.

5.5.6 *Inter-country high level conferences*

In 1994, UNICEF held a 4-day Sanitation Workshop for Eastern and Southern Africa in Zimbabwe where UNICEF staff and their government counterparts decided what they can do personally and collectively to promote sanitation (UNICEF 1995). UNICEF plans to conduct more sanitation workshops in other regions.

5.5.7 *Inter-ministerial high level conferences*

Again in 1994 in Zimbabwe, sanitation advocates used the opportunity of an Regional Ministerial Conference to produce a statement of intent from the ministers to go for full latrine coverage of the southern African region with lower cost appropriate designs and to give latrine coverage a higher priority (Regional Ministerial Conference 1994).

5.5.8 *Sanitation in public buildings*

In Viet Nam in 1993, a WHO consultant negotiated into a continued agreement for WHO health centre equipment that the government should build a latrine at each health centre prior to receiving the equipment. The agreement had the highest endorsement from the government, construction began immediately and latrine coverage of health centers increased rapidly (C. Jenkins, personal communication).

5.6 *External support agencies can be very influential in sanitation.* If the ESAs would stand together for sanitation, ministries within countries would take notice. Lack of donor cohesion on sanitation leads to lack of progress.

5.7 A case study on ESA influence in Sri Lanka commissioned by the Working Group showed that ESAs give priority to water supply. Deficiencies in the sanitation sector stems partly from the absence of a national policy and plan for sanitation into which projects can fit. However, in addition to this problem, "there has been no coordination among the donor agencies or systematic exchange of knowledge and experience. . . As a result there is a marked difference in work done by the donors. There is a considerable stock of knowledge on specific problems of sanitation accumulated by each donor which could be usefully exchanged to deal with some of the problems" in the sector (Gunatilleke, 1995).

Monitoring and evaluating advocacy

5.8 It is important to have indications of whether or not advocacy techniques are achieving higher political commitment.

Five demonstrations of political commitment are:

- defining a national intersectoral policy for the promotion of sanitation;
- creating a sanitation department with a responsible chief
- installing and maintaining toilets in government buildings; providing sufficient funds for operation and maintenance of these facilities including toilet paper and water for personal cleansing;
- exploring the use of legislation for requiring the provision of sanitation (toilets, disposal of liquid and solid wastes, and safe water supply) in all public buildings: health centers, hospitals, schools, markets and public transport facilities;
- more government and donor funds allocated solely to sanitation and hygiene education.

6. THIRD IMPERATIVE: TO ACHIEVE PROFESSIONALISM AND THE SCIENCE OF SANITATION

- Support research and exchange of scientific information among sanitation professionals
 - Improve and broaden the training of sector practitioners
- 6.1 *Sanitation needs to be recognized as a field in its own right, multi-disciplinary in nature, demanding specialized workers, agencies and programme components.* The status of the sector as a whole will improve when it is based upon scientific research, when the professionals are highly qualified and effective in their work, when programmes are shown to be effective and sustainable.
- 6.2 Better programmes, political commitment and science are related. Better programmes will be designed when they are based upon good research and science. Political commitment to better programmes will come when politicians see that programmes are effective. Science cannot go forward without political commitment and the accompanying financial backing.
- 6.3 *The sanitation sector has been neglected for a long time.* Most research and forward thinking has occurred in the area of water supply but under the name "water supply and sanitation." However, sanitation is different enough from water supply in all aspects (promotion, planning, design, implementation, operation and maintenance, health education, monitoring and evaluation) as to warrant special attention focussed on sanitation alone. This does not mean that water supply and sanitation should be "delinked" at community level, as sufficient water is a requirement for good hygiene practices and for some latrine designs. It does mean, however, that water will not necessarily carry along sanitation and that sanitation has its own special features and requirements that must be addressed separately.
- 6.4 *The sector needs to remember that sanitation is both the "science and practice of effecting healthful and hygienic conditions."* The sector needs a body of scientifically established knowledge and a body of specialists who can implement this knowledge with skill. One goal of science in sanitation is to ensure that we learn how to do better programmes, that mistakes are not repeated and that we do not put more money toward the same failed strategies.
- 6.5 *Achieving a higher scientific level within the sanitation sector will include at least the following actions:*
- Research on what could make better programmes and better technologies
 - Rigorous documentation, monitoring and evaluation of field programmes
 - More scientific exchange among professionals through conferences, networks, professional societies and scientific journals
 - Better and broader practitioner training to create new professionals with the many skills the sector requires

Research needs

- 6.6 The Working Group identified a number of areas where they felt research is urgently needed. These are:
- Planning models for integrating sanitation into other social programmes (literacy, population, nutrition)
 - Indicators for monitoring and evaluation
 - Behaviour change indicators, health impact indicators, long term success indicators
 - The percent of population that needs to be covered ("critical mass") that would be considered "full coverage" for purposes of disease control

- Development of criteria and a monitoring and evaluation framework for measuring success at national and community levels
- Development of methods for assisting communities in identifying and using indicators
- Private sector involvement.
 - The key barriers to private sector involvement
 - The optimal mix of responsibilities between the public and private sector
- Sanitation technologies.
 - How to choose an appropriate mix of technologies to suit urban areas with low, middle and high income
 - How to achieve low cost, culturally sensitive technologies, including dry latrine systems
 - Critical review of low-cost and least-cost technologies
- Participatory methods, social marketing, and social mobilization
 - Models for how social marketing and participatory methods can best work together
 - Critical review of methodologies to change hygiene behaviours
- Success stories and models.
 - Through case studies of countries, determine the characteristics of high achievers and low achievers in sanitation and from these characteristics describe lessons learned
- Finance and cost effectiveness and cost recovery.
 - Alternative financing and cost recovery mechanisms
 - The cost effectiveness of alternative strategies for the control of faecal borne diseases
 - A critical review of the value of "willingness to pay" (WTP) studies and alternative mechanisms to determine WTP

Documentation, monitoring and evaluation

- 6.7 Because so little is known in the sector on how to do better, the Working Group felt that we need much more:
- documentation of successful and unsuccessful sanitation projects and lessons learned; and
 - monitoring and evaluation of all projects on a routine basis, especially after five years and ten years.

This information should be fed back into the sector through scientific journals, conferences and an e-mail network. Evaluations of projects after 5 years and 10 years would provide excellent on-the-job training for new sanitation professionals.

Scientific exchange

- 6.8 It was this area probably more than any that the Working Group members felt would stimulate change in the sector. They could see personally the effects of membership in the Working Group.
- 6.9 Working Group members reported that being a member of the Working Group
- raised their status in their offices
 - raised the status of sanitation in their offices
 - was very educational
- 6.10 The Working Group served as a conference, a network and a professional society. Each meeting was like an international conference. The Working Group members became a network and communicated with each other to produce papers for the Group. Slowly they began to realize that they were the first international sanitation professional society dealing predominantly with problems in developing countries. Following Working Group meetings, some members returned

to their respective countries to launch movements or strengthen their programmes. Members from Indonesia pushed for the Clean Friday Movement. A member from Morocco launched a new national sanitation campaign. Others reported similar progress mainly because the existence of the Working Group drew attention to the need for action and their superiors supported their efforts.

- 6.11 The Working Group members identified a lesson to be learned from this experience. Conferences, networks, and professional associations draw attention to the sector and give it status.
- 6.12 A scientific journal devoted entirely to the subject of sanitation in developing countries does not exist. A global literature search for sanitation articles discovered only 23 journals that had ever published an article exclusively on sanitation. Only 11 journals had published more than two articles on sanitation (De Jong 1995).

Practitioner training

- 6.13 Sanitation programmes and projects require a number of skills for which few practitioners today have adequate training. The new sanitation practitioner needs either the skills or an appreciation of the need for skills in the following areas:

- participatory techniques
- social marketing and social mobilization (communications)
- adult education
- credit schemes
- gender analysis
- working with the private sector
- documentation, monitoring and evaluation
- identifying key hygiene behaviours
- behaviour change methods
- social and cultural contextual analysis
- human ecology
- sanitary engineering

Skills in these areas will raise the status of the profession enormously. Academic institutions training sector professionals need to undertake curriculum review and reform.

7. PUTTING IT ALL TOGETHER

- 7.1 This paper has discussed the importance of political commitment and the approaches that may be used to achieve it, the importance of better trained professionals and more science in sanitation, and the principles and techniques of better programmes. Putting it all together for a national programme is a challenge, especially since some of the best examples come from the small efforts of NGOs or pilot projects. Findings from the Working Group suggest that the promotion of sanitation at national level would seem to require at least the following programme elements:

National level

- Political commitment from the top and at all levels
- A clearly defined national policy
- Supportive legislation and enforcement for sanitation facilities in public buildings

Institutional level

- A set of agreed upon principles to underpin the programme
- An appropriate institutional framework to implement the policies
- Sufficient, independent funding to implement policies
- A project/programme time-frame that allows time for sanitation change

- Broadly skilled sector personnel

Mechanisms

- Effective participatory methods for working with communities (including tools to apply a gender approach)
- Effective mass communication and advocacy strategies
- Effective hygiene education
- Well-functioning sanitation technologies
- Innovative financing arrangements including credit schemes for the very poor (so that all households can pay)

Evaluation

- Indicators of improvements and sustainability
- A monitoring and evaluation plan (preferably participatory and at all levels)

7.2 This list is largely confirmed by the efforts of a few countries that are ahead in putting together provincial or national sanitation campaigns. They embarked on a learning experience several years ago and now feel that they are beginning to know the key elements of a large national or sub-national campaign. Examples come from China and Bangladesh only as it is difficult to find examples of lessons learned from national programmes.

China

7.3 From 1989 to 1994 improved latrine construction in Henan Province, China increased from 1% of households in villages to 29%. At the end of 1994 nearly 5 million households were using the double urn funnel-shaped latrine, which was developed, tested and demonstrated in the province in the 1980s. What made the Henan experience work? The lessons learned can be summarized as follows (de Jong 1995):

- **Get the policy right.**
Given the right policies set at the national level, the provincial authorities translated those into action plans with targets at the provincial level.
- **Get the design right.**
The design is technically adequate, affordable and acceptable to the farmers, local materials are available.
- **Get high level commitment for improved latrine promotion.**
From the Governor and Vice Governor of the province, to the village leaders, their commitment to the programme has been essential.
- **The beneficiaries pay most of the costs of improved sanitation.**
Only small subsidies and incentives are provided to get maximum participation of targeted villages.
- **Strong focus on promotion at all levels.**
Making use of the clear economic, convenience and health benefits. The use of good demonstration assists in this process.
- **Ensure proper organization using the existing structures at village level and involve all possible allies.**
- **Latrine promotion work takes a lot of time.**
It cannot be done in a hurry and requires constant attention.

7.4 "Although from the construction side the Henan province latrine improvement work can be called a success, a number of problems still need to be overcome. They concern insufficient maintenance and effective use of the latrines, and hygiene education. As a result, only half of the improved latrines in Henan province were found to be sanitary in a 1993 nation wide survey on sanitation. The lack of a communication strategy, insufficient use of mass media and insufficient monitoring of effective use are among the other weaknesses which need to be remedied.

