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WORLD HEALTH ORGANIZATION
Regional Office for the Western Pacific

ASIAN DEVELOPMENT BANK



FINAL REPORT

**WORKING GROUP ON PRE-INVESTMENT PLANNING
FOR WATER SUPPLY AND SEWERAGE DEVELOPMENT**

Volume I

Manila, Philippines

10-15 October 1977

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WORKING GROUP ON PRE-INVESTMENT PLANNING FOR
WATER SUPPLY AND SEWERAGE DEVELOPMENT

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NOTE

The views expressed in this report are those of the members of the Working Group and the consultants and do not necessarily reflect the policy of the World Health Organization or the Asian Development Bank

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1. INTRODUCTION

The objective of the Working Group was to bring together country representatives who are actively engaged in water supply and sewerage development planning to:

- (a) promote a greater awareness of the need for a sound and systematic approach on pre-investment planning;
- (b) facilitate the exchange of views and experiences on sector development planning; and
- (c) analyse and formulate a pragmatic approach to sector development, identifying feasible solutions for reducing the large backlog of investment requirements in the sector in developing countries.

The Working Group meeting took place at a most critical juncture for the water supply and sanitation sector.¹ It followed the United Nations Water Conference at Mar del Plata (1977) and the United Nations Conference on Human Settlement (HABITAT) at Vancouver (1976), both of which recommended that countries should place a greater emphasis than ever before on improving the status of the water supply and sanitation sector. Specifically, the United Nations Water Conference recommended that by 1990 all persons should have access to a safe water supply, and that a similar rate of improvement should be brought about in the area of waste water disposal.

While achievement of the United Nations Water Conference goals will be beyond the capability of many countries, water and sanitation are quite clearly in the vanguard of the Basic Needs² approach, and the prospect of a substantial change in the ordering of priorities by countries confronts the sector with an unprecedented challenge involving many difficult political decisions,² in an environment in which population growth - particularly in urban areas - continues to accelerate, where demands for other infrastructural investments cannot be met, and where public revenues are strained as never before.

It is generally accepted that while international and bilateral agencies may, and no doubt will, provide increasing amounts of assistance to the sector, the primary responsibility for improvement rests with the developing countries themselves; to meet the challenge, substantial improvements will have to be brought about at the local level with regard to

¹The term sanitation is applied to include conventional water-borne sewerage systems and other sanitary facilities such as latrines and septic tanks.

²See Report on Community Water Supplies WHO/World Bank presented at the United Nations Water Conference, Mar del Plata, March 1977.

institutional and technical policies; mobilization of financial resources, and in general, development of plans which specify the means by which access to an improved water supply and adequate sanitation can be accomplished with particular attention being paid to the most disadvantaged elements of society.

Fourteen participants from twelve countries took part in this Working Group in addition to four consultants, one observer from WHO South-East Asia Regional Office, and members of the WHO-ADB Secretariat. The participants elected Dr Angel Alejandrino of the Philippines as Chairman of the meetings and Mr Chan Boon Teik of Malaysia as Vice-Chairman. The Secretariat designated Mr M. Suleiman (WHO Headquarters) as the Coordinator. A list of the participants, observers, consultants and members of the Secretariat is in Annex 1 and the Meeting Agenda is contained in Annex 2.

The meetings were opened with an inaugural address by Dr J.H. Hirshman, Director of Health Services, WHO Regional Office for the Western Pacific on behalf of Dr Francisco J. Dy, WHO Regional Director, and Mr K.L. Luthra, ADB Acting Director, Projects Department II on behalf of Mr J.B. Carter, Director of Projects Department II, Asian Development Bank. Copies of the inaugural addresses are in Annex 3.

2. SUMMARY OF COUNTRY SITUATION

Country sector information papers were submitted by participants from eleven countries, namely, Afghanistan, Bangladesh, Burma, Fiji, Malaysia, Nepal, Pakistan, Papua New Guinea, the Philippines, Republic of Korea and Thailand. These papers had been reviewed by the Coordinator in advance and presented in a summarized form for discussion as shown in Annex 4A through 4K. Some of the participants provided additional information and the result has been incorporated in Tables 1, 2 and 3. Major observations on the status of sector development are given in the following paragraphs.

2.1 General assessment

(1) With the exception of Indonesia, approximately 30 per cent of the populations (i.e. 103 million) is classified as urban and the rest (i.e. 259 million) is rural. Most of the papers however did not define what are considered urban and rural.

(2) Uniformly, water-borne diseases are endemic and in many countries they account for a high percentage of the morbidity, especially amongst children.

(3) Although information on income was not provided it is known that several of the countries included are in the lowest income bracket.

(4) One of the biggest and most serious gaps in planning information is that concerning availability of water resources, their quantity, quality and utilization. In all of the countries there seems to be no sufficient information on this highly important element of planning which affects both water supply and sewerage.

(5) Most of the papers report high priority for the sector but upon a closer look it appears that:

(a) such priority is limited to water supply favouring either the urban or rural sub-sector;

(b) even with an intended high priority the level of investment is not high enough as demonstrated by the vast backlog in service coverage;

(c) there is a general lack of planning policy and a lack of coordination between the fragmented sectoral agencies. Most countries operate on five-year planning cycles, but budgeting is done annually and there is no certainty that the planned resources will be available annually.

2.2 Community water supply assessment

2.2.1 Institutional responsibility

(a) For the urban areas only two¹ countries (Afghanistan and Burma) seem to have a central authority responsible for planning and implementation. In the remaining countries there is a wide fragmentation of sector responsibility. Three of the countries have Metropolitan Water and Sewerage Boards for the major urban centres in addition to the involvement of several central government departments and ministries as well as provincial and municipal authorities. This multiplicity of agencies dealing with the sector development is noted in Pakistan, the Philippines and Thailand. At the local or municipal level, it is noted that there is also a lack of an independent and financially autonomous water supply undertaking to help promote systematic sector development. The lesson learned from the above is that the multiplicity of agencies involved in sector planning and operation without appropriate coordination will continue to hinder sector development.

(b) For the rural areas the ministries of health play a major role in majority of the eleven countries

¹It is known that Indonesia also has a central planning body for urban water supply and sewerage. The Afghanistan Central Authority was established in accordance with recommendations of a recent WHO/Pre-investment Planning Study.

2.2.2 Service coverage and quality of service

(a) Urban coverage ranged from a high of 80-85% in Fiji and Malaysia to a low of 15% in Bangladesh. The latter had in the past given higher priority to the rural sub-sector. The composite service coverage for the eleven countries amounted to approximately 56%. Predictably, the quality of service and safety of the water supplied varied considerably as most participants reported some intermittency of supply owing to inadequate system capacity.

(b) Rural coverage ranged from a high of 55-62% in Bangladesh and Fiji to a low of 3% in Nepal. The composite service coverage in the eleven countries amounted to approximately 32%. Again the quality of service and the question of safety remain quite suspect.

2.2.3 Service levels

It was extremely difficult to get a clear picture on the levels of service partly because of various interpretations of the meaning of this term. In the context of a "degree of convenience and accessibility" major urban centres in Malaysia, the Philippines and Thailand record high percentages of house connexions (i.e. 50-85%). The remaining populations are served through public standposts, private supplies or commercial vendors. No information was available on the number of persons served per standpost or radius of coverage. The rural situation is more uncertain as a large proportion is served through non-piped systems, i.e. hand pump installations. One participant (Pakistan) reported 15% house connexions in the rural areas. A clear understanding of the implications of service levels is extremely important not only from the statistical point of view, but especially in projecting costs for future planning.

2.2.4 Per capita consumption

In the urban areas figures as high as 700 l.c.d. were reported for Papua New Guinea and as low as 40 l.c.d. for Bangladesh. The average figure may be somewhere near 200 l.c.d. For the rural areas the figures reported range from 5 l.c.d. in Burma to as high as 84 l.c.d. in the Republic of Korea. An average figure may be in the vicinity of 40 l.c.d.

2.2.5 Quality control standards and surveillance

Only three countries out of the eleven reported a reasonable quality control and in all the rest there appears to be no means to enforce any quality standards although eight countries reported that WHO International Standards are applicable for them.

2.2.6 Design criteria and construction standards

In only three countries have attempts been made to establish some form of design criteria and in the remaining countries information on the subject is either unavailable or no attention has been given yet to this matter.