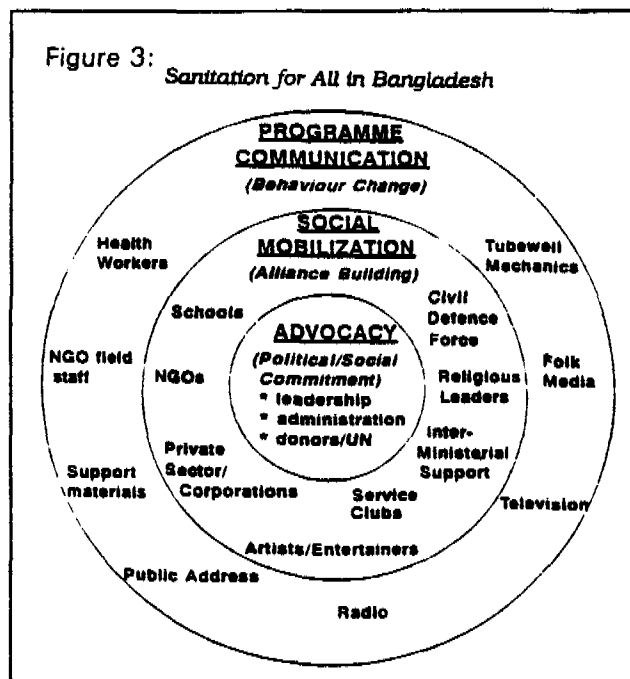
7.5 The major challenge ahead for the Henan province is to develop a revolving fund and other credit options to spread the latrine improvement to reach the poorer villages in the province, beyond

"Social Mobilization on Sanitation and Hygiene" in Bangladesh

- 7.6 Social mobilization is a complete philosophy of how to promote behaviour change for improved sanitation and hygiene (see Figure 3).

The Bangladesh campaign has the following features:

- Creating political will at all levels through advocacy;
- Mobilizing a wide spectrum of allies in order to make a difference;
- Having well-trained field workers at community level to create awareness for behaviour change;
- Promotion of "do-it-yourself" home-made sanitary pit latrine options;
- Strong hygiene education campaign;
- Taking a learning approach and being flexible;
- Creating the right climate for the private sector (Luong 1995).



- 7.7 One of the most important decisions Bangladesh made which accelerated the sanitation coverage dramatically was the introduction of the "do-it-yourself" home-made sanitary pit latrine. Guidelines were provided to households on how to build these sanitary latrines. The programme conducted a survey on various types of home-made sanitary latrines built and currently used in rural Bangladesh, and then promoted them nationwide. As they are made of local materials, they cost very little. This experience confirms the importance of the principle of offering a range of technologies already accepted by the people and building upon what people are already doing within their economic capabilities.

8. RECOMMENDATIONS

The Driving Force for Change - Who is Responsible?

- The "Sanitation Revolution" should be initiated by everyone working in the sector, but especially by members of the Collaborative Council and their respective institutions.
- **External support agencies** should lead in advocacy for sanitation among top politicians. They should promote the science of sanitation by funding research, insisting upon monitoring and evaluation of projects for lessons learned, supporting curriculum reform, supporting networks and conferences for the exchange of information, and any other activity which raises the status and profile of the sector and its professionals. Donor agencies should review the principles and approaches behind sanitation programmes before financing them to ensure they are sound and should use their influence for leverage for appropriate legislation and policies.
- **Academic and teaching institutions** should undertake major reviews of their curriculum to ensure that training includes the many skills required by the profession. They should also help to define needed research and carry out such research.
- **National ministries, institutions, NGOs and the private sector involved in sanitation** should review their policies and programmes with regard to assumptions, principles and approaches to communities. They should ensure that their programmes are principle-centered and that methods to create demand and empower communities to take action are effective. National

ministries should demonstrate their commitment to sanitation by ensuring that all public buildings, health centers, hospitals, and schools have toilets, proper disposal of liquid and solid wastes and safe water supply and by exploring the use of legislation to mandate this.

- **Consumer groups, communities and users** should ensure that the principles of better programmes are applied by every project at the local level.

9. THE WORKING GROUP

- 9.1 The Working Group on Promotion of Sanitation was formed by the Collaborative Council in September 1992 to recommend ways to advocate for the sector and raise its status. Its mandate was to initiate promotion in as many countries as possible and to monitor the results. At its first meeting to write its Terms of Reference, the Working Group felt it could not advocate before knowing exactly what needed to be advocated. Perhaps there were other problems which would account for the sector's poor performance and which would need to be solved. The Working Group chose to rewrite its mandate to undertake an analysis of the sector as a whole and to report back to the next meeting of the Collaborative Council its findings.
- 9.2 The Group was composed of 44 active members, of which 24 were from developing countries and 16 were women, and represented by a wide variety of professions: anthropologists, communications experts, specialists in non-formal education, health educators, engineers, architects, institutional specialists. The composition of meetings changed each time as a way of involving more people actively.
- 9.3 Support for the Working Group was provided mainly by the Swiss Development Cooperation, SIDA (Sweden) and the World Health Organization. Dr. Mayling Simpson-Hebert of WHO was the coordinator of the group.
- 9.4 The Working Group accomplished a definition of the problems in the sanitation sector and of the principles and mechanisms of better sanitation programmes. They identified three imperatives for raising the profile of sanitation. Tools to guide implementation of these imperatives may be required. Guidance on how to implement the many principles identified by the group may also be needed.
- 9.5 It is recommended that the Working Group continue for two more years in order to identify existing tools which reflect the principles and imperatives or create tools where none exist. The Working Group will thus be product-oriented. A core group would need to be formed to identify three to six products that will be most needed by the sector, followed by formation of a larger group to identify or develop the products in the course of two years.

RABAT MEETING OF THE COLLABORATIVE COUNCIL

Summary Report of New Issues Group

Promotion of Sanitation

1. BASIS FOR ACTION

The title of the Water Supply and Sanitation Collaborative Council initiative on the promotion of sanitation essential. The Rabat group session reinforced the urgency of the need for action. The compelling statistics and diagnosis of needs in the plenary presentation are seen as an overwhelming case for top priority to be given to sanitation promotion. The issue is primarily one of advocacy and education at all levels, but the Rabat Group recommends that activities should be especially directed towards high-risk populations (periurban and slum areas and others). The target should also be to achieve incremental improvements - starting with what people already have - rather than proposing wholesale introduction of new systems.

Ways need to be found to raise the profile of sanitation, not just among beneficiaries and politicians, but, critically, also among sector professionals, who need to see the provision of effective and sustainable sanitation services as a satisfying and rewarding activity.

2. RECOMMENDED ACTIONS

By the Collaborative Council

The WSSCC must have a Working Group on Promotion of Sanitation. The group's task will be to develop recommendations for activities by the Council and its members, and to stimulate continuous advocacy. Within the first two years, it should seek to initiate promotion in as many countries as possible, and to monitor the results for reporting back to the next Council Meeting.

By Council Members, individually or collectively

The sanitation imperatives for the Council itself also need to be recognized by individual members, be they from NGOs, ESAs or DC agencies. Measures to improve the profile of the sanitation sector can and should be introduced immediately. ESAs need to treat sanitation as a priority topic in its own right, not simply as an occasional add-on to a more attractive water supply programme. It requires separate analysis, with a different timescale, and in many places should have priority over increased investment in improved water supplies. Hygiene education materials and procedures are well-established enough to provide the tools for campaigns.

Council members are strongly urged to adopt the priorities suggested for the Working Group - i.e. a focus on high-risk populations and the achievement of incremental improvements - and to report their progress back to the Working Group.

Many Rabat Group members indicated a willingness to participate in the Working Group and WHO agreed to coordinate development of the Group's Terms of Reference, after which a Group Coordinator will be selected.

TERMS OF REFERENCE: WORKING GROUP ON THE PROMOTION OF SANITATION**1. DEFINITION OF SANITATION**

The definition of sanitation used for the purpose of this working group will be "safe interaction with human excreta".

2. THE PROBLEM OF SANITATION

In many developing countries sanitation coverage is very poor resulting in the persistence of many fecal-related diseases and increasing degradation of our fresh water resources. The foundation of this problem seems to be the low prestige accorded the field of sanitation, and this may be related to many cultural beliefs and taboos surrounding human excreta in many cultures. It has been difficult to move forward the field of sanitation in this socio-cultural climate. With the expected rapid population growth over the next thirty years in developing countries, total sanitation coverage appears to be impossible to achieve if the sector continues working in the same ways it has worked in the past.

3. OBJECTIVE OF THE WORKING GROUP

To make recommendations to the next meeting of the Collaborative Council in November 1995 on how best to raise the profile of sanitation in and outside of the water supply and sanitation sector and to help initiate and boost sanitation activities globally.

4. FOCUS

The focus of the working group is on the promotion of human behaviours and technologies related to safe excreta disposal.

5. PRINCIPLES

The working group agrees to accept and work under the following principles.

- 5.1 Sanitation involves both behaviours and facilities which should be promoted together to maximize health benefits.
- 5.2 In some cases improvements in hygiene behaviours without latrines can result in reduction of disease and can serve as valid programme objectives alone.
- 5.3 Sanitation is essential to protect human health but also to improve economic well being and reduce the immense cost of suffering and loss through disease. By investing in sanitation much environmental pollution will be prevented, resulting in cost savings.
- 5.4 Improvements in hygiene behaviours (especially the disposal of the stools of babies and young children, hand washing and keeping drinking water clean) and excreta disposal practices should be approached incrementally, based on local beliefs and practices and working toward small lasting improvements that are sustainable at each step, rather than the wholesale introduction of new systems.
- 5.5 Full latrine coverage is not attainable in many countries in the foreseeable future without a tremendous effort. Therefore, hygiene and sanitation programmes should aim at full latrine coverage for high risk and under-served groups and hygiene promotion should be for all. High risk populations will have to be determined within each country but will likely include urban and peri-urban and squatter areas and selected rural communities.

- 5.6 Sanitation should be treated as a priority topic in its own right and not simply as an add-on to a more attractive water supply programme. It requires its own resources and its own time-frame to achieve results.
- 5.7 The vital role of the private sector and non-governmental organizations in sanitation promotion is recognized. Government role is to protect public health. Ideally, for the promotion of sanitation, partnerships among these should be forged.

6. NEEDS FOR SANITATION PROMOTION

The working group identified a number of needs for sanitation promotion.

6.1 Attractive sanitation products

Sanitation promotion requires products attractive to consumers, based on their perceived needs and affordable to them. Very few such products exist at the moment. It also needs service support and enthusiastic promotion of the products.

There is a need for research to develop more attractive and affordable sanitation "products" such as facilities and more effective methods for improving hygiene behaviours.

6.2 Information, Tools and Guidelines

Countries could improve sanitation promotion if they had fuller information, tools and guidelines. Important identified needs are:

- a. A list of key hygiene behaviours that should be promoted.
- b. An inventory of the range of facilities designs available, especially for latrines and hand washing facilities, that are attractive to consumers (appropriate technologies) and affordable.
- c. A description of better strategies and methods for hygiene education.
- d. Tools that will empower the poor, especially women, to articulate their desires and express their demand.
- e. Guidelines on social marketing for promoting sanitation as a prestigious product.
- f. Guidelines for communication strategies, including advocacy, social mobilization and programme communication, for different levels, from grassroots to national and global levels.
- g. Examples for developing partnerships with the private sector.
- h. Indicators (with measurement methods) to assess sanitation promotion performance.

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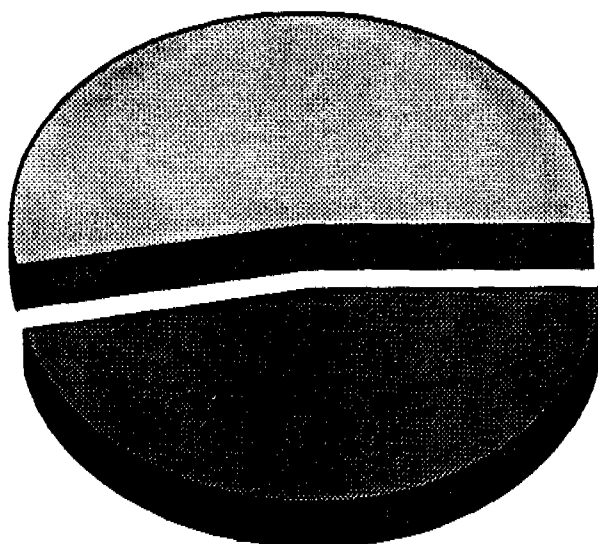
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THE PROBLEM OF SANITATION



People without
appropriate sanitation in
developing countries
1991

Water Supply and Sanitation Collaborative Council
Working Group on Promotion of Sanitation

15 March 1994



World Health Organization

Foreword

This paper on The Problem of Sanitation is the first product of the Water Supply and Sanitation Collaborative Council Working Group on the Promotion of Sanitation. The paper resulted from three days of brainstorming and discussions at the first meeting of the Working Group in Thun, Switzerland, 1-3 March 1994.

The Working Group agreed that in order to find ways to promote sanitation, one must first understand why sanitation moves forward so slowly. This paper represents the views and consensus of the Working Group during that meeting. Mr. Peter Kolsky of the London School of Hygiene and Tropical Medicine, rapporteur for the meeting, compiled the views of the working group and composed the present paper.

This paper is similar in many ways to the paper Sanitation: The Unmet Challenge presented by Mayling Simpson-Hebert in September 1993, at the Water Supply and Sanitation Collaborative Council Meeting in Rabat, Morocco. The present paper builds upon the Rabat paper and, as it resulted from the consensus of a group of sector experts, may be viewed as a state-of-the-art paper on why sanitation has not moved forward.

Please copy this paper and pass it on to colleagues. Your views and those of your colleagues on this paper and on the issue of sanitation promotion are eagerly sought by the Working Group. We would be happy to receive your comments at the address below.

Mayling Simpson-Hebert
15 March 1994

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THE PROBLEM OF SANITATION

THE BURDEN OF POOR SANITATION

Every year, 2.5 million children die from diarrhoea that could have been prevented by good sanitation; millions more suffer the nutritional, educational and economic loss through diarrhoeal disease which sanitation can prevent. Poor sanitation has led to the infestation of nearly a billion people, largely children, with a variety of worm infections, with corresponding costs in health and energy. Human excreta are also responsible for the transmission of schistosomiasis, cholera, typhoid, and many other infectious diseases affecting hundreds of millions. Heavy investments have been made in water supply since 1980, but the resulting health benefits have been severely limited by the poor progress in sanitation. Besides this toll of sickness and disease, lack of sanitation is a major environmental threat to water resource systems and a fundamental denial of human dignity.

CHARACTERISTICS OF THE PROBLEM

Like all complex problems, poor sanitation can be analysed on many inter-related levels. At its first meeting, the Collaborative Council Working Group on Sanitation Promotion started a process of identifying problems, barriers, and themes that appeared to operate on three levels.

Level 1, The basic problem: sanitation isn't happening.

Despite years of rhetoric, good intentions, and hard work, we are in fact making little or no progress: at current rates of "sanitation provision", the number of people without sanitation will not change in the next forty years: a staggering 2 billion people. This is astonishing, given the human capacity to solve problems, the fundamental nature of this basic need, and the enormous suffering caused by our failure to meet it. Yet those of us working in sanitation are agreed that, with some notable exceptions, we are either losing ground or barely holding the line.

Level 2, barriers to progress: Why sanitation doesn't happen.

Given the magnitude and importance of the problem, why is there so little progress? The barriers to progress found by the working group were varied and complex, but could generally be grouped into nine linked and overlapping categories.

Lack of political will There is little political incentive for government to deal with a difficult subject; politicians rarely lose their jobs because of poor sanitation, particularly as the people most in need have the least power. Political commitment is needed to create an environment in which demand for sanitation can grow, which in turn can strengthen political will. The issue of political will is thus both a cause and effect of other problems, and a key to successful sanitation promotion.

Low prestige and recognition Low cost sanitation facilities, and hygiene promotion campaigns have never been prestigious; politicians and movie stars don't demonstrate latrines. Among the professionals, the best and the brightest avoid low-cost sanitation as a low-status low-pay career, particularly as it is more difficult and demanding than high-status high-tech engineering or medical approaches. Among consumers, low-cost sanitation has no prestige in comparison with "conventional" water borne sanitation, as used by the industrialized world and by the economic elite of developing countries.

Poor policy at all levels Agencies responsible for creating a supportive environment for sanitation generally have ineffective and counterproductive policies at all levels. These include too much attention to water supply at the expense of sanitation, a focus on short-run outputs (hardware) rather than long term behaviour change, and subsidies that favour middle and high income communities. More fundamentally, there is often no philosophical approach to the problem upon which sound policy can be based.

Poor institutional framework Many players are affected by sanitation, and many more could be involved in

The Problem of Sanitation

its promotion. The institutional frameworks in place fragment responsibilities between government departments, neglect the needs of the most vulnerable, and ignore the powerful role that NGOs and the private sector can play. It is clear that governments by themselves have failed to promote sanitation, and that existing institutional frameworks need to change.

Inadequate and poorly used resources Sanitation does not attract a fraction of the resources needed to do the job. It is at least as important for health as water supply, and is a far more demanding problem yet sanitation receives far fewer resources. Increasing resources are required just to maintain the *status quo*, as urbanization and population growth make the hazards of poor sanitation more acute. Where resources are available, far too much goes into hardware, and not enough into mobilisation and hygiene promotion.

Inappropriate approaches Even where sanitation promotion is attempted, the approach taken is often wrong. Attempts are made to find simple universal solutions which fail by ignoring the diversity of needs and contexts. Urban needs often differ from rural needs, the technological options offered are limited and inappropriate, and critical issues of behaviour are ignored or handled badly. The short-term is generally favoured over the long-term, and we fail to learn from collective experience.

Sanitation also fails by being defined and applied too broadly or too narrowly within a specific environment. In some cases, for example, the scope of environmental protection and pollution control becomes so broad that the focus on basic household excreta management is lost. In other cases, a narrow focus on pit latrine installation which ignores local drainage needs could exacerbate disease transmission during floods. Short term disaster relief fails to develop long term sustainable sanitation because the approach doesn't include the transition as a goal. Current approaches also stifle innovation and undermine confidence; we're so afraid of even more failure in this difficult field that we don't take the risks required for success.

Neglect of consumer preferences Too often, we try to sell what people don't want and/or can't afford. Low-cost technologies are often seen by consumers as low-status technologies, while many "appropriate" technologies are far beyond the economic reach of those most in need. Promoters try to sell sanitation facilities on health benefits, where people really want the privacy, comfort, and status which sanitation can offer. Much hygiene promotion is based on messages which ignore existing knowledge, belief, and experience. Very simply, most of us promoting sanitation simply don't listen to what people want or believe.

Ineffective promotion and low public awareness People don't want to talk or think about faeces, so selling the idea of sanitation is difficult. Yet the engineers and doctors frequently responsible for selling sanitation are often unaware of effective promotional techniques, and continue with top-down approaches that alienate "target populations" by denying their voice, desires, and involvement in the process. Those in charge are not trained for this job of promotion. Adoption of social marketing and participatory approaches to sanitation is promising, but this is still in its infancy; we have much to learn.

Women and children last Women are potential agents of change in hygiene education, and children are the most vulnerable victims, but men usually make the decisions about whether to tackle the problem, and how. Many sanitation programmes ignore the disposal of children's faeces, even though these are a major reservoir of disease pathogens. Women often need privacy and security in sanitation more than men, yet are unable to express these needs effectively in many societies. Those with the most at stake thus have the weakest voice.

Level 3, Cross-cutting themes: demand and taboo.

Little effective demand If enough people wanted the available sanitation improvements badly enough, many of the above problems would resolve themselves. These problems are frequently expressed as constraints upon supply; we also need to think about factors which limit economic or political demand. Some people may want sanitation very badly, but are powerless to express that want in financial or political terms; some may want sanitation facilities, but not at the available price; and others may not want the available "improvements" at any price. Where sanitation is poor we need to understand why the effective demand is low, to determine whether it is most amenable to political, financial, technical or informational change.

The Problem of Sanitation

Cultural taboos and beliefs In most cultures, excreta are taboo, and viewed as a disgusting and/or dangerous nuisance not to be discussed openly or seriously. Nobody wants to be associated with excreta: even those who actually reduce its offensive characteristics for others are stigmatized by association. Problems can't be solved if people don't want to talk about them, and don't want to be associated with their solution. In many contexts, ancient or more modern technical taboos can block the safe reuse of human waste as a resource. The excreta taboo lies behind many of the barriers to progress.

CONCLUSIONS

The above is not a complete description of the Working Group's initial analysis of the problem of sanitation, but reflects most of the issues raised and indicates their complexity. Although the problems above are grouped into differing categories and levels, they obviously interact to varying degrees in different contexts.

What is to be done? In some cases solutions exist but are not widely enough known; in others further work is required to develop fresh approaches; in still others further work is required just to define the problem more clearly. The Working Group is not in a position to address all such barriers in a comprehensive fashion, but it can and must identify principles, set priorities, develop strategies, and work toward solutions of the sanitation problem. The Working Group's Terms of Reference set out the approach to these tasks.

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GOVERNMENT OF ZIMBABWE

**DECENTRALISATION OF THE RURAL WATER AND
SANITATION PROGRAMME IN ZIMBABWE**

**PRESENTED BY : A.C. MPAMHANGA
NAC CHAIRMAN (ZIMBABWE)**

VENUE : BARBADOS : WEST INDIES

DATE : 30 OCTOBER - 3 NOVEMBER 1995

WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL

ABSTRACT

This paper on Zimbabwean experiences of the Decentralisation of the Rural Water and Sanitation Programme was compiled for the Water Supply and Sanitation Collaboration Council third Global Forum held in Barbados from 30 October to 3 November 1995. The paper was co-authored by Abbey Cleopas Mpamhanga, NAC Chairman in Zimbabwe and George Nhunhama, National Coordinator for the Rural Water Supply and Sanitation Programme in Zimbabwe.

The paper makes an attempt to outline the gradual process of decentralisation, in general, starting from the time of Zimbabwe's independence in 1980. The submission also dwells at length on the development of this process of decentralisation with special emphasis on the Rural Water Supply and Sanitation Programme. In going through the paper one finds out that the early Eighties was a period in which efforts were concentrated on creating a conducive environment for a decentralised approach in the planning and implementation of development programmes in rural areas.

The second half of the Eighties saw the consolidation of the conducive environment through a legal framework and formulation of strategies for operationalising the relevant enacted Parliamentary Acts. The first half of the Nineties witnessed the implementation of the Decentralised Programme through a number of well defined activities, namely:

- a) Amalgamation of the different rural local authorities.
- b) Classification of the amalgamated rural local authorities in accordance with their tasks.
- c) The implementation of the decentralisation strategies in a few selected Pilot Districts.
- d) Consolidation of the lessons learnt from the pilot districts for replication to more districts.
- e) Establishment of the necessary capacity building framework to support the Rural Local Authorities.
- f) and many other activities to ensure that the decentralisation was an irreversible process.

The submission goes further in elaborating valuable experiences in the pilot phase and how much lessons would assist in expanding the scope of the decentralisation. Some of these lessons are listed below :-

- a) Channelling of funds to RDCs has increased transparency and accountability on the programme.
- b) The leading position in project planning which has been afforded to the RDCs has improved the confidence, in the RDCs, in handling development programmes.
- c) Channels of community based management have been opened as RDCs are more receptive to this concept as a way of sustaining water and sanitation facilities.
- d) Implementation of the programme has grossly speeded up.
- e) The coordination and management by RDCs has improved the collaboration between local politicians and Central Government professionals, who are all now supportive of these pilot activities.
- f) Central Government staff at district level have now developed a greater sense of belonging to the project as they now effectively advise the RDC on financial and project management issues.
- g) The lengthy procurement procedures through Central Government ministry structures are no longer in existence and suppliers are more keen to supply goods and services as they are assured of shorter payment periods by the RDC.
- h) The morale of Central Government officers at district level has been revived since re-imburements of their expenses are promptly actioned.
- i) The financial and progress reporting has now been simplified to one report from the RDC instead of 5 reports from sector ministries.

- j) The greater involvement of communities in planning and implementation through the development structures has resulted in a greater sense of ownership of the project by beneficiaries.

The second half of the Nineties will, hopefully, turn out to be a period of intensive activity as the Government of Zimbabwe tries to fully decentralise the development programmes to all the Rural Local Authorities.