2.2.7 Metering

In eight of the eleven countries urban systems are partially metered with the highest percentage reported (almost 100%) in both Malaysia and Thailand, and (75-85%) in Fiji. No information was available in the case of the three other countries. With the exception of Malaysia it is not clear whether these trends are a result of a general policy favouring metering. In the rural areas metering of water supplies does not appear to be a prevailing practice.

2.2.8 Cost per capita

(a) For urban areas the highest cost for piped-water supply per capita reported is \$294-225 in Papua New Guinea and the lowest figure reported is \$15 for Pakistan. Most cost figures were in the range of \$30-50. These figures of course are expected to fluctuate, depending on the level of service, source and quality of supply.

(b) In the rural areas no information was reported in five countries. In the other six countries costs for piped systems ranged from \$10 to \$27 and for the non-piped facilities, from \$1.50 to \$8.00. Again no firm conclusion can be drawn from these figures as costs are greatly influenced by the level of service, source and quality of supply and degree of protection.

2.2.9 Tariffs

(a) For the urban areas information was reported on ten countries. In seven of these countries (i.e. Afghanistan, Fiji, Malaysia, Papua New Guinea, the Philippines, the Republic of Korea and Thailand), attempts are being made to set tariff at levels which would lead to financial self-support, while in the remaining three countries there seems to be a high degree of subsidy. The highest tariff for some of the metered connexions was reported in Fiji at \$0.54/cu m and the lowest in Pakistan at \$0.025/cu m for certain consumers.

(b) For the rural areas no information was available on tariffs. Presumably in most of these countries no attempts are made to impose any tariff although a large number of the rural communities contribute to the development cost.

2.2.10 Sector financing

(a) Urban communities in the eleven countries rely heavily on contributions by the national governments as a part of the national development plans. Quite often such contributions are not only for capital development projects but also for operation and maintenance since few of the water supply undertakings have been granted autonomy or the responsibility for financial management. A large portion of the national contribution is provided as grants or subsidies and possibly a small proportion is recoverable as payment of loans to the municipalities or provincial governments. External sources of finance are being tapped in all countries

although they remain proportionately very low. It appears that local generation of funds has been neglected in all countries. This breeds uncertainty among water authorities with regard to the possibility of making definite financing plans, this being a common complaint among participants. Unless local resources are tapped financing may remain a major problem because of the limited budget allocations for the sector from the central government.

(b) In the rural areas construction funds are provided by the central and provincial governments as well as by the beneficiaries themselves, either in kind or in cash. External credits and grants from international and bilateral sources are increasing in this sub-sector and UNICEF and the World Food Programme are making some contributions. The relatively low service coverages in the rural areas (i.e. 32%), may be an indication of insufficient financing although this could also be attributed to institutional and manpower problems, especially since ministries of health in many countries are not adequately staffed to deal with the problems.

2.2.11 Manpower and training

In ten out of the eleven countries this aspect of the sector is reported to be either highly unsatisfactory or unsatisfactory and therefore it will continue to be a stumbling block in any effort to accelerate sector development. The situation is much more serious of course in the rural areas, and this warrants much more attention.

2.2.12 Data and information system

In eight out of the eleven countries, data collection, processing and retrieval is reported to be inadequate. In the remaining three countries, some data base is being established but there is considerable uncertainty about data retrieval. The country information papers themselves provide an excellent insight into the inadequacy of their information systems. Therefore this is another aspect of the sector which requires immediate attention.

2.2.13 Legislation

In eight of the eleven countries some legislation, acts or executive proclamations exist in support of sector development but there is considerable uncertainty about applicability and enforcement. It would seem that the matter requires a careful assessment in each country particularly in relation to quality control and responsibility for planning, operations, tariff setting and revenue collection and utilization.

2.2.14 Conclusion

The overall status of sector development is not satisfactory as can be observed from the various constraints indicated through the above review and as indicated in Table 4. Responsibility does not end in supplying the water but lies also in ability to maintain the safety of the water, reliability of operation and ability to maintain a degree of financial independence. These attributes seem to be generally lacking.

2.3 Sewerage and sanitation assessment

2.3.1 Institutional responsibility

(a) For the urban sewerage, institutional responsibility in seven of the eleven countries is under the same authorities dealing with the water supply sub-sector. In one country (Malaysia) the Ministry of Health holds responsibility.

(b) For rural sanitation six of ten participants reported the Ministry of Health to be institutionally responsible as for rural water supply. Information was not available on the others.

2.3.2 Service coverage

(a) In the urban areas coverage with piped sewerage system in ten countries varies from 0% to 28%, the highest being Papua New Guinea. In Fiji and Malaysia coverage is around 15%. Burma, Pakistan and the Philippines reported a coverage from 4% to 8%. In Afghanistan, Nepal, Republic of Korea, Thailand and possibly Indonesia, the coverage is between 0% and 1%. The remaining population in most cases rely on septic tanks, pit latrines (both sanitary and unsanitary) as well as other means. In Korea, 100% depend on conservancy and night soil collection.

(b) In the rural areas no meaningful information was available.

2.3.3 Service level

It was difficult to obtain any meaningful information on the service level (e.g. percentage with house connexion, and those relying on communal facilities).

2.3.4 Water pollution control

Water pollution control measures are not adequate in all the countries. Eight of twelve countries (including Bangladesh, Malaysia, Nepal, Papua New Guinea, the Philippines, Republic of Korea, Thailand and Indonesia) already have some serious water pollution problems and the situation will get worse until sewerage is installed.

2.3.5 Tariff

No information was available in seven of the eleven countries. In Burma and Malaysia, sewerage tariffs are part of property taxes. In Fiji charges are based on water consumption (i.e. \$0.06/cu m) and in Papua New Guinea it is based on a flat rate of \$3.40/month per connexion (presumably domestic).

2.3.6 Sector financing

In eight of the eleven countries arrangements for financing are reported to be the same as for water supply (see para 2.2.10) except that much lower financial resources are allocated. In the remaining three countries no information was available.

2.3.7 Other aspects of the sub-sector

No meaningful information was available on sewage quantities and cost per capita. The situation with respect to manpower and training, data and information system and legislation is more inadequate than reported for the water supply sub-sector.

2.3.8 Conclusion

The summaries reveal a rather dismal situation with regard to sewerage and sanitation. The constraints outlined in Table 4 are all applicable to a higher degree for sewerage than for water supply in addition to the lower priority given to sewerage.

3. DISCUSSIONS

3.1 Summary of resource papers (Full text in Annex 5A - 5F)

3.1.1 Historical perspective and evaluation

The author presented an analysis of present service coverage and sector levels, external and local financing in the sector and per capita investment for the countries of the participants. This is supplemented with statistical information compiled by WHO and IBRD as well as information presented in the participants' country reports.

While expressing reservations about the quality of published data the information presented particularly through the WHO/IBRD sector studies provides an insight into the sector situation. A few lessons can be learned from these studies, particularly as to the need for proper sector planning and what the main obstacles or constraints are which require immediate attention. Amongst these, of course, is financial insufficiency.

The conclusion is that economic and social philosophy must be blended if this sector is to receive the priority and attention it deserves especially in the light of the resolution of the recent United Nations Water Conference and the target set for a full supply service coverage by the year 1990. The author proposed that the new Basic Needs strategy may provide at least a partial answer to the problem of priority and resource allocation issue.

The author pointed out that the advantages of using differentiated and progressive pricing in the water supply and sanitation field in order to address the Basic Needs issue are three-fold. First, mobilization of the necessary financial resources to meet basic needs is to be conducted in a way that minimizes the burden on public funds since re-distribution takes place within the sector. Second, due to the impact of higher prices on consumption for large users, it may also effect resource savings that can contribute to future economic growth. Third, the provision of basic water supply and sanitation needs is expected to improve the health of the beneficiaries with consequent increase in their productivity.

3.1.2 Organization and management in pre-investment planning

The title of this paper may not convey a full picture of the subject presented by the author. Basically, the paper comprises two parts. Part one explains the need and the method or approach in the preparation of a national sector development plan. Part two discusses the process by which the national sector government plan is translated into projects through the tool of pre-investment planning.

In part one, planning is described as a means by which it is possible to convey to the decision makers whether or not investment should be made and how to proceed to allocate resources over a 5-10 year period. In this connexion, the national sector plan must clearly identify alternative targets and goals and possible obstacles which have to be overcome during implementation. Accordingly, as an integral part of the national sector plan there should be a section dealing with manpower development which is perhaps the greatest obstacle apart from financial resources.

The paper points out that without a plan, sector development will continue to be carried out in piecemeal fashion which makes it difficult to set any meaningful target and even more difficult for the national government agencies to allocate the necessary resources. It was emphasized that planning is a continual process and each plan should be annually reviewed and perhaps major adjustments might have to be made mid-way in the planning period, e.g. every five years.

Plan preparation is suggested to be carried out in two stages. The first stage is to deal with "data collection and consolidation of information" and the second stage is to cover an analysis of future needs, evaluation of alternatives and the determination of goals associated with each, including the institutional and policy issues.

Because of the different institutional arrangements in the participating countries and the absence of a central planning authority for the sector in most countries, the paper suggests the organization of a national planning committee and several task forces for data collection and consolidation of information for each sub-sector (i.e. stage 1). For stage 2, the committee will have to decide on whether they are able to proceed in translating the data into a plan as defined above. In this connexion, they may seek assistance of the WHO/IBRD Sector Study teams. It was pointed out that between 1973 and 1977, such sector studies have been prepared with WHO/IBRD assistance for nine of the twelve countries of the participants. Although some of these would need updating, a sufficiently detailed sector study with a plan of action and approved national targets should be the basis for the national sector plan.

Part II of the paper which deals with national plan implementation through the various projects, conveys the need for engineering and feasibility studies for the various investment projects. It describes the project cycle from the identification and formulation stage through the actual carrying out of the preliminary engineering and feasibility studies and the appraisal of the project by the financing agencies.

3.1.3 Project selection and phasing

An outline of the subject presented covered the following topics:

3.1.3.1 General problems of ordering of priorities

A large increase in expenditures will be necessary if the goals adopted by the United Nations Water Conference are to be met. There is a need to demonstrate project justification to budgetary authorities with regard to:

- supplies for new consumers, and
- increased supplies for existing consumers.

This requires an evaluation of the rate of expansion of per capita consumption and of the number and type of consumers and the project phasing that is implied. This would suggest the need for some form of cost-benefit analysis. This was explained by reference to the traditional "requirements" approach to investment decisions in the water supply and sanitation sectors.

3.1.3.2 Phasing

Costs - Standard engineering economics, including discounting costs of alternatives, and system planning were not emphasized during the discussion, it being assumed that the participants either had the necessary expertise or were aware of the situations in which they should make use of experts in these areas. However, modifications to the standard approach may usefully include:

- (i) Appropriate technology - variation in service standards and possibly design standards. The ongoing IBRD research studies in water and waste disposal fields were briefly outlined.
- (ii) Shadow pricing - e.g. labour-intensive methods. World Bank policy in this regard and its relevance for the sector in achieving socially least-cost solutions was described.

3.1.3.3 Benefit measurement

Examples were given of attempts to measure benefits: health, distance travelled; impact on industrial costs if supply fails; payments to vendors, etc. The conclusion was that such efforts were normally not successful and that one should, at the present state of knowledge, accept that benefits in the sector are unquantifiable.

3.1.3.4 "Basic Needs" philosophy and benefit measurement

- This stems in part from inability to measure benefits in economic and social terms.
- An appropriate strategy, based largely upon the provision of supplying water sufficient for basic minimum needs at a subsidized rate, with subsequent units being priced at full economic cost, was outlined.

3.1.3.5 General role of marginal cost pricing

- The basic concept was explained, and the contrast with the traditional approach was stressed.
- The relation between marginal-cost pricing and optimal consumption and therefore optimal phasing of investment was explained.

3.1.3.6 Marginal-cost pricing in practice

A number of complex issues arise in adhering to strict marginal-cost pricing. These were addressed in the presentation and include:

- metering;
- capital indivisibility;
- ability to pay (basic needs);
- special problem of supplying new communities;
- financial implications;
- special problems of sewerage.

3.1.3.7 Conclusion on role of marginal-cost pricing

Its importance for achieving a number of goals was stressed. These include:

- mobilizing financial resources;
- avoiding excessive (wasteful) consumption;
- helping to achieve basic needs goals;
- providing an indication to policy makers as to the priority that should be given the sector.

3.1.4 Financial and economic appraisal, management and administration

The paper stresses the need to adopt a meticulous approach in studying the key factors that would decide the reliability of the financial appraisal and, indeed, the validity of the conclusions, including -- as is usually the case -- the early involvement of the prospective financing agencies and resort to iteration process until close agreement and compatibility are reached among technical solution, financing plan, tariff setting and socio-economic considerations. This approach is considered particularly important for the projects selected for inclusion in the long-term national sector plan. In framing the financial policies, the paper emphasizes reliance on local experiences on such matters as population growth and water

demand projections, willingness and ability to pay, tariff structure, metering, property taxation, billing and collection practices, provision for escalation and revaluation of assets. Also, it advocates that, in seeking a pragmatic approach, due considerations should be given to the factors that are culturally and politically acceptable. The paper points out that strenuous search and compilation of data and attentive observation followed by careful evaluation and analyses, would often provide practical solutions and help to determine the more pragmatic approach. The paper briefly deals with the cost-benefit analysis and concedes that the methodology of such economic evaluation, while useful to a certain extent, is not easy to follow in practice. It goes on to deal with the more important aspects of financial appraisal, management and administration, such as tariffs, charges and metering, preparation of financial statements, and billing and collection, stressing the need to address these problems in an integral manner and to test the basic assumptions in meaningful ways so as to be compatible to the proposed management system, prevailing practices and cultural background in the country concerned.

3.1.5 Design criteria and service level in pre-investment planning

The messages conveyed in this paper are the following:

(a) Design criteria are key elements in the planning process with the objective of identifying a least-cost way of providing the required services with built-in health safeguards. In order to ensure the feasibility, acceptability and success of the planned water supply and sewerage services, the adopted criteria must be responsive to the needs and constraints imposed by the existing and forecasted conditions of the communities concerned. Thus, design criteria comprise technical, health, social, economic, financial, institutional and environmental factors which determine the characteristics, magnitude and cost of the planned system.

(b) Design criteria are also a function of the desired service level which has been defined here as "the degree of convenience and accessibility of the water supply and wastewater collection and disposal services provided under minimum safety requirements". Accordingly, the approach to the setting of design criteria is governed by the level of service desired against that in existence. This approach must also be viewed from its engineering and technical aspects, public health aspects, environmental aspects, economic and financial aspects and institutional aspects. When objectives of the planned works cannot be met due to the inability to overcome the local constraints identified under the various aspects mentioned above, the planner must reassess and revise the level of service initially proposed.

(c) In view of the wide differences in the conditions, needs and constraints of the various communities, design criteria, other than those related to the minimum public health requirements, cannot be standardized and applied indiscriminately. Technical criteria which have been developed in the advanced countries should be utilized merely as guides and not as substitutes for rational planning and sound engineering judgement. The

developing countries would benefit more from conditions and experiences similar to those in their regions. Collaboration of international agencies concerned with this sector (i.e. WHO and the international lending agencies) could be of help in developing such guidelines.

(d) Despite the cautious and rational approach for design criteria selection stressed in this paper, the path of the planner cannot be fully cleared from uncertainties due to unpredictable events and insufficient and unreliable data. The longer the duration of the planning horizon is, the greater will be the uncertainty.

3.1.6 Data requirements and information transfer

This paper emphasizes the importance of a reliable, readily retrievable data and information system, not only for planning purposes but also for evaluation of project achievement, the impact on health and socio-economic development as well as for guiding agencies directly concerned with service performance and reliability.

In some countries data are being collected but unsystematically and without a prescribed objective as to uses and retrieval. Furthermore, the value of such data is weakened by the frequent lack of consistency because of the overlapping and fragmented institutional responsibility encountered in most countries. Another weakness noted is the inexperience of those involved in data collection and a lack of understanding of purpose.

The paper recognizes that data collection could be a costly undertaking and therefore it prescribes a gradual programme to build data beginning with the most essential information. In this connexion, reference was made to efforts by WHO to prepare a guideline for data collection and based on the WHO draft guideline four general categories of data were proposed, namely:

- (a) those of general nature;
- (b) economic and financial information;
- (c) technological information; and
- (d) institutional information.