The authors have made attempts to elaborate the achievements of the programme objectives which have been made through direct and active participation by the beneficiary communities who have closely identified the programme. The sense of ownership generated through community involvement has been considered as a vital aspect of development projects in rural areas. However, despite all the positive progress made on the decentralised programme in Zimbabwe, there are some problems and constraints that are still outstanding. Most of such problems have to do with Central government's staff attitude to local authorities and resistance to change as these officers had been used to a system where Central government was a provider of services and not a facilitator. Efforts are being intensified to minimise these attitudinal problems.

The authors take this time to offer their sincere gratitude to the Water Supply and Sanitation Collaborative Council for affording them an opportunity to present and capture this submission in the Third Global Forum proceedings. We hope that experiences from the meeting will assist in enhancing the unfolding decentralisation process in Rural Zimbabwe.

Thank you

1. INTRODUCTION

Zimbabwe is a country of about 390 000 square kilometres and is situated in Southern Africa. The country has been independent for fifteen years with a population of about 10.4 million. Zimbabwe became independent after a long and bitter liberation war which had left widespread disruption in rural infrastructure. Thus the first objective of the Government was to rehabilitate all the damaged infrastructure through a reconstruction programme. In order to enhance the progress on this programme the government had to solicit grassroots support for those inputs where the rural communities could make a significant contribution.

The involvement of these rural communities paid dividends in that they quickly identified with this development programme and also with the new political order. Community involvement in rural development programmes was further formalised by the Prime Minister's Directive of 1984 which resulted in a policy on decentralisation in rural areas. However the implementation was partially hampered by the existence of two development councils in rural areas. These two were:-

- The Rural Councils made up of relatively wealthy white commercial farmers and
- The district Councils made up of poor peasant farmers.

Despite this hick-up some planning and development structures were set up starting at village level to the national level. From the lowest level these structures are :-

- The village Development Committee (VIDCO) at village level.
- The Ward Development Committee (WADCO) at Ward level where a ward is made up of about six villages. Representatives of the VIDCOs constitute the WADCO and this structure is chaired by a politically elected councillor.
- The District Council (D.C.) in which councillors from all the wards in the district participate on political and development issues.

- The district Development Committee (DDC) also at district level in which sector ministry experts debate development issues and accordingly advise the District Council.
- The Provincial council (P.C.) at Provincial and regional level in which district Council representatives take part in both political and development issues and is chaired by the Provincial Governor.
- The Provincial Development Committee (PDC) in which Central Government Provincial heads participate in development issues and then appropriately advise the Provincial Council.
- For programmes in Rural Water Supply and Sanitation, the appropriate development plans are submitted to the National Action Committee at National Level. For other programmes these provincial plans are processed by the appropriate sector ministry at National Level.

The above mentioned structures, consequently, clearly define the interactions of different development levels in a bottom-up approach.

2. DEVELOPMENT OF A CONDUCTIVE ENVIRONMENT FOR DECENTRALISATION

As elaborated before, the Prime Minister's Directive of 1984 can be taken as a fore-runner to the establishment of a system in which the lowest development levels could easily communicate their needs to the highest levels. The higher levels could also communicate downwards on the capacity to address the identified needs and the possible involvement of the communities. Meanwhile legislation was being drafted and debated on the amalgamation of the 2 councils at District Level. This resulted in the amalgamated Rural District Councils Act in 1988.

The Act, among other things, gives powers and functions to the newly formulated Rural District Councils. These functions include the provision of water and sanitation services to all the people under the jurisdiction of the Rural District Council (RDC).

As deliberations on the RDC Act were under way, the National Action Committee was being re-constituted. This process resulted in the Chairmanship being transferred from the Ministry of Health to the Ministry of Local Government Rural and Urban Development, under which the RDCs operate. An active secretariat, the National Coordination Unit (NCU), was also established to service the NAC and to perform the functions of overall management of the programme. Since the Ministry of Local Government Rural and Urban Development (MILGRUD) is in charge of RDCs and also coordinates the RWSS Programme through the secretariat, it was relatively easy to bring in the RDC into the RWSS Programme. As a result the RDCs are gradually taking up the management of the RWSSP with the active assistance from the NAC and NCU.

3. EXPERIENCES FROM THE IDWSS : 1981 - 1990

At the end of the United Nations proclaimed International Decade for Water Supply and Sanitation (IDWSS) in 1990, a Decade Consultative Meeting was held in Harare to :-

- (i) review the progress made in fulfilling the objectives and targets of the IDWSS.
- (ii) draw up activities for the Nineties in an attempt to improve on the programme performance of the Eighties.

A number of resolutions were made at this Decade Consultative meeting and these included the following :-

- a. The future responsibility and authority for planning, financial control, implementation and operation and maintenance of rural water supply and sanitation, including decisions relating to technology choice, must be increasingly borne by the local authorities and community members, ultimately leading to complete management through established local structures.
- b. In order to accomplish this, particular attention needs to be placed on human resource development, especially at district, ward and village levels.

- c. The financial responsibility for direct operations and maintenance should, in future, be borne by communities and local authorities.
- d. The main thrust of central government's role should focus on overall sector guidance and promotion, training, information dissemination and support to communities and local authorities.
- e. The contribution of the private sector and non-governmental organisations in the sector, will in the future assume greater importance and should be encouraged and coordinated.
- f. Recognition of the central role of women in water supply and sanitation, their active and full involvement in all community activities, and at all levels of program management, must be achieved.

These resolutions clearly indicate that the slow progress of the Eighties required a change in planning and implementation strategies. It also became apparent that the only way to speed up delivery of Water and Sanitation Services and ensure a high level of sustainability was to decentralise the programme and devolve authority and responsibilities to the RDCs. Another clear observation of the Decade Consultative meeting was the NAC had gradually improved the coordination of the sector and by 1990 the integrated approach was functioning smoothly.

4. THE NAC AS A VEHICLE FOR PILOT ACTIVITIES IN DECENTRALISATION.

The integrated approach adopted and successfully implemented by the NAC revealed that the NAC was structured with a good potential to carry out pilot activities in decentralisation on the Water and Sanitation Programme.

Consequently a follow up Sector Review Meeting was held in the small resort town of Nyanga in January 1992. The meeting ended up with very valuable resolutions which are popularly known as "Vision 2000".

The "Vision 2000" recommendations further emphasised the importance of decentralising the RWSSP to rural local authorities and came up with concrete steps on decentralisation of water and sanitation projects. A few of the recommendations are listed below

- a. The programme should strive to produce aware, active and self organised communities, with strong participation of women able to influence local authorities. The communities should then play a central role in planning and setting priorities and managing some local services.
- b. Central Government should establish effective Rural District Councils, responsible for development of strategic rural development plans, including management of land and ensuring the delivery of primary services, including community management of RWSS.
- c. Policy Makers should intensify efforts to come up with a Streamlined Central government performing crucial roles, including national planning and budgeting, financing, policy formulation and regulation, technical assistance and training, management of national resources (e.g. water) and trunk services (e.g. bulk water supplies), research and information exchange.
- d. Manpower Development Programmes should be drawn up so that RDCs have trained and experienced management and technical teams with access to competent advisory services of central government.

The month of May 1992 witnessed yet another workshop at which an implementation plan for "Vision 2000", was drawn up. Four districts were selected as pilot areas to test decentralised approach to project planning and implementation of water and sanitation projects. In selecting the districts, 2 main selection criteria were used, namely:

- (i) Districts that were just starting to implement the RWSS Projects.
- (ii) Districts with a significant level of managerial capacity after the amalgamation exercise.

The amalgamation of Rural Councils and District Councils was completed in 1993 so the pilot initiatives could only start in 1994. However, only 3 Pilot Districts managed to secure funding for the programme execution. As a result the experiences on decentralisation were derived from 3 districts only.

Some of the changes from a Central Government managed to a decentralised programme were:-

- a) The project planning would be spearheaded by the RDC with Central Government Staff providing technical and management support.
- b) All funds would be channelled from the Ministry of Finance through the Ministry of Local Government Rural and Urban Development, to the RDC. This would replace the existing system by which funds reach the District Level through 5 line ministries.
- c) The RDC then opens a new account from which project activities can be financed. The financial and project management aspects are then functions of the RDC.
- d) The RDC may implement the project through Central Government agencies at district level or may hire the private sector.

The NAC realised that this responsibility being transferred to the RDC had to be coupled to a capacity building plan for the RDCs. Training programmes were thus drawn up at which local politicians and RDC staff were updated on the latest programme approaches and improved management procedures.

4. EXPERIENCES FROM THE PILOT DISTRICTS

Pilot activities have now been implemented for about 18 months, in 3 districts and useful lessons have been learnt. Some of these lessons are listed below.

- a) Channelling of funds to RDCs has increased transparency and accountability on the programme.
- b) The leading position in project planning which has been afforded to the RDCs has improved the confidence, in the RDCs, in handling development programmes.
- c) Channels of community based management have been opened as RDCs are more receptive to this concept as a way of sustaining water and sanitation facilities.
- d) Implementation of the programme has grossly speeded up.
- e) The coordination and management by RDCs has improved the collaboration between local politicians and Central Government professionals, who are all now supportive of these pilot activities.
- f) Central Government staff at district level have now developed a greater sense of belonging to the project as they now effectively advise the RDC on financial and project management issues.
- g) The lengthy procurement procedures through Central Government ministry structures are no longer in existence and suppliers are more keen to supply goods and services as they are assured of shorter payment periods by the RDC.
- h) The morale of Central Government officers at district level has been revived since re-imburements of their expenses are promptly actioned.
- i) The financial and progress reporting has now been simplified to one report from the RDC instead of 5 reports from sector ministries.
- j) The greater involvement of communities in planning and implementation through the development structures has resulted in a greater sense of ownership of the project by beneficiaries.

5. CONSTRAINTS

Although a lot of advantages have accrued to the programme through the decentralised approach, a number of problems and constraints have been encountered. Most of the problems have been resolved but some are still outstanding. Four major problems are:-

- a) Delayed procurement of project vehicles which has led to slow implementation.
This problem has been partly resolved since some of the vehicles have now reached the districts. However, there is need to speed up on the procurement process of the remaining vehicles.
- b) The irregular flow of funds to the districts caused by delayed audited accounts at Central Government Level. The timely submission of audited accounts to donors supporting the projects is a necessary pre-requisite for the continued flow of funds. This has been a problem over the past 2 years resulting in irregular flow of funds to the RDCs.
- c) Limited capacity, at the RDC, to manage and supervise project activities especially those contracted to the private sector. This problem has however, been minimised through the use of Central Government staff in the Supervision of the private sector.
- d) Absence of clear guidelines on the overall programme of decentralisation of which water and sanitation is only a part.

6. FUTURE NAC ACTIVITIES

Even though there have been a number of problems in the decentralised pilot districts, the advantages drastically outweigh the problems. Moreover the problems are not insoluble. The NAC is already in a process of resolving some of these problems through capacity building of local authorities and improved information flow to all concerned actors. When clearer guidelines on the overall decentralisation and the overall capacity building programmes are fully developed the NAC will assist in disseminating and clarifying them to the RDCs. The NAC is also finalising guidelines on contract documentation and supervision for the guidance of RDC staff when dealing with the private sector especially on works contracts.

7. CONCLUSION

The NAC in Zimbabwe has managed to successfully pave the way for decentralisation on the RWSSP through its 3 pilot projects. As a result an additional 5 districts are now being implemented in a decentralised manner. Replication of good experiences from the first 3 Pilot districts is already under way and more district project will be decentralised yearly. It is planned that Rural Water and Sanitation Projects will all have been decentralised to the RDCs by the year 2000. As the overall decentralisation and capacity building programmes for RDCs unfolds the decentralised RWSS Programme will be reinforced. The bigger programmes of decentralisation and capacity building will also be enriched by the pilot district experiences.

The relative success in the decentralisation of water and sanitation was enhanced by a positive environment brought about by a legal framework and the 1993 amalgamation of rural local authorities. The unwavering support and commitment from the NAC also contributed positively to the decentralisation trials. Although such successes have been achieved, Zimbabwe is very keen to learn from experiences emanating from other countries which have decentralised water and sanitation programmes.

MEMORANDUM

TO: Professional Staff

FR: Francis 9.06.95

RE: Collaborative Council/working group coordinators' meeting report

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In view of the nearing meeting of the Collaborative Council (beginning November in Barbados) and contacts of many of you in the context of the various working groups, I am sending you herewith the last official report on the proceedings of the Council, namely the report of the coordinators' and Rabat action programme meeting.



WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL

CONSEIL DE CONCERTATION POUR L'APPROVISIONNEMENT EN EAU ET L'ASSAINISSEMENT

All Invitees & Participants
of the Co-ordinators' and
Rabat Action Programme Meeting

Ref: CCW/O/W/13A
Telephone: 41(22) 791-3685

27 January 1995

Dear Colleagues,

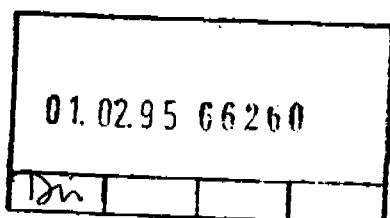
Co-ordinators' and Rabat Action Programme Meeting

... Please find attached for your information, the finalized report as the record of the meeting of the Co-ordinators and the Rabat Action Programme, held in Geneva from 20 to 22 October 1994.

We thank those of you who sent comments on the draft report and repeat our thanks to you all for your continued collaboration, wishing you a good New Year 1995.

Yours sincerely,

Ranjith Wirasinha
Executive Secretary
WSS Collaborative Council



... ENCL. as stated

N.B. For Co-ordinators: Please refer to our fax of 14 September 1994 and be reminded of the schedule of your contributions to the Water Newsletter of IRC. Such contributions are to be sent through the Secretariat. Many thanks.

**WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL
CO-ORDINATORS/RAP MEETING
20-22 October 1994, WHO, Geneva**

REPORT

A meeting for the Co-ordinators of the Working Groups and Mandated Activities and on the Rabat Action Programme (RAP) of the Water Supply and Sanitation Collaborative Council was held in Geneva from 20 to 22 October 1994, chaired by Mrs Margaret Catley-Carlson. The Agenda of the meeting is given in Annex 1. A list of participants is attached in Annex 2.

The purpose of the meeting was:

- to review Working Group and Task Force activities undertaken as a follow-up to the Oslo and Rabat meetings of the Council, and discuss the Council's response on the outcome of the Noordwijk meeting on Drinking Water and Environmental Sanitation;
- to consider country reports from the standpoint of applying outputs from Council activities and ensuring that they are of practical utility;
- to report progress on the work towards the proposed World Water Council and elicit views on a possible Council approach to the proposed World Water Council;
- to prepare for the next Council meeting (Barbados).

For the above purposes the participants had before them the following documentation: (i) Facts Sheets for Co-ordinators; (ii) Reporting Sheets for Oslo WG Co-ordinators; (iii) Briefing Note to Co-ordinators on Documentation; (iv) Reports on Meetings from WG/SAN, WG/IMO and MA/O&M; (v) RAP Activities and Implementing Mechanisms; (vi) Note on Sector Strategies and the National Report of Zimbabwe; and (vii) The TOR for the study and proposal for the World Water Council.

A. WORKING GROUPS

A list of the dates of forthcoming meetings of the Working Groups is attached as Annex 3.

(i) Promotion of Sanitation (WG/SAN)

The Group met twice near Thun in Switzerland during March and October 1994. It has attempted to identify the problem of sanitation and the areas needing priority attention. The focus, as a priority, will be on on-site sanitation for the poor, especially in high risk areas. Sewage and solid waste will not be addressed. There was general recognition that sanitation required special consideration to overcome negative connotations, unlike water which was viewed positively. The scope was broader than simple advocacy, because of the lack of total appreciation of the issues generally amongst those responsible and the need to address complex behaviour changes. The Working Group will address the following issues:

- lack of interest at community level;
- unlike larger-scale projects that attract funds, on-site sanitation is seen as an individual responsibility and does not attract attention or funding;

- institutional barriers in government agencies, external support agencies, banks, donors, United Nations agencies;
- tendency for sanitation to be overshadowed by other sectors, such as health, or water within institutional priorities;
- weak "analytical" basis, hence there is a need to employ qualified consultants to study the social and cultural factors.

A workplan for the period October 1994 to March 1995 has been drawn up to address 17 identified issues, with volunteer members of the Group or consultants preparing the papers before the next meeting, scheduled for 13-16 March 1995 in Geneva.

Dr Mayling Simpson-Hebert of WHO is Co-ordinator of the Group. Funding has been received from SDC and SIDA.

(ii) Institutional and Management Options (WG/IMO)

The aim of the Group was to look at different models of delegated management and present "best practices" as models for replication.

A meeting from 31 May to 2 June 1994 at Louveciennes, France, had been concerned largely with privatization, particularly the French and United Kingdom experiences, and a meeting in early 1995 would focus on public sector models both for the urban and rural sectors and community and NGO arrangements. A collection of 20 model case studies had been compiled, including brief standard-format case study reports to facilitate comparison. The Working Group will consider ways of disseminating the work and obtaining feedback. One approach will be to publish the case studies through the Council for application, in the field programmes of such organizations as the WHO, UNICEF and the Development Banks. The Group will also explore ways of establishing and strengthening professional associations in countries. In the future, the intention is to extend the scope to include coverage of water demand management and conservation.

Mr Frank Hartvelt of UNDP is the Co-ordinator. The work was being supported by the French water agencies, the World Bank and UNDP.

(iii) Water Pollution Control (MA/WPC)

The Group met on 13 and 14 October 1994 at WHO Headquarters. The Working Group will produce models of regulatory frameworks, institutional arrangements and policy structures. It will also produce guidelines. Ten case studies will provide the basis for the work and will be presented as models. These will be compiled in a book as a tool to provide developing and rapidly industrializing countries with practical approaches to water pollution control. The first part of the book will address the policy making process, water quality requirements, legal and regulatory instruments, institutional requirements, economic instruments, technology choices for pollution control, wastewater use, and information needs. The second part of the book will include case studies from India (Ganga Action Plan), China (regional management), Philippines (Pasig Basin), Nigeria, South Africa, Mexico (wastewater use), Brazil (Upper Tiete Basin - São Paulo), European Union (synoptic), Danube Basin (synoptic), and Jordan (groundwater and wastewater use). The Working Group will:

- involve developing country participants in its work to ensure and improve acceptability of suggested controls;
- include gender roles;

- complete the book in draft form by March 1995;
- finalize the manuscript by the end of August 1995;
- provide an Executive Summary by 31 July 1995 to meet needs of the next Council Meeting; and
- draw up a dissemination strategy.

The Group is co-ordinated by Dr Richard Helmer and financial support has been received so far from UNEP.

(iv) Operation and Maintenance (MA/O&M)

The Group met from 1-3 June 1994. The Group will meet again from 30 May to 1 June 1995 and a Core Group will meet on 29 May and 2 June 1995.

The Working Group will:

- look at a set of tools which will be comprehensive and complementary to achieve sustainability of water supply and sanitation services;
- promote the use/testing of tools already produced through programmes and projects;
- complete the various guidelines and training packages in the process of development;
- try to obtain feedback.

Chile indicated that EMOS, the Santiago Water and Sanitation Company owes much to the "tools" available for better O&M published by ESAs, including WHO, and hopes to improve even more its achievement of a high level of efficiency with the tools that the O&M Group is producing.

Arrangements are in process for the promotion and use of tools in the following countries:

West Africa: testing of the tool on Assessment of Operation and Maintenance Status of Urban and Rural Water Supply.

African Lusophone Countries (emphasis on Mozambique): sub-regional workshop with the following objectives: promotion of the O&M tools; preparation of action plans on O&M training and information exchange, in Portuguese.

African Francophone Countries (emphasis on Burkina Faso): sub-regional workshop with the following objectives: promotion of the O&M tools; preparation of action plans for improved O&M.

Burkina Faso: training of trainers on the use of the Training Course Package on Management of Operation and Maintenance of Rural Water Supply and Sanitation.

Vietnam: workshop for training of trainers using the following tools: Management of Operation and Maintenance of Urban Water Supply and Sanitation Systems; and Training Package of Leakage Control.

Philippines: use of the O&M tools for the implementation of a process of operationalization of community management for improved operation and maintenance.

Central America: Management of Operation and Maintenance of Urban Water Supply and Sanitation Systems (workshops); and Training Package on Leakage Control (courses for trainers).

The Group is co-ordinated by Mr José Hueb of WHO. Funding for the Group's activities was earlier from Germany, and presently from Italy and WHO.

(v) Services for the Urban Poor (MA/SUP)

The previous Working Group on Urbanization has become a network which is very active and fast expanding. Both the network's membership and its Information Bank database are now available to be shared with other institutions. The Network on Services for the Urban Poor, through CERFE and other participating research and academic institutions, will:

- disseminate the findings of the Working Group on Urbanization and regularly collect feedback from the field on their application;
- regularly update the information Bank with input sent by Network members and periodically issue research reports on the new developments and trends that emerge from the analysis of such input;
- assess the demand and required features for capacity-building projects in representative cities in Africa, Asia and Latin America: this will be completed by the next Council meeting, with a view to implementing projects in 1996.

The tools are already being used in informal settlement upgrading programmes in Salvador and Belo Horizonte (Brazil) and preliminary feasibility studies will be carried out by Habitat's Settlement Upgrading Programme in Amman, Ankara, Brazzaville, Caracas, Concepción (Chile), Ibadan and Nakudu (Kenya). The Government of Italy and UNCHS (Habitat) will support this work.

In discussion, it was mentioned that efforts should be made to obtain the support of urban authorities for specific project proposals and that emphasis should be on producing model projects that any city could take on, with some funding from the urban authorities.

Efforts to incorporate gender issues in activities will continue. Two regional workshops will be held, offering the opportunity for presentation of new case studies and further dissemination and discussion of findings. These are:

- Latin American Seminar on Informal Settlement Upgrading, Belo Horizonte, Brazil, September 1995;
- International Workshop on Informal Settlement Upgrading, Caracas, Venezuela, 6-10 November 1995.

The Group is coordinated by Mr Ivo Imperato (formerly of the Ministry of Foreign Affairs of Italy) now with UNCHS (Habitat), Nairobi. Funding for the activities is principally from Italy through UNCHS. In-kind contributions are being provided by the other two members of the Network's Core Group, the Environmental Health Project of USAID and the Water, Engineering and Development Centre of Loughborough University (UK).

(vi) Communication and Information (MA/C&I)

Under Communication the Working Group will use the experience of field work and national consultations held in Guinea-Bissau covering situation analysis, training and implementation of advocacy for the sector. A meeting to review progress was scheduled to take place in the Hague from 31 October to 1 November 1994. The Working Group will develop suitable communication techniques, including role playing, because of the emphasis on community level control or management of water supply and sanitation systems, and ensure that communication was a two-way process, both to transmit information and to obtain feedback. Other activities at the national level are tentatively planned to take place in association with UNICEF in Uganda, Burkina Faso, Peru, the Dominican Republic, and Indonesia.

The Working Group considered that advocacy related to the Council implied keeping in touch with everyone (members of the Council, external support agencies, governments, communities and so on) to ensure that communication permeated all areas of interest of the Council. The member from Chile illustrated how important it became to have management meetings of EMOS with the media and journalists to ensure the right information was communicated to the public.

Under Information Management the Group will:

- promote models for enhancing information systems in developing countries, an example being the training course implemented in Sri Lanka in June 1994;
- foster national workshops to build up a critical mass of interest in the Council's information materials;
- consider different categories of information (for example, sectoral information for planning purposes, project information to be used for monitoring, management information, and public information for advocacy);

The Working Group had updated the international water thesaurus to facilitate exchange of information between countries.

A core-group meeting on Information Management is scheduled for May 1995.