A sample checklist of different data is compiled under these categories but it was emphasized that the list is quite variable, subject to local conditions and needs. It was further emphasized that the data collection forms must be as simple as possible.

An approach to the development of information system called for identifying institutional responsibility for the sector as a first step. This is to be followed by an inventory of existing data and their sources and field observation of the processes and various operations. In cases where many agencies are involved in the sector a task force of representatives of these agencies is proposed. Finally, the paper emphasizes that data base and information system development is a continuous process requiring the attention of trained people who understand what they are supposed to do, how best to do it and for what purpose. It is only through such means that one can ensure that the information compiled is in tune with the planning decisions to be made, and the issues to be analysed.

3.1.7 Notes on water supply and sewerage sector planning in the context of area development programmes

The paper focuses on the sector development in the context of an area development, traces the common objectives and physical relationships, and examines the problems peculiar to rural areas in which over 70 per cent of the population in developing Member countries live. It also underlines the need to actively promote popular participation and decentralization of the decision-making process in the common endeavour to help improve the quality of life in rural areas, curb the investment costs, determine the appropriate service level, and ease the tasks of operation, maintenance and monitoring the rural water supply and sanitation services.

The paper views regional development concept as a promising vehicle for promoting the sub-sector development for a number of reasons. The principal reasons are, on account of the clearer delegation of authority to regional development body and the closeness and accessibility of the body to its beneficiaries, greater support of the beneficiaries, optimal water resource allocation, promotion of self-reliance and regional equity, linkage of responsibility and accountability, opportunity for adopting regional planning approach, pooling of administrative and other facilities needed for operation, maintenance, and monitoring. The paper believes that the decentralization of planning and regional planning concept would likely and urges the sector planners to take this long-term trend into account in formulating their long-term sector development programmes.

3.2 Summary of substantive issues discussed

Following presentation of resource papers by the consultants and representatives of WHO (Western Pacific Regional Office) and the Asian Development Bank, the issues outlined below commanded substantive discussions on which some consensus was reached.

- sector development planning in the context of the United Nations Drinking Water Supply and Sanitation Decade targets;
- the Basic Needs strategy for socio-economic development;
- marginal-cost pricing vs benefit-cost approach for economic project justifications;
- the linking of service level with safety of water quality;
- local capital resource generation;
- concessionary interest rates for the sector;
- problems associated with the employment of foreign consultants.

A brief summary of the discussions on the above issues follows:

3.2.1 Sector development planning in the context of the United Nations Drinking Water Supply and Sanitation Decade targets

There was unanimity of opinion that in order to promote and to improve the efficiency of sector development, a systematic and continuous national planning is essential not only as a guide for those directly involved but also as a means to "sell" the sector to national and external financing authorities. The recent resolutions of the United Nations Water Conference and the Drinking Water Supply targets for the 1981-1990 decade must be pursued even though they may not be achievable in all the countries.

WHO and IBRD representatives provided some background explaining the current international preparatory work for the preparation of a "Rapid Assessment" of the sector for each country that wishes to take advantage of WHO/IBRD collaboration. A guide for data collection and analysis needed for the Rapid Assessment was made available to the participants by the WHO representatives (see Annex 6). This was supplemented by a list of items to be considered in sector planning proposed by the ADB representatives (see Annex 7). Reference was also made to the WHO/IBRD guideline on Sector Studies. Also, reference was made to the recent letters of the WHO Director-General and WHO Regional Directors to all Member governments offering WHO collaboration.

The participants undertook to follow up on the above upon their return to their home countries.

A word of caution was injected namely, that while planning as recommended must be pursued, this should not unduly interfere with fulfilling ongoing commitments and maintaining regular activities.

3.2.2 Basic Needs strategy for socio-economic development

Proposals for the employment of the Basic Needs strategy attracted a great deal of interest amongst the participants. It was recognized that the problem of priority may not be satisfactorily addressed without a commitment on the part of governments to ensure that all members of society can avail themselves of certain basic needs which would include adequate quantities of safe water supply and sanitation, primary health care and adequate food and shelter.

There was a consensus for urgent actions to provide for basic needs and to avoid policies which permit wastes. In this connexion, the consultant noted that although more actions are needed to avoid wastes, the prevalent approach to tariff setting in the developing countries (i.e. lowest charges for minimum or basic needs and progressively higher tariff for increasing blocks of water consumption), is encouraging.

Some problems were recognized in application of the Basic Needs strategy especially in limiting quantities of water used and estimating minimum national subsidies for this purpose. It was pointed out that in a situation where water metering is not practised as is typical in rural areas, the elements of Basic Needs policy can be retained by means of a discriminatory system of flat-rate charges.

3.2.3 Marginal-cost pricing versus benefit-cost approach for economic project justifications

Although recognizing inherent difficulties in applying marginal-cost pricing for water supply projects (e.g. lumpiness of investment because of economics of scale or capital indivisibility), resistance to application of this concept was attributed to lack of willingness on the part of economists to try to adapt textbook theory to real world situation. He referred to a number of definitions of marginal cost that have been used and indicated a need for some compromise. One such is the definition of Average Investment Cost of capacity (AIC) which is equal to the present worth of the least-cost stream of investment over five to ten years divided by the present worth of the stream of incremental output resulting from investment. In this connexion, all past investments must be ignored as sunk costs and do not enter into the equation.

In view of the difficulty of applying standard benefit cost analysis to water supply and sanitation projects (i.e. due to problems in setting monetary values for health and social benefits and due to externalities and intangible benefit), it was pointed out that the recommended solution is to emphasize marginal-cost pricing such as is increasingly being used in the electric power field as a means of signalling the justification of system expansion and testing the consumer's willingness to pay. In effect, responsibility for making decisions about the worth of the project or its scale and timing is shifted from the project analyst and placed on the shoulders of the consumer himself.

Some participants argued that marginal-cost pricing for water supply and sanitation would give rise to conceptual difficulties, allowing substantial revenue deficits in the early years of operation and large surpluses in the later years. The general response to this was that, while marginal-cost pricing was not expected to solve all problems at once, pricing based upon purely financial criteria would encounter similar problems. Indeed, in the most commonly observed situation, where unit costs of water supply and sanitation are rising long-run marginal costs will, by definition, be higher than average costs, and the initial problem of deficits would seem to be less than under the traditional approach to pricing. Furthermore, in view of the extreme shortage of public funds in developing countries, the potential of the water sector in generating funds for facilitating expansion of service to new areas is a valuable by-product of the policy.

Another point raised was the problem of being able to judge accurately willingness to pay because of the large diversity in the conditions of service encountered in less developed countries. Recognizing once more that this, while an important issue, was not peculiar to the problem of implementing marginal-cost pricing, the response was that one of the tasks governments should set themselves in achieving the Basic Needs targets would be to survey more carefully than hitherto the existing situation and the means of improving it, in part by careful analysis of ability and willingness of consumers to pay.

3.2.4 Linking of service level with safety of water quality

There were some objections by participants to the linking of quality with service level since in many countries water supplied is of a quality which does not conform to WHO standards. Some participants expressed concern that for cost reasons they are often obliged to supply water which does not at all times meet WHO standards (i.e. surface water without treatment), merely to satisfy public pressure for the convenience factor and quantity requirements. To overcome this problem, it was pointed out that the responsible engineers would be protected from undue pressure if there were legislation specifying the minimum safety needs and if the engineers and planners were to adhere to these standards. Otherwise, it would be unfair for the engineers to be charged with responsibility for the safety of the users. In this connexion, one consultant went as far as to warn that engineers who knowingly supply unsafe water may be subject to prosecution just as a structural engineer who designs an unsafe building.

3.2.5 Local capital resource generation

While the discussions adequately covered the problem of financing from the standpoint of national government resources and external financing, it was recognized that efforts should be made to generate funds at the local level as well. It was pointed out that local resource mobilization has already been achieved to some extent for the rural sub-sector but very little has been done in the urban areas. To mobilize public understanding and acceptance, a great deal of public relations efforts will be required through the mass communication media. If this effort proves to be successful it would be possible to require advance payment for capital workers, particularly from the higher and intermediate income groups. It was pointed out that this practice is already being followed in some of the developing countries (Syria and Iraq were given as examples).