The Co-ordinator of the Group is Mr Hans van Damme of IRC, assisted on the information management side by Mr Han Heijnen also of IRC. Financing support is from the Netherlands.

(vii) Gender Issues (MA/GEN)

The Working Group will:

- continue work on a second sourcebook for gender issues concerning the policy level which was expected to be ready by May 1995;
- issue a press kit for the Conference on Women to be held in Beijing;
- continue to increase membership of the Group as needed;
- distribute the first sourcebook in the near future as it is currently at the printers (financed by the World Bank/UNDP Programme).

The Working Group confirmed that arrangements were in place to ensure that gender issues were considered by other Groups in all aspects of the Council's work.

In discussing gender issues during the meeting, the following comments were made:

- that there should be efforts to increase the number of female applicants for professional training;
- that, in project activities, there should be a balance between gender-specific and mainstreaming approaches.

A Core meeting of the Group was scheduled for 27 and 28 October 1994 in New York. A full Group meeting was not scheduled.

The Co-ordinator for the Group is Ms Wendy Wakeman of the UNDP/World Bank Joint Programme and financial support for the Group's activities is also from that programme.

(viii) Global Applied Research Network (GARNET) (MA/RES)

The Council's "activity" under the Applied Research Working Group was completed at Rabat and its Global Applied Research Network in Water Supply and Sanitation (GARNET) will continue networking on applied research information activities.

An Advisory Committee meeting was held on 4-5 May 1994 in Loughborough. A new Framework of activities for GARNET was drawn up and the scope of the networking was agreed.

A series of working papers and fact sheets have been publicised in the latest GARNET newsletter, available on request.

The next meeting of the Advisory Committee is planned in early 1995 in Cairo to coincide with a workshop designed for field researchers, funders and policy makers with an interest in applied research within the Egyptian WSS sector.

A discussion on the usefulness of applied research to developing countries led to a proposal that the Council should investigate arrangements for providing information on the quality and effectiveness of various pieces of equipment that manufacturers were trying to sell in developing countries. The meeting's members considered that this task was outside the scope of GARNET. It was also pointed out that non-profit organizations already existed to do the testing and evaluation required for a fee. The Canadian Standards Organization was quoted as an example.

The Co-ordinator is Mr Andrew Cotton of the Water, Engineering and Development Centre (WEDC), Loughborough University of Technology, UK. The UK ODA financially supports the activities of GARNET at the Global Coordinating Centre at WEDC and SDC, Switzerland has funded participants from developing countries to its Advisory Committee Meeting.

B. COUNTRY REPORTS (in alphabetical order)

Some six country reports on the status of the WSS sector were presented. There was reference particularly to the O&M guidelines and to the country-level collaboration mechanisms. (Output of WG/CLC)

CHILE

A report on the success and profitability of EMOS (Empresa Metropolitana de Obras Sanitarias SA, Santiago, Chile) in providing water supply and sanitation in Chile was given by Ms Raquel Alfaro, General Manager, EMOS.

Coverage urban areas - water supply, over 90%
 - sewerage, over 80%; treatment of sewage, under 10%
 rural areas - water supply, over 70%

Water supply and sanitation are seen as both social and economic goods. In the urban sector, tariffs allow efficient enterprises to cover all capital and current costs. The Government subsidizes low income families directly and not through cross-subsidies. The sector is a monopoly; Government grants concessions, controls quality and sets tariffs. Both public and private enterprises work like private ones. All enterprises with over 500 connections have to be listed on the stock exchange. Most of the companies are public, i.e. the Government owns the shares.

Technology development is a priority. There is a solid professional association (AIDIS-Chile), and universities are involved in the company activities. Private sector participation could introduce technical advances and money to the public companies. Full or partial privatization is being studied for those public companies with a low level of efficiency and which need a large input of funds.

EMOS S.A. is the major public company of the country. It provides 100% water and 97% sewerage coverage to a population of over 4.5 million. A programme is underway to increase sewage treatment to 100% before 2009. The strengths of EMOS are integrated management, experienced and qualified staff; consumer-oriented enterprise; high level of technological development; high level of labour productivity; water conservation applied in all stages of the production and distribution processes; and private sector participation (service contracts). EMOS' weaknesses are: low experience in sewage treatment; large amount of money required for sewage water treatment; fast growth of the city.

Although EMOS has not used any of the tools produced by the Council so far, EMOS management techniques are based on the concepts embraced by MA/O&M, as promoted before the inception of the Group by the Group's current co-ordinator, Mr J.A. Hueb. EMOS is looking forward to receiving the collection of guidelines, manuals and other tools produced through the Council's working groups. Furthermore, EMOS works with women, especially with a view to educating the family on the use of WSS facilities.

MOROCCO

Mr Filali Baba, Director of ONEP (Office National de l'Eau Potable) described that the crises of the 1960s and 1980s helped very much towards the development of the sector. In the mid-1960s, there were huge floods in the south of Morocco, which swept away many villages. At the same time, a shortage of water supply threatened the capital, Rabat. An ambitious project was decided upon by the highest authority in Morocco to build new dams in order to meet self-sufficiency in food and security in agriculture, to protect lands from flooding and to provide the whole population with a sufficient water supply. The involvement of the Government greatly helped the development of water supply in urban areas. A national strategy was defined, leading to the creation of a national agency for potable water (ONEP) in 1972. In the following 20 years, national water supply production increased tenfold, and the household connection rate progressed from 44% to 80%.

Two further crises occurred in the early 1980s: one was a severe drought which lasted for five years; the other was a financial crisis resulting from the deep indebtedness of the country. Again these crises helped sector development. State commitment took the form of the creation of the Higher Water Council under the direct authority of the King. This Council is a keystone in the water sector structure. It has given priority first to the domestic water supply subsector and then to agriculture as regards water allocation. An annual meeting discusses issues such as water conservation and protection, watershed master plans, and sanitation. In 1994, the issue discussed was wastewater reuse and the rural water supply master plan. These discussions have clearly indicated to the Government the need to allocate financial resources to the sector to build new infrastructure. The debt crisis led to a decrease in government subsidies to the urban water supply subsector. To face this situation and to lessen government control of ONEP, a management contract was negotiated and signed in 1987 between the agency and the Government, leading to a progressive financial disengagement of the Government in the water supply subsector. This approach has been positive and has enabled progress to be made in sanitation and rural water supply, two subsectors which were lagging behind and for which master plans are now ready.

The most important issues which helped water supply sector development are:

- strong government commitment;
- the creation of the Higher Water Council;
- dynamic planning and progressive management autonomy for ONEP.

PHILIPPINES

The Philippine water supply and sanitation master plan was presented in detail by Mr Orville Roque, National Project Director, Institution Building for Community-Managed WSS Projects, Department of the Interior and Local Government, Manila.

Coverage Water supply: 68% in 1993;
(projected) 90% by 2000

The formulation and coverage of water sector projects adhere to the recently approved national master plan. The Government committed itself to support the International Drinking Water Supply and Sanitation Decade and thus reformulated the national master plan and exerted efforts to obtain international commitment to meet the targets set in the plan. Delays in implementation were caused by Government transition and development in the mid-1980s, so a fast track approach was adopted to keep pace with targets. This is exemplified in the major programmes: the Angat Water Supply Optimization Programme, covering Metro Manila and its suburbs; and the Accelerated Water Supply Programme, which aims to provide basic needs water supply to all rural areas of the country and to form the Barangay Water Works and Sanitation Association in each community where a handpump will be constructed. For the purposes of coordination and resource allocation, geographical regions of the Country were allocated to the major donors to help with efforts to distribute 100 000 target facilities to the different regions.

The sector objectives are to provide reliable and safe water supply that is easily accessible in a cost-effective manner. The general objective of the water supply and sanitation sector is to assist the Government in meeting the basic needs of the rural population through the provision of safe, adequate and easily accessible water supplies as well as proper sanitation. The guiding principles emphasize self-reliance, uniform distribution and delivery of services and cost sharing.

Experience shows that the selection of projects must be based on: need and expression of demand; involvement and participation of communities at all stages; agencies involved must carry out their responsibilities in a coordinated and responsive manner; technologies must be suited to local needs, conditions and resources, and options must be offered.

Major constraints affecting the sector are lack of inadequate resources, inequitable distribution, and lack of sustainability. A UNDP project has just started on efforts to improve the access of poor communities to basic services.

SOUTH AFRICA

Mr P. Odendaal outlined the water supply and sanitation system in South Africa, and the work of the Standing Committee on Water Supply and Sanitation (SCOWSAS).

Coverage Out of a total population of 44 million, about 12 million people did not have adequate water supply;
About 18 million people did not have acceptable sanitation.

Faced with a situation where water supply and sanitation are not driven by clear central policies, where Government, provincial and local authorities, NGOs and private concerns are all doing their best, but efforts are uncoordinated and fragmented, a group of concerned professionals came together in 1991 to discuss the situation and to look for strategies for improvement. This led at the beginning of 1992, to the establishment of a Standing Committee on Water Supply and Sanitation (SCOWSAS). It has no formal mandate. It draws members from all quarters of the society: central, regional and local government, democratic movements, organized labour, water supply agencies, NGOs and the research community. Its mission is to act as a broadly based forum to develop policy options and to promote appropriate strategies to improve water supply and sanitation on an integrated, affordable, acceptable and sustainable basis for all communities in a situation of increasing needs and limited resources. On a national scale there is a remarkable similarity between SCOWSAS and the Collaborative Council. SCOWSAS has working groups, called sub-committees, some working on issues very similar to those of the Council: data coverage and levels of service; institutional arrangements; research needs and priorities; education, training and affirmative action; tariffs and technology choice; sanitation; communication.

Soon after the new Government came into power in April 1994, it announced a far ranging and imaginative Reconstruction and Development Programme (RDP), which, *inter alia* includes water supply and sanitation, as well as the environment. The RDP is a broad statement of intent and overriding policy. As such, detailed policy and strategy are in the process of being developed.

The work done by SCOWSAS over the last 2½ years is, therefore, most opportune and can now make significant inputs in policies for implementing the RDP. Both the Chairman and Vice-Chairman of SCOWSAS are now closely positioned to the Minister of Water Affairs and Forestry. Some of the sub-committees have made good progress in developing their reports, and we are now in the process of testing concepts and proposed strategies with key stakeholders. In September 1993 a national workshop was held for this purpose. It was attended by 120 delegates from all corners of the country and diverse backgrounds. Feedback was incorporated in the further deliberations of the sub-committees.

SCOWSAS has now also embarked on a series of about 10 workshops to test concepts on a regional scale. The first was held at the end of September 1994, and the last is scheduled for February 1995. In this way, feedback is solicited at community level for incorporation in final reports.

Interesting aspects of the South African experience are harmonization of services, based on catchment area rather than political boundaries, and choice of technology.

The work of SCOWSAS and the Government are likely to be of much interest and value to the Council and close communication was considered to be useful.

UGANDA

Mr Patrick Kahangire, Director of Water Development described the institutional arrangements for water supply and sanitation in Uganda.

<u>Coverage</u>	Rural areas	- water supply 30%
		- sanitation 35%
	Urban areas	- water supply 50%
		- sanitation 55%

The institutional arrangements for the water supply and sanitation sector are quite complex. Various Ministries have responsibility for the sector, including the Ministry of Natural Resources, the Ministry of Health and the Ministry of National Planning.

The Water and Sewerage Corporation runs services in the nine largest towns in the country. In the other towns and rural areas, services are provided by the district authorities. External support has been received and particularly from DANIDA, SIDA and UNICEF.

Because of a shortage of financial resources at the central level, there is decentralization to district level. This implies the need to staff some 40 district offices, and there is therefore a problem of staffing at the district level, hence the need for capacity building. There is also a need to implement the mainstreaming of women, to streamline coordination between the various bureaucracies involved and to ensure that a comprehensive regulatory framework is in place, especially in the light of the Government's enthusiasm for privatization. National plans are being drawn up with input from the district level, and efforts are being made to standardize equipment and establish local production of equipment.

Problems include: inadequate coverage, in particular the need to improve rural services. There is a need to review the link between water supply and sanitation. A person who has to go 5 km to fetch water is unlikely to use it to wash their hands. The decentralization policy has raised the issue of the ownership of facilities and land ownership, including access to pumps, as water for agriculture is often seen as having a priority over water for people.

ZIMBABWE

Mr A. Mpamhanga from the Ministry of Local Government gave a detailed presentation of the development of the WSS sector's policy and the role of country level collaboration.

The International Water Supply and Sanitation Decade provided a good framework for developing a national sector strategy for rural water supply and sanitation in Zimbabwe within which specific programmes and projects could be developed.

One of the first activities to be undertaken was the preparation of a master plan on rural water supply and sanitation which was completed in 1985. Country Level Collaboration (CLC) in the RWSS sector is a complex but necessary process of exchange and negotiation between key actors. The process is time consuming, often difficult to manage but has been fully accepted as vital to the development and long-term sustainability of the sector.

The National Water Master Plan's (NWMP) implementation revolved around the concept of an integrated approach in sector planning and implementation with community participation as a key strategy in implementation. Other issues to be addressed were those of sector coordination at national and sub-national levels, appropriate technology choice and the development of a sustainable operation and maintenance systems.

As a response to the International Drinking Water Supply and Sanitation Decade a skeletal National Action Committee (NAC) had been formed by 1982. When the NWMP was formally adopted in 1986/87 this weak NAC was strengthened to its present effective state. The new look NAC had its chairmanship changed to the Ministry of Local Government, Rural and Urban Development whose major role is that of sector coordination. A vital addition was the establishment of a full time secretariat, the National Coordination Unit (NCU), with minimum bureaucracy to carry out the day-to-day programme monitoring and management. It had resources support provided by NORAD.

The fundamental measure of success of CLC in Zimbabwe was the NAC and the presence of a dynamic and successful water and sanitation sector which operates with a high degree of support and liaison between agencies. In addition Zimbabwe has created an environment where:

- water and sanitation development is guided by national consensus;
- there is a clear set of policies and guidelines;
- the donor community supports the policy framework;
- there has been the development of a successful integrated approach;
- there is mobilisation of considerable donor support and financial resources;
- there is a recognition of shortcomings of the coordination system;
- the strength of NAC has been recognised at all levels; and
- the country is in control of the decisions it makes.

Problems to be resolved are:

- sector guidelines are often taken by implementers as rules and standards, i.e. prescriptive and rigid;
- the continued duplication, although now at a reduced scale as a result of CLC;
- the weak coordination of NGOs although concerted efforts are underway to improve on this issue;
- NAC's focus on Integrated Rural Water Supply and Sanitation projects which are considered in competition with other non-integrated WSS activities. The NAC has acknowledged this shortcoming and has lately started to report on all primary water supply and sanitation activities in all rural local authority areas;
- failure of the NAC to represent the whole sector, i.e. urban also.

Potential Benefits of Country Level Collaboration

Potential Benefits

Planning Related Benefits

Standardization of technology and approach;
Project design and implementation/coordinated;
Harmonization of policies.

Output Related Benefits

Enhanced sustainability (ownership);
 Enhanced sector image (speak with one voice);
 Information sharing;
 Enhanced accountability and transparency.

Process Related Benefits

Better identification of needs leading to better management;
 Increased resource mobilisation;
 Effective utilisation and more equitable distribution of resources and services;
 Resolution of conflicts;
 Consensus building;
 Helps include all stakeholders in the programme.

A regional workshop was arranged by the RWSG (East Africa) and hosted by Zimbabwe and was held in Mutare, 14-18 July 1994, to consider experiences with CLC. The above summarizes the views of the workshop on the potential benefits; disadvantages were marginal. A major output of the Workshop was that participating countries identified specific issues in their countries and action plans to deal with such issues through CLC, with a recommendation to meet again in about a year to review the results of such work.

C. RABAT ACTION PROGRAMME

The activities under the Rabat Action Programme (see Annex 1, page 3) were presented and discussed.

Documentation and Dissemination (A1, A2)

Mr Len Bays of IWSA on behalf of Mr Tony Milburn of IAWQ and Co-ordinator of the Task Group on Collaborative Council Publications, presented the Task Group's interim progress report on the situation. A report from the Co-ordinator was also circulated.

The latter report indicates the following conclusions:

- The Rabat reports have had limited circulation to date.
- The various documents produced in association with the Collaborative Council (10 reports and 15 guidelines/tools) have been well distributed, but usually in English. The main exceptions are the shorter productions of the IM and IEC WGs which have been translated into French, Spanish and Portuguese.
- In view of the different languages involved, it is considered important that Members of the Council or related organizations should be called upon to assist in having documents translated, (with the technical comprehension of the eventual recipients in mind), so as to reduce costs.
- On the evidence of topics, print runs and distribution so far, the potential for commercial publisher involvement seems small.
- It is best left to such well-resourced members as IRC and WHO to do the publishing.

- The WG Co-ordinators should produce and distribute their reports/outputs to the best of their ability/resources.
- All documents should convey a clear unequivocal message that they were produced under the aegis of the Council.
- The WG Co-ordinators need to decide on the appropriate length of their reports, bearing in mind the guidelines of the Secretariat.
- All messages in all documents should suit the targetted audience.
- Recognize that target audiences had to be well defined, and a suitable form of information, communication, advocacy or documentation chosen.
- Ensure that wording was clear, brief and free of jargon and acronyms.
- Restrict documents for policy-makers to an outline of the main issues (preferably in 2 or 3 pages), with reference to a contact point for fuller information.
- Ensure that technical manuals, which needed to be long enough to cover their subject adequately, were written with users in mind, in particular that they were translated to meet user requirements (Working Group Co-ordinators should seek partners through the Council network to assist with translation and thereby reduce costs); bearing in mind the importance of the technical as well as the linguistic skills required of translators.
- Ensure that case studies were fully documented in order to capture the richness of experience.
- Greater publicity is needed for existing reports and tools.
- A Council catalogue of its publications should be produced.

The WG coordinators or organization that produces the documents will:

- be responsible for the quality of documents;
- iron out questions of duplication or overlapping scope before work starts on preparing documents.

In light of the above the Secretariat will:

- draw up a complete list of Council-sponsored documents, each with a summary and an indication of where it can be obtained, along the lines of the list prepared by the International Association on Water Quality;
- ensure that the Council's logo appears on documents produced under its aegis;
- draw up a standard text for insertion in all publications, describing the composition and objectives of the Council (to be prepared by the "Gang of Three": Milburn, Hueb and Wirasinha).

IRC will continue to be the main channel of information from the Council. The availability of Council documents could also be publicized through the Newsletter of the Global Applied Research Network in Water Supply and Sanitation (GARNET), to applied researchers even though they may not all relate to research activities.

The Task Group should continue its activities to ensure appropriate standardized printing and effective distribution of the Council's documents.

Advocacy (A4.1, A4.2, A5.5, A5.6)

Advocacy is of primordial importance to the water supply and sanitation sector as a whole and information communicated needs to be accurate, clear and concise. Additional to work of the I&C/WG, communications through arrangements such as WHO's advocacy for immunization and for "baby-friendly" hospitals need to be attempted.

The Council's brochure could be a useful tool for advocacy and networking. It would be useful to include in the brochure more information on members (agencies) of the Collaborative Council.

National and Regional Professional Associations (A5.3)

In discussing the role of national and regional professional associations, the following suggestions were made:

- promote national and regional associations as part of capacity building;
- use professional associations, where they existed, as an infrastructure for information dissemination of the Council's own technical guidelines and manuals.

WHO/UNICEF Joint Monitoring Programme (A7)

Dr Greg Watters of WHO explained the need for, and benefits of, the WHO/UNICEF Joint Monitoring Programme (JMP) - country-level information for planning, management, evaluation and advocacy. In discussing the Joint Monitoring Programme, the following ideas were suggested:

- The Executive Secretary stressed that we cannot be in the situation that we found ourselves in at the end of the 80s (i.e. lack of reliable management information) and that we are nearly half way through the 90s and must have with us better management information asap but certainly by year 2000. He appealed to all members to take positive action on all their programmes to further the work on JMP. The JMP cannot achieve its task without such help;
- promote the inclusion of monitoring in country-level programmes;
- fill gaps in information by encouraging agencies to include in capacity-building missions the additional task of collecting information and feedback.

Non-governmental Organizations (A9)

In the absence of Mr Paul Peter, Co-ordinator for this Task Group, Mr Hubert Eisele of SDC, Switzerland made a short presentation on the situation.

In discussing how to involve non-governmental organizations in the work of the Council, and in its meetings, the following suggestions were made:

- work through international non-governmental organizations such as the network of the Montreal based International Secretariat for Water (ISW) to encourage local non-governmental organization involved in water supply and sanitation activities to support

community-level control/management, recognizing that international non-governmental organizations were in a better position than the Council to make contact with national non-governmental organizations;

- try to establish directories of non-governmental organizations at country level to promote collaboration and informal networking, recognizing that a global compendium of non-governmental organizations would be virtually impossible to compile, and would be out of date by the time it was issued;
- use informal NGO networks to disseminate information;
- bear in mind such local networks in considering institutional and management options.

A fax was received from Mr Paul Peter towards the end of the meeting. He indicated that he would convene a small group of around five persons to carry discussions further and report towards the end of the first quarter of 1995. The Secretariat is to advise him on possible participants of that small group.

Informal Sector (A10)

The WG/IMO group is now focussing attention on the informal sector, and would be grateful for assistance in the collection of case studies on informal sector activities in the water supply and sanitation sector. Special attention is being paid to water demand management and to the link between water supply, sanitation and water resources management. The next meeting of the Working Group is scheduled for March/April 1995.

Newly Independent States in eastern Europe and the Central Asian Republics (A13)

Austria, responding to a request from the Council, will hold a consultation in early May 1995 for newly independent States to establish the status quo of the WSS Sector in these countries and the main issues in order to help Austria and the Council find areas for intervention of assistance and participation. Other interested parties are welcome to participate and assist. The Council should use the consultation as an opportunity to:

- provide an introduction to management models other than centralized planning, drawing on the case studies collected by the Council;
- present guidelines and manuals sponsored by the Council.

Mr Helmut Weidel of TBW is coordinating the activity on behalf of Austria and was scheduling a programme planning meeting with the several Austrian agencies involved with participation of the Council Secretariat, on 5 December 1994.

Community Management (A14)

Mr Willem Ankersmit of DGIS, the Netherlands, reported on progress. The objectives of community management include poverty alleviation, provision of basic services, and ensuring sustainability. He mentioned that the role of the users was a new issue discussed at Rabat.

Under the auspices of DGIS, the Netherlands, through IRC and partner organizations, a project has recently started for a four-year period to improve the efficiency, sustainability and cost effectiveness of water supply management by rural communities in developing countries. The project is entitled: "The role of communities in the management of rural water supply systems in developing countries; participatory field research and the development of strategies, methods and tools". The partner organisations are: in Africa, the Pan African Institute for

Development (PAID) in Cameroon; the Network Centre for Water and Sanitation (NETWAS) in Kenya; in Latin America, CINARA in Colombia, and Agua de Pueblo in Guatemala; and finally in Asia, the Aga Khan Rural Support Programme in Pakistan; and Water for Health in Nepal.

The project consists of: a preparatory phase (1994); training and field preparation (1994, 1995); field investigations (1995), development and testing (1996, 1997); and evaluation and follow-up (1997). The results of the preparatory workshop (November 1994) could be reported to the next Council meeting. An international advisory team has been formed for the project.

In discussion, it was suggested that it would be useful for IRC to compile a collection of some of the many instances of collaboration between non-governmental organizations and communities for use, in particular, in the consideration by the members of the Working Group on institutional and management options.

Water Sector Strategies (A5.1)

Ms Wendy Wakeman introduced this item on behalf of the World Bank and then Mr Gourisankar Ghosh spoke on behalf of UNICEF. The area was seen as capacity building and promoting country planning with as much ownership of a given plan as possible.