3.2.6 Concessionary interest rates for sector lending

While all participants supported the principle of self-sufficiency for the sector (particularly water supply), there was some expression of concern especially amongst those from the least developed countries regarding interest rates. They argued against the imposition of the market interest rates (i.e. opportunity rates) on borrowings from international lending agencies when the initial loans or credits are provided to their governments at concessionary rates.

3.2.7 Employment of foreign consulting firms versus local consultants

Some participants pointed out that because of lack of knowledge of local conditions, foreign consultants tend to adopt designs or plans applicable to their own countries but not to the country of their clients. Therefore, they proposed to make maximum use of local consultants. Other participants pointed out that some foreign consultants tend to ignore the views of the nationals and tend to deal directly with the lending agencies.

On the second problem, all agreed that contractual agreements should spell out channels of communications where consultant should deal directly with the nationals, who are the clients and not the lending agencies. It

was recognized, however, that there were some exceptions which necessitate speedy actions and, hence, a direct communication with the lending agencies. Even under these circumstances, the lending agencies should not be contacted without the knowledge of the client.

On the first question it was pointed out by representatives of the IBRD and ADB that their policy is to encourage the use of local consultants but that this is not always successful because of the lack of sufficiently qualified consultants and their inability to devote full attention to the project. Many of them perform more than one job at the same time.

4. RECOMMENDATIONS

4.1 General

4.1.1 As a vehicle for accelerating sector development to the maximum extent possible to meet the United Nations Drinking Water Supply and Sanitation Decade targets for the year 1990, the Working Group unanimously endorsed the sector planning approach and the need for a ten-year sector development plan before 1981. The preparation of such a plan must follow a rational approach, based on systematic pre-investment planning methodology whereby the magnitude of current and future needs are identified, ultimate objectives and intermediate goals for service coverage and service levels for the different consumption groups are established, and costs and implications are presented. Accordingly, the participants resolved to do their utmost to promote such an action and in this connexion to recommend to their governments to proceed as soon as possible in the preparation of the Rapid Assessment taking advantage of the collaboration offered by WHO/IBRD as outlined in the letters of the WHO Director-General and WHO Regional Directors.

4.1.2 The Working Group recognizes that the targets of the United Nations Drinking Water Supply and Sanitation Decade cannot be met without concerted efforts to remove the numerous financial, managerial and technical constraints and obstacles outlined in Table 4. This will require fundamental policy changes which would ensure a continuous flow of financial resources, a commitment to the strengthening of institutions, including assignment of responsibility and authority, a commitment to manpower development, and to the promotion of maximum popular support.

4.1.3 The Working Group unanimously endorses the Basic Needs economic strategy which emphasizes governments' commitments to the provisions of minimum human necessities for food, water, sanitation and housing as a top priority prerequisite to the GNP growth, and agrees that the necessary data on present access to service and future plans to supply various categories of consumers, should be collected and presented to national and international lending agencies.

4.2 Urban water supply and sewerage

4.2.1 For the removal of financial constraints

(a) In order to minimize dependence on central government's appropriations, water supply and sewerage services should be planned and operated on the basis of self-support so that they are capable of generating sufficient revenue to cover the costs of operation and maintenance, interests and loan repayment and provision of some surplus for capacity expansion. To this end the water supply and sewerage agencies should be able to operate with sufficient autonomy so that they are in control of their own revenue collections and disbursements.

(b) For initiating new projects, mobilization of local community financial resources should be vigorously pursued through whatever means possible. This may require special studies including the feasibility of setting up national revolving funds for water supply and sewerage.

(c) For the gradual reduction of foreign currency needs, a concerted effort should be made to develop the local capability for manufacturing pipes and other imported material.

(d) Steps should be taken to link sewerage with water supply development and take maximum advantage of joint financing.

(e) Where feasible, prices equal to long-run marginal cost (or AIC as defined above) should be charged, particularly for the larger consumers, who normally account for a disproportionately high share of total consumption.

(f) When planning a new project prospective financing agencies should be consulted and involved at the earliest stage possible.

4.2.2 For the removal of institutional constraints

(a) Introducing legislation for strengthening the means of coordination amongst existing authorities engaged in sector planning and implementation and services in the country, and where possible, re-structuring of existing organizational set-up with the object of achieving:

(i) a unified planning policy and a well-coordinated engineering and fiscal planning;

(ii) a more efficient utilization of financial and manpower resource;

(iii) a more efficient system for collection and retrieval of information;

(iv) a more efficient system for procurement and stocking of supplies and equipment;

(v) a more efficient system for quality control and surveillance;

(vi) a more efficient utilization of water resources and control of pollution.

(b) Linking manpower development to service expansion and service improvements. This implies that each development plan must contain as an integral part a training component commensurate with the projected manpower requirement.

4.2.3 For the removal of technical constraints

(a) Engineering works submitted for investment allocations must be prepared in accordance with sound pre-investment planning techniques adopting criteria compatible with the most appropriate technology as well as with the health, social, economic, financial, institutional and environmental needs of the community.

(b) To achieve maximum efficiency regional guidelines for planning criteria should be developed as well as national standards for design, specifications and construction.

(c) To reduce dependence on imports of materials the recommendation under 4.2.1 (c) should be adopted.

4.3 Rural water supply and sanitation

4.3.1 For the removal of financial constraints

(a) To take maximum advantage of the Basic Needs strategy for securing an increased financial allocation from the national development plan.

(b) To link closely rural water supply and sanitation with primary health care and with rural and regional development programmes.

(c) To take maximum advantage of resources obtainable through international lending institutions.

(d) To take maximum advantage of resources obtainable through the World Food Programme, UNICEF and bilateral grants.

(e) To generate to the extent possible revenues which would recover costs of operation and maintenance, and possible capital investment.

4.3.2 For the removal of institutional constraints

(a) As for recommendation 4.2.2 (a) for urban water supply with greater emphasis on community participation and the motivation of local community or regional authorities to share in the responsibility for operation and maintenance.

(b) Strengthening health education programmes on the use of sanitary disposal of excreta and other wastes.

4.3.3 For the removal of technical constraints

(a) For water supply, recommendation 4.2.3 (a) for urban water supply is applicable in principle but must emphasize the need for the adoption of systems easy to operate and maintain, making maximum use of indigenous material, without sacrificing the principle of choosing the least-cost solution which may well indicate that a piped water supply service is most feasible in certain cases.

(b) More emphasis on the utilization of ground water resources which frequently provide a least-cost solution and can meet public health safety requirements with minimal treatment if any.

(c) For rural sanitation - promote the use of sanitary latrines and continue to train the local people in the construction and maintenance of these facilities.

4.4 Actions needed on the part of governments

It is realized that a full plan of action cannot be developed without the national sector development plan which all agreed must be prepared by the end of 1980. In the interim, however, each individual participant of the Working Group foresees that he can immediately initiate certain actions within his own country which would help in accomplishing the goals of the United Nations Drinking Water Supply and Sanitation Decade. A list of the actions to be recommended to the governments as indicated by the individual participants is compiled below:

- To organize a coordinating committee and task forces to assist in the rapid assessment of the sector and the subsequent preparation of the national sector development plan. (See Annexes 6 and 7).

- To initiate sector development plans.

- To push for higher priority for the sector.

- To attempt to coordinate sector planning with fiscal planning and budget allocation.

- To convince the policy makers to adopt a national sector planning approach.

- To work towards a unified national sector planning approach and to coordinate with the water resource councils.

- To develop a greater awareness and skill in the technique of pre-investment planning and to seek assistance of WHO and other international agencies in this regard.

- To make a concerted effort for the improvement of information systems, giving high priority to water resources information and to introduce special training on data collection.

- To work for the establishment of a central body and for the initiation of pre-investment studies through closer collaboration with WHO.

- To inform other persons and concerned agencies involved in the sector of the accomplishments of this Working Group meeting and of the actions being taken by other countries for the sector.

- To work for institutional reforms including the creation of a central planning body.

- To promote the Basic Needs strategy especially with regard to rural areas, and address the financial, institutional and technical means by which this goal should be achieved.

- To promote better coordination between the urban and rural sub-sectors.