Sector strategies were to be worked out by countries themselves in the light of overall national development plans, with international agencies providing support. External Support Agencies should set out their own policies clearly and succinctly (along the lines of the Swiss development policy guide) to assist in finding common ground and adopting a coherent joint platform.

In assessing whether strategies should address water supply and sanitation or the whole water sector, the following points were made by the participants in the meeting:

- strategies could be over-integrated, to the extent of losing sight of the water supply and sanitation component;
- consideration of the broad area of water resources, or even environmental services, was unlikely to provide much practical impetus for the development of water supply and sanitation;
- the danger of integration was that the interests of the water supply and sanitation sector were hard to defend in the face of the economic arguments of the agricultural and industrial sectors;
- what was needed is a strategy for the water supply and environmental sanitation sector within the context of water resources management and environmental sustainability;
- the strategy of community managed water supply and sanitation implied a responsibility and hence institutional capability for financial management at community level, since a high percentage of the financing for such services would have to come from communities.

Strategies would differ from country to country and no single model strategy would suit all. Models of strategies would be helpful as tools and as a guide. The Secretariat would be pleased to have a set of models for countries in need to consider.

D. WORLD WATER COUNCIL

This item was introduced by the Chair, Mrs Margaret Catley-Carlson.

Proposals for a World Water Council had been around for some time but had never been widely supported. The Ministers at the Noordwijk meeting had encouraged the Collaborative Council to look into the possibilities for a world body. Reluctance on the part of the members of the Council to expend time and resources on this activity was balanced by a recognition of the need to be in a position to protect the interests of water supply and sanitation. While it would be a decision for the Council to make at its next Meeting, for the latter reason, the majority at the RAP meeting felt that the Collaborative Council itself should not be transformed into a world water body. In order to follow up the proposal for a World Water Council, the Secretariat will further assess the interest in the proposal by:

- participation at the forthcoming IWRA Cairo conference which will also discuss a proposal for a World Water Council;
- canvassing environment ministers as well as traditional supporters of the Council for further funds for a study (US\$ 10 000 has already been donated by Switzerland).

If funds are forthcoming, the Secretariat will undertake a study adopting a two step approach namely:

- First: establish the actual need, i.e. an informal forum or a more formal body and the form of the arrangement which it will submit to the Commission on Sustainable Development (CSD) for consideration;
- Second: further work towards the establishment of a WWC will be subject to CSD making such a request and providing the financial support needed.

The draft Terms of Reference (3rd draft, dated 18 October 1994), prepared for the proposed WWC would be modified to suit the two stage approach.

In the absence of financial support, the Council will:

- hand the matter over to the Commission on Sustainable Development (which endorsed the Noordwijk document), together with a brief report.

E. NEXT COUNCIL MEETING

The meeting suggested that the format of the next Council meeting should comprise:

- one keynote address plus a statement by the host;
- more time for the open forum than in the previous meeting;
- an agenda drawn up bearing in mind the following:
 - the need for the meeting particularly since held in the Caribbean to take account of the concerns of the small island nations;
 - the primordial importance of giving prominence to specific water supply and sanitation issues although set within the framework of the dramatic population growth and environment degradation, which have direct implication on the WSS sector;

- the wisdom of avoiding United Nations clichés such as "the poorest of the poor" and "Sub-Saharan Africa";
- that Working Groups (except possibly the Operation and Maintenance Working Group) were not intended to last for more than two intersessional periods;
- a message booklet or Handbook on the Council should be prepared for the Barbados meeting;
- that advocacy for the WSS sector should be a major consideration in all issues and undertakings;
- that the Council's existing work should be put to use before new activities were undertaken.

Once the next Global Forum was confirmed for Barbados (or elsewhere) the Secretariat would take up such matters in the next meeting's Steering Committee and consult members as appropriate.

F. COUNCIL ISSUES

Advocacy and Information

The Secretariat is to ensure that information is readily available on the various activities being sponsored by the Council. This is recognizing the fact that, thus far, the Council has been focussing, through voluntary efforts, on the development of new sector concepts, but that the dissemination and advocacy role of the Council, at its present level, is not sufficient for these new messages to take hold and make a difference.

Other comments stressed the need to:

- drop the acronym WASSANCO, and the Water Supply and Sanitation Collaborative Council be referred to as the Collaborative Council, or simply the Council;
- ensure that documents for Council meetings met the above requirements and those in Section C of this report; policy documents (Executive Summaries) should preferably be short (maximum 6 pages), while technical items (Full Reports) could be set out in more detail (maximum 20 pages) but should include a brief executive summary. The Co-ordinators would, however, be the judges of the appropriate length of documentation coming from their groups.

Secretariat - Financial Situation

Indicative figures were circulated of expected income and expenditure. The Secretariat will provide details on WHO's net annual transfer to the Council by quantifying facilities provided such as accommodation, and communication services, etc.

Failing the latter point, interested governments (notably Norway) should make an official request to WHO for the figures required.

The Secretariat will continue its efforts to raise funds for its operation.

WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL

CO-ORDINATORS (WGs) MEETING AND
RABAT ACTION PROGRAMME MEETING

20 to 22 October 1994 at W.H.O. Headquarters, Geneva

TENTATIVE AGENDA

DAY 1 - THURSDAY 20 OCTOBER

9.00 - 9.15 Opening Statement from Chairperson

9.15 - 9.30 Discuss Agenda

9.30 - 9.45 Briefing from the Executive Secretary

CO-ORDINATORS' MEETING

9.45 - 10.30 Reports from Working Groups Co-ordinators¹

10.30 - 11.00 Refreshments

11.00 - 12.30 Continue with Reporting by Co-ordinators¹

12.30 - 14.00 Lunch

14.00 - 15.00 Discussion of Co-ordinators' Reports and Issues

15.00 - 15.30 Discussion of areas for co-ordination and arrangements
for doing so

15.30 - 16.00 Refreshments

RABAT ACTION PROGRAMME (RAP) MEETING

16.00 - 17.30 Reporting on Country Activities (6 countries)^{*}

* See attached sheet.

¹ 10 minutes presentation, 5 minutes for clarification

DAY 2 - FRIDAY 21 OCTOBER

9.00 - 10.00	Reports from RAP Task Managers
10.00 - 10.30	Discussion of Issues encountered by RAP Task Managers
10.30 - 11.00	Refreshments
11.00 - 11.30	Discussion on Country Activities ¹
11.30 - 12.45	Reports on other selected RAP Activities
12.45 - 14.00	Lunch
14.00 - 14.45	Discussion of Issues related to RAP Activities
14.45 - 15.30	RAP Activity 5.1 - Towards a model structure for integrated sector strategies. (possibly group work).
15.30 - 16.00	Refreshments
16.00 - 16.45	Presentation and discussion of a model structure for integrated sector strategies
16.45 - 17.30	Identify pilot projects/programs for testing/using Oslo WG Tools.

DAY 3 - SATURDAY 22 OCTOBER**NEXT COUNCIL MEETING**

9.00 - 10.30	Venue, Dates, Themes Form and Structure for next Council Meeting ¹
10.30 - 11.00	Refreshments
11.00 - 11.30	Discuss possible topics for keynote address and identify a presenter.

OTHER MATTERS

11.30 - 12.15	Reporting on Council's mandate for helping form a World Water Council ² , and progress made. Discussion of possible scenarios.
12.15 - 13.00	Any other matters
13.00	End of Meeting.

¹ 10 minutes presentation, 5 minutes for clarification

² Received at the Ministerial Conference on Drinking Water and Environmental Sanitation, the Netherlands (March 1994).

LIST OF ACTIVITIES IDENTIFIED FOR RAP

Activity	Description	Responsibility*
A1	Reproduction and distribution of Working Group Reports.	RAP
A2	Reproduction and distribution of WG Tools in several languages.	RAP
A3	Promotion of use/testing of WG Tools supported by reviews and case studies as needed.	RAP
A4	Advocacy	
A4.1	Advocacy for a Common Vision on principles/messages/directions for the Sector.	MA/C&I
A4.2	Advocacy for the Council through leaflets, flyers if needed.	MA/C&I
A5	Capacity Building:	
A5.1	Promote development and strengthening of national policies, sector strategies and institutional frameworks which establish the prime role of water supply and sanitation in the context of integrated water resource management.	RAP
A5.2	Promote O&M and standards and quality assurance.	MA/O&M
A5.3	Advocate value of and promote setting-up of national and regional professional associations.	WG/IMO
A5.4	Promote applied research and application of research results.	MA/AP
A5.5	Promote a communication culture, including the further development of IEC tools and their introduction at field level.	MA/C&I
A5.6	Promote national and international information exchange, support information management initiatives and the establishment of national information resource units, and seek to identify national focal points for Council initiatives.	MA/C&I
A6	Assist with resource mobilization for country WSS programmes which seek to take advantage of the new tools and guidelines.	RAP
A7	Promote Monitoring and Evaluation including advocacy for the WHO/UNICEF Joint Monitoring Programme.	RAP
A8	Assist in finding strategies to overcome financial constraints faced by WGs.	RAP
A9	Sound out NGOs on the best ways of fostering more effective partnerships and consider joint activities in the preparation of guidelines for enhancing NGO involvement in WSS programmes.	RAP
A10	Case studies on informal private sector activity in WSS and private sector participation in utility operations.	WG/IMO
A11	Continue with support for the Initiative for the African Lusophone Countries.	INIT/LI
A12	Sponsor assistance to the Small Island Nations to help them overcome their sectoral problems.	RAP
A13	Find ways to involve the Newly Independent States in Eastern Europe and the Central Asian Republics in the activities of the Council.	RAP
A14	Investigate the possibility of developing advocacy and guidelines on Community Management.	RAP
A15	Propose and initiate further activities from time to time, in response to emerging sector issues.	RAP

* The acronyms used relate to the Council-sponsored Working Groups (WG) and Mandated Activities (MA) agreed at the Rabat Meeting:

RAP	Rabat Action Programme	MA/O&M	Operation and Maintenance
WG/SAN	Promotion of Sanitation	MA/AP	Applied Research (now GARNET)
WG/IMO	Institutional and Management Options	MA/C&I	Communication and Information
MA/WPC	Water Pollution Control	MA/GEN	Gender Issues
MA/SUP	Services for the Urban Poor	INIT/LI	Lusophone Initiative

ADDRESSES AND CO-ORDINATES OF PARTICIPANTS TO THE
WSS COLLABORATIVE COUNCIL'S CO-ORDINATORS' AND RAP MEETINGS
20-22 OCTOBER 1994, WHO, GENEVA

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WSS COLLABORATIVE COUNCIL - COORDINATOR'S MEETINGS (1994)

WORKING GROUP	MEETING DATES		REPORTING DATES EXECUTIVE SUMMARIES	FULL REPORT		REMARKS
	CORE GROUP	WORKING GROUP		1st Draft	2nd Draft	
WG/SAN	1-3 March 1994	3-5 Oct. 1994 13-16 March 1995	1st DRAFT (before Edit) 30 June 1995	30 June 1995	31 August 1995	
WG/IMO	1-2 June 1994	March/April 1995	30 June 1995	30 June 1995	31 August 1995	
MA/WPC	13-14 Oct. 1994 2-4 May 1995	7-9 June 1995	31 July 1995	31 July 1995	31 August 1995	
MA/SUP	24 Feb. 1994 + March 1995		30 June 1995	30 June 1995	31 August 1995	Full Network Mtg not envisaged
MA/O&M	29 May 1995 2 June 1995	30 May - 1 June 1995	30 June 1995	30 June 1995	31 August 1995	
MA/AP/GARNET	4-5 May 1994	20 March 1995	30 June 1995	30 June 1995	31 August 1995	
MA/C&I	29 April 1994		30 June 1995	30 June 1995	31 August 1995	
MA/GI	27-28 Oct. 1994		30 June 1995	30 June 1995	31 August 1995	Full Group Mtg not foreseen
INIT/LI						
INIT/NIS		May 1995				