4.5 Action by WHO and the international lending institutions

In response to a direct question, country representatives requested the immediate attention of WHO and the international financing institutions to the following matters:

(1) Supporting the water supply and sanitation authorities in convincing their country planners and policy makers that water supply and sanitation deserve a higher priority.

(2) Providing more technical assistance and training.

(3) Assisting in carrying out sector studies, project identification, formulation and pre-investment studies.

(4) Asking WHO to communicate with sector personnel in other ministries in addition to those in the health ministries.

(5) Assisting in developing planning criteria guidelines and construction standards.

(6) Making countries better informed of the international assistance which can be provided to these countries.

(7) Simplifying lending procedures.

5. CONCLUSION

It is believed that the first two objectives of the Working Group have been accomplished through the papers and country reports presented and the free discussions generated throughout the meetings. This is amply demonstrated by the generally favourable evaluation by the participants in their responses to the questionnaires at the end of the meetings. Recognizing the keen competition among the various sectors for the limited financial resources available, the Working Group fully appreciates the need to conduct systematized pre-investment studies based on sound project identifications through national sector planning. Furthermore, in order to

increase the likelihood of project "bankability" the Working Group fully appreciates the need to consult with the prospective financing institutions at the earliest stage in the preparation of the preliminary engineering and feasibility studies.

It has been abundantly demonstrated that interest in this sector particularly in water supply has been considerable amongst the international financing institutions especially the Asian Development Bank, which has channelled nearly 10% of its lending to this sector over the past ten years. Therefore, what is needed is to accelerate the process of project identification and presentation of well-prepared studies. WHO as the specialized United Nations agency dealing with planning and technical assistance in this sector is ready to collaborate with countries on the matter and to assist in maintaining a close link with sources of lending as it has done in the past through its cooperative relations with IBRD, the African Development Bank and certain bilateral agencies. In this connexion, reference was made to the numerous UNDP-financed pre-investment studies in water supply and sewerage executed by WHO over the past 15 years and to the numerous sector studies conducted in collaboration with the WHO/IBRD Cooperative Programme. National policy makers of prospective lending institutions including the Asian Development Bank as well as bilateral agencies have benefited from such studies.

As far as the third objective is concerned, the identified major constraints and actions stimulated in this regard, the adopted sector planning approach and Basic Needs strategy should provide an impetus for carrying out the necessary measures which will help the responsible sector agencies in presenting a convincing case to national governments and in turn to bilateral and international agencies.

Development agencies throughout the world are becoming increasingly aware that in many cases, despite quite satisfactory rates of aggregate economic growth, the benefits of such growth frequently fail to reach the poorest elements of society: the so-called "trickle down" effect, in other words, does not seem to be working.

It is now widely believed that even with a shift in development strategy that stresses employment creation, it is unlikely that the problem of poverty can be satisfactorily addressed without a more direct strategy, namely a commitment on the part of governments to ensure that all members of society can avail themselves of certain basic needs. These basic needs have been defined to include an adequate supply of food, shelter and clothing, as well as access to a number of essential services such as safe drinking water, sanitation, public transport, and health, cultural and educational facilities .

This development philosophy commends itself to water supply and sanitation authorities, who have long claimed that they have received inadequate priority from governments, in part due to the difficulty of demonstrating the economic justification of investments in their sector.

¹ Meeting Basic Needs, International Labour Organisation, Geneva, 1977.

WATER SUPPLY AND SANITATION
GENERAL INFORMATION

Features Countries	Estimated population in millions in 1977 1	Percentages population distribution		Health and Economic Aspects 3	Water Resources 4	General Planning Policy 5
		Urban 2a	Rural 2b			
Afghanistan	17.5 (in 1977) growth at	15%	85%	High incidence of water-borne disease Agricultural economy (low income)	No information	High priority to sector development (7-year cycle, current 1976-1983) No information on priority setting within the sector Increased emphasis on rural water supply
Bangladesh	85 growth at 3.1%	6	94	Ditto Very low income	Mainly ground water More information needed on quantities, qualities, etc.	High priority within framework of Social and Economic Resources Development (5-year planning cycle, current 1973-1978) No information on priority setting within each sub-sector A shift expected to increase allocation to urban sector
Burma	31.64 growth at 2.2%	24	76	Ditto - but marked improvement in rural health from water supply	Both ground and surface Developmental information inadequate	Lack of co-ordination and clear policy - A four-year planning cycle
Fiji	0.59 growth at 2%	32	68	Low incidence of water-borne disease due to improved water supply Tourism major economy Wide income disparity	Developmental information is lagging Legislation on water rights in the making	Sector investment covered in five-year National Economic Development Plan (current 1976-1980) Major works require annual approval of Development Committee Lack of over-all planning policy and poor co-ordination is major constraint
Malaysia	12 †	30 †	70 †	Water-borne diseases endemic	No information	Sector investment covered in National Development Plan, current (1976-1980), state authorities are highly involved Water supply receives high priority
Nepal	13.5 †	6 †	94 †	High incidence of water-borne diseases	No information but it is believed quantity wise no problem but developmental information probably lagging.	Sector investment covered in national five-year plan (current 1975-1980) with goals for service coverage Current priority may be shifting to rural sub-sector
Pakistan	73.5 †	27.4	62.6	High incidence of water-borne diseases	No information	Sector investment and strategies are spelt out in National Medium-Term Plan - provincial authorities are heavily involved Development Departments in Central Government act as co-ordinator of provincial plans
Papua New Guinea	3.0	10	90	Water-borne diseases are endemic	No information except dependence on rain water	Lack of clear policy - sector is fragmented More aggravated by transfer public health assets to provincial governments No policy on priorities.
Philippines	44 †	70	30	Water-borne diseases are endemic	There is a national resource council. No developmental information provided	No unified policy but sector co-ordination carried out through inter-agency conferences. This is not adequate. Problem to convince need for high priority
Republic of Korea	36.5 †	57 †	43 †	High incidence of water-borne diseases	No information	No clear policy. Fragmentation of responsibility Local governments have legal responsibility but central government is involved also
Thailand	44.85	25	75	High prevalence of water-borne diseases	Surface and ground water equally important Ground water legislation exists Developmental information on ground water not adequate	Water supply and sewerage are part of the public utility sector Sector investment covered in National Development Plan (current 1977-1981) - high priority given to sector
Indonesia	NA	NA	NA	NA	NA	NA

PARTICIPANTS COUNTRY PAPERS SUMMARY

Table 2
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COMMUNITY WATER SUPPLY

Countries	Features	1977									
		Service Coverage & Service Quality			Service Levels		Per capita consumption in l.c.d.	Quality standards and surveillance	Design criteria and construction standards	Metering	Cost per capita in US\$ equivalent
		Urban %	Rural %	Service Quality	Urban	Rural					
1	2a	2b	2c	3a	3b	4	5	6	7	8	
Afghanistan	<p><u>Urban</u> - Central Authority</p> <p><u>Rural</u> - Ministry of Health</p> <p>No information on degree of autonomy</p>	32	5	Questionable safety due to intermittency	House connection and standposts	Public standposts	<p><u>Urban</u> - 50-350</p> <p><u>Rural</u> - 20-50</p>	<p>No information on surveillance</p> <p>WHO standards applicable</p>	Non-existent	Only Capital City (Kabul) is metered	<p><u>Urban</u> - mainly ground water - \$13-22</p> <p><u>Rural</u> - NA</p>
Bangladesh	<p><u>Urban</u> - Separate WASA for Dacca and Chittagong</p> <p><u>Others and Rural</u> - Department PHE</p> <p>Min. ICURD and C - No information on autonomy</p>	15	55	Questionable safety	NA probably some house connection but mostly by public stand pipes	NA probably mostly hand pumps	<p><u>Urban</u> - Ave. 40</p> <p><u>Rural</u> - Ave. 24</p>	<p>No means to enforce quality control</p> <p>WHO standards applicable</p>	No information probably non-existent	Mixed situation No details	NA
Burma	<p><u>Urban</u> - Construction Cooperation and Housing</p> <p>Ministry of Construction</p> <p><u>Rural</u> - PWSB of Ministry of Agriculture also Ministry of Health</p> <p>No information on autonomy</p>	41	13.8	Intermittency is common Questionable safety Rural include also unprotected sources	NA	NA	<p><u>Urban</u> - Ave. 115</p> <p><u>Rangoon</u> - 270</p> <p><u>Rural</u> - Ave. 5-10</p>	<p>No means to enforce quality control.</p> <p>WHO standards applicable</p>	No information probably non-existent	Some urban are metered	Figures not reliable
Fiji	<p><u>Urban</u> - Public Works Department</p> <p>Ministry of Public Works</p> <p><u>Rural</u> - Ditto</p> <p>No information on autonomy</p>	83 ⁺	62 ⁺	Satisfactory in urban but questionable safety in rural	House connection	Public standposts	<p><u>Urban</u> - Ave. 200</p> <p><u>Rural</u> - Ave. 10</p>	No information on quality control but WHO standards applicable	Some design standards not always applied	75-85% urban connections are metered None in rural	<p><u>Urban</u> - \$50-60</p> <p><u>Rural</u> - NA</p>
Malaysia	<p><u>Urban</u> - State Governments and Central PWD</p> <p><u>Rural</u> - Ministry of Health</p> <p>Some local involvement</p>	85 ⁺	35 ⁺	Questionable safety due to intermittency	Over 82% house connections, a few with standposts	Over 45% point distribution at wells 25% with house connection 15% with standposts	<p><u>Urban</u> - Ave. 80-200</p> <p><u>Rural</u> - NA</p>	<p>Reasonable quality control through Ministry of Health and PWD</p> <p>WHO standards applicable</p>	No information but these may exist	<p>Urban - all metered</p> <p>Rural - not clear</p>	<p><u>Urban</u> - \$20.00</p> <p><u>Rural</u> - \$ 8.00</p> <p>Not clear whether the latter is for piped system</p>
Nepal	<p>Separate WSSB for large urban areas</p> <p><u>Other Urban</u> - Ministry of Water and Power (DWSS)</p> <p><u>Rural</u> - Ministry Home of Panchayat</p> <p>No information on autonomy</p>	76 ⁺	3 ⁺	Questionable safety	25% house connections others standposts	Standposts and point source of distribution	<p><u>Urban</u> - 90-120</p> <p><u>Rural</u> - 20-90</p> <p>Ave. 45</p>	<p>Inadequate quality control - inadequate laboratory facilities</p> <p>WHO standards applicable</p>	No information	No information	NA

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PARTICIPANTS COUNTRY PAPERS SUMMARY

Table 2
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Countries	Features Institutional responsibility 1	1977 Service Coverage & Service Quality			1977 Service levels		Per capita consumption in l.c.d. 4	Quality standards and surveillance 5	Design criteria and construction standards 6	Metering 7	Cost per capita to US \$ equivalent 8
		Urban % 2a	Rural % 2b	Service Quality 3c	Urban 3a	Rural 3b					
Pakistan	PHED PWD (Peoples Works Programme) Provincial Authorities Municipalities Development authorities All indications very serious, institutional problem due to fragmentation	80 %	27 %	Questionable safety due to intermittency	30% house connection Urban - public standposts	15% house connection Urban - public standposts and hand pumps	Urban - Ave. 130 Rural - 40-60	Inadequate quality control and surveillance	Some design criteria is available. Application uncertain	No information	Urban-piped - \$7.5 -stand- posts - \$2.5 Rural-piped - \$10 -stand- posts - \$1.5 Latter seem very low
Papua New Guinea	No government department with clear responsibility Some local involvement	No accurate statistics Capital - 100% Ave. 47	No accurate statistics NA	Variable but perhaps satisfactory	NA	NA	Urban - 200-700 Rural - NA	Reasonable quality control by Ministry of Health WHO standards applicable	Apparently non- existent but influenced by Australian practice	Some metering	No accurate information available Urban - 294-225 Rural - 12.5
Philippines	At central level six agencies are involved for the urban sub-sector and two for the rural sub-sector. NWRC attempts coordination. A new Institutional Study underway.	51%	33%	Except Manila reliability and safety are questionable due to intermittency	Manila - 82% piped Presumably with house connection Urban - NA	8.6% with piped water Other information NA	Manila - 235 Other urban - 115 Rural - 25	Quality control only in Manila There is a 1963 National Quality Standards	Now under pre- paration by LWUA	Some metering New proposals are favouring 100% metering	Urban - \$40-135 Rural - \$27
Republic of Korea	Ministry of Construction Local Governments Responsibility not clear	75	30	NA Presumably variable	NA	NA	Urban - 220 Rural - 84	Control by local government. No information on effectiveness. Bacteriological, chemical and physical standards established.	NA	NA	NA
Thailand	Three agencies mentioned for urban including MWWA for Bangkok For rural, Ministry of Health plus five other agencies	Bangkok - 63 Other urban - 25 Ave. Urban - 41	Piped - 23 Non-piped - 19	Urban - adequate Rural - questionable	Primarily with house connection but some stand- posts	Piped and non-piped Insufficient information	Urban - 120-300 Rural - 8-50	Three Ministries involved in surveillance providing reasonable control WHO standards applicable	A design criteria has been developed for urban and rural	Most urban supplies are metered	Figures not reliable showing higher costs for rural

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PARTICIPANTS COUNTRY PAPERS SUMMARY

Countries	Issues				
	Tariff 9	Financing 10	Manpower and Training 11	Data and Information system 12	Legislation 13
Afghanistan	Subsidized, but aim at self-sufficiency Metered - \$ 0.16-0.23/M ³ Non-metered - flat rates	Approximately \$2 million/year - past 5 years Rural - approximately \$0.5 million/year - past 5 years Source central government plus foreign loans	Acute shortage especially middle level technicians Heavy reliance on expatriates and consultants	Inadequate	NA but presumably inadequate
Bangladesh	Subsidized lower rates for domestic Metered - \$0.08-0.45/M ³ Non-metered - tax on annual valuation of holdings	Subsidy to rural W. S. Approximately \$11 million/year for urban in current 5-year plan. Approximately \$9 million/year for rural - plus external credits and grants	Shortage in management skills and technicians	Inadequate	Fairly developed but application not certain
Burma	Metered at 0.015/cu. m. Non-metered - tax on annual valuation including standpost service	Subsidy primarily for rural. Central government loans to urban areas plus local contribution. Some external aid.	Inadequate	Inadequate	Numerous Acts exist but application not certain
FIJ	Minimum subsidy for urban Metered \$0.11-0.54/M ³ Non-metered - NA Tariff absorbed by Treasury	National budget allocation last year over \$3.00 million for urban and 0.6 for rural inclusive of maintenance plus some external assistance.	Inadequate	Adequate data collection but information retrieval not certain	Some legislation exists but application not clear
Malaysia	<u>Urban</u> Metered - not given Non-metered - a surmount tax aim towards self-support <u>Rural</u> - NA	Loans or subsidies from central government to state government State authorities Third plan average annual investment - \$43 million	Generally adequate but needs some strengthening	A lot of information collected but retrieval and processing inadequate	Existing legislation places matters in hands of state government
Nepal	NA	Subsidized central government financing, figures not extractable. Some local contribution in rural areas plus international loan and credits.	Acute shortage especially in middle level technicians Heavy reliance on foreign consultants	Inadequate	A number of acts exist. Application not clear.

PARTICIPANTS COUNTRY PAPERS SUMMARY

Table 2
Page 4 of 4

Countries	Features				
	Tariff 9	Financing 10	Manpower and Training 11	Data and Information system 12	Legislation 13
Pakistan	Highly subsidized as rates seem very low, i. e. \$0.025-0.075/M ³ <u>Rural</u> - NA	1/3 central government grants 1/3 provincial government loans 1/3 Local authority <u>Rural</u> - 100% grants from central government	Inadequate	Inadequate	NA
Papua New Guinea	NA except capital city self-supporting	<u>Urban</u> - up to 50% grants from central government local council provide balance <u>Rural</u> - NA	Highly inadequate	Inadequate	Minimal covering only capital city
Philippines	<u>Urban</u> - aim self-sufficiency however no information on implementation <u>Rural</u> - NA	<u>Urban</u> - central government self-generation local borrowing above not clear plus external loans <u>Rural</u> - NA	Inadequate	Inadequate	Through Presidential decrees
Republic of Korea	<u>Urban</u> - aim at self-financing - no details <u>Rural</u> - NA	Recent plan ave. /annum from national government for <u>Urban</u> - 73 million <u>Rural</u> - 3.5 million Plus 15-20% supplement from external sources <u>Rural</u> - mainly subsidy	Inadequate	Adequate collection but apparently inadequate retrieval and processing	Existing but application not clear
Thailand	<u>Urban</u> - aims at self-sufficiency Metered - No information Flat rates outside Bangkok at \$0.1/M ³ <u>Rural</u> - Flat rates at \$0.25-0.50/ month per house	National plan allocation Rural population contribute 30-50% of investment costs	<u>Urban</u> - some improvements needed especially specialized technical skill <u>Rural</u> - Inadequate	Inadequate	NA

NA - is not available or insufficient information
± - imply a projected figure for 1977

Features Countries	Institutional Responsibility	Service Coverage and Service Quality			Service Level		Water Pollution Control	Tariff	Development Financing
		% Urban Piped	% Rural Non-Piped	Remarks	Urban	Rural			
Afghanistan	Urban: As for water supply Rural: As for water supply	1	NA	Piped sewerage only in capital city. No information on quality of service.	NA	NA	Problems not serious but need legislation.	NA	NA
Bangladesh	Urban: As for water supply Rural: As for water supply	NA	NA	Only capital. Dacca partially sewerd. No information on quality of service.	NA	NA	Under an Environmental Control Board. Authority not clear. Major river pollution.	NA	As for water supply.
Burma	Urban: As for water supply Rural: As for water supply	6	NA	Piped sewerage mainly in Rangoon. No information on service quality.	NA NA	NA NA	Not yet. Pollution not a major problem..	Included in property tax.	NA
Fiji	As for water but more involvement of municipal authorities	15 †	NA	Piped sewerage only in 3 of 14 urban areas. No information on quality of service.	Presumably own house connections	NA	Not yet. Pollution not a major problem.	\$0.06/M ³ of water consumed. \$210 connection charges.	As for water supply.
Malaysia	Urban: Local bodies for major cities and Ministry of Local Government and Ministry of Health Rural: Ministry of Health	15 †	NA	In urban 57% rely on septic tanks and 25% on conservancy. Rural: 53% septic tanks 37% conservancy. No information on quality.	Presumably own house connections	NA	Not adequate. Department of Environment newly established. Heavy pollution continues.	Included in property tax.	As for water supply.
Nepal	Urban: As for water supply, plus Ministry of Health Rural: As for water supply	0	NA	In urban areas some surface drains are used to carry liquid wastes. Master plan to major urban areas recently carried out.	NA	NA	Not yet. Pollution is increasingly becoming serious.	NA	NA
Pakistan	As for water	7.7	NA	The report mentions 2.2% of rural areas with piped sewerage. This is not certain.	NA	NA	NA	NA	As for water supply.
Papua New Guinea	As for water supply	28	NA	All urban systems are over-loaded.	NA	NA	Not yet. Some mining wastes pollute streams.	Flat rate \$3.4/month for piped sewers.	As for water supply but lower priority.
Philippines	Urban: As for water supply Rural: NA	NA Perhaps around 4%	NA	About 10% of Metropolitan Manila is sewerd.	NA	NA	Not yet. Serious problems foreseen.	NA	As for water supply but lower priority.
Republic of Korea	As for water supply	0	NA	Extensive night soil disposal in urban areas.	NA	NA	Not yet already a serious problem.	NA	As for water but lower priority.
Thailand	Urban: Bangkok - As for water Other urban: local communities Rural: Ministry of Health	0	30	Bangkok currently planning a piped sewerage system.	NA	NA	Not yet already a serious problem.	NA	As for water but lower priority.
Indonesia	NA	Under 1%	NA	NA	NA	NA	NA	NA	NA

NA - is not available or insufficient information

† - imply a projected figure for 1977

Table 4 LIST OF IDENTIFIED CONSTRAINTS DERIVED FROM PARTICIPANTS' COUNTRY PAPERS

WATER

Financial

Limited funds
Inadequate local generation of revenues
Heavy dependence on central government appropriations
Heavy dependence on imported materials

Management

Poor information systems - lack of data
Inadequate procurement procedures
Poor coordination in engineering and financial planning
Lack of overall planning policy and coordination
Inadequate legislation
Poor quality control and surveillance
Generally poor organizational structure and management system
Divided responsibility

Technical

Inaccessible communities
Lack of design and construction criteria
Lack of skilled and unskilled manpower
Lack of local manufacturing capability
Lack of engineering capability

SEWERAGE

Same above, but in addition even greater need for reforms in all the above (indicating lower priority).

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AGENDA

Monday, 10 October 1977

0845 - 0915	Registration	
0915 - 1015	<u>Session No. 1</u>	
	Opening of Working Group Meeting	Mr F.C. Go
	Opening Speeches	Dr J. Hirshman Director of Health Services, WPRO
		Mr K.L. Luthra Acting Director Projects Department II Asian Development Bank
	Introduction of participants, observers, consultants and secretariat	Mr F.C. Go
	Election of Chairman and Vice-Chairman	
1015 - 1045	Coffee Break	
1045 - 1215	<u>Session No. 2</u>	
	Chairman takes over	
	Introductory remark by Coordinator	Mr M. Suleiman
	Historical Perspective and Evaluation: Country Papers' Summaries	Participants
1345 - 1345	Lunch Break	
1345 - 1545	<u>Session No. 3</u>	
	HISTORICAL PERSPECTIVE AND EVALUATION OF THE WATER SUPPLY, presentation by	Dr J. Warford

Annex 2

Tuesday, 11 October 1977

0845 - 1015	<u>Session No. 4</u>	
	ORGANIZATION AND MANAGEMENT IN PRE-INVESTMENT PLANNING FOR WATER AND SEWERAGE, paper presentation by	Mr H. Shipman
1015 -1045	Coffee Break	
1045 - 1215	<u>Session No. 5</u>	
	Discussion:	
	- Government Policies and Programming Planning Approach and Process, lead by	Mr H. Shipman
1215 - 1345	Lunch Break	
1345 - 1545	<u>Session No. 6</u>	
	Project Selection and Phasing (Economic Aspect)	Dr J. Warford

Wednesday, 12 October 1977

0845 - 1015	<u>Session No. 7</u>	
	FINANCIAL AND ECONOMIC APPRAISAL: MANAGEMENT AND ADMINISTRATION, paper presented by	Mr S. Hill
1015 - 1045	Coffee Break	
1045 - 1215	<u>Session No. 8</u>	
	Discussion:	
	- Financing Plans and Sector Development, lead by	Mr S. Hill
1215 - 1345	Lunch Break	
1345 - 1545	<u>Session No. 9</u>	
	DATA REQUIREMENTS AND INFORMATION TRANSFER	Mr E. Lee

Thursday, 13 October 1977

0845 - 1015	<u>Session No. 10</u>	
	DESIGN CRITERIA AND SERVICE LEVEL IN PRE-INVESTMENT PLANNING FOR WATER SUPPLY AND WASTEWATER PROJECTS	Mr M. Suleiman
1015 - 1045	Coffee Break	
1045 - 1215	<u>Session No. 11</u>	
	Discussion:	
	- Design Criteria and Service Level, lead by	Mr M. Suleiman
1215 - 1345	Lunch Break	
1345 - 1545	<u>Session No. 12</u>	
	NOTES ON INTEGRATION OF SECTOR PLANNING AND AREA DEVELOPMENT	Mr G.H. Goh and Mr T. Yajima

Friday, 14 October 1977

0845 - 1015	<u>Session No. 13</u>	
	General Review and Discussions	Mr H. Shipman Mr S. Hill Dr J. Warford Mr M. Suleiman Mr E.W. Lee Mr G.H. Goh
1015 - 1045	Coffee Break	
1045 - 1215	<u>Session No. 13</u> continues	
1345 - 1545	<u>Session No. 14</u>	
	Group Recommendations	Mr M. Suleiman

Saturday, 15 October 1977

0845 - 1015	<u>Session No. 15</u>	
	Adoption of format and content of Draft Final Report	Mr M. Suleiman

Annex 2

Saturday, 15 October 1977 (cont'd)

1015 - 1045 Coffee Break

1045 - 1215 Session No. 16

Conclusions

Closing Speeches by

Mr F.C. Go and
Mr G.H. Goh

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