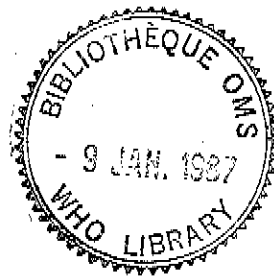


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**INSTITUTIONAL DEVELOPMENT  
IN COMMUNITY WATER SUPPLY AND SANITATION**

*water supply  
sanitation  
1986*



**WORLD HEALTH ORGANIZATION  
GENEVA**

October 1986

This document has been prepared by the Community Water Supply and Sanitation (CWS) Unit of WHO in Geneva (L. Laugeri, Editor). It is based on the recommendations of an informal consultation on institutional development, which was held in WHO, Geneva, from 18 to 22 November 1985; it contains some suggested methods for assessing and planning institutional development in CWS, an identification of major constraints, and some proposals to facilitate the institutional development process. A companion document (WHO/CWS/86.10 : "Institutional Development in CWS : Themes and Questions", WHO, Geneva, September 1986) provides an illustration of the major issues and can be used for training purposes together with the present book.

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ABBREVIATIONS

AEO	Agricultural Expansion Office
AMRO	WHO Regional Office for the Americas
CARE	Cooperative for American Relief Everywhere
CWS	Community Water Supply and Sanitation
EHE	Environmental Health
FEC	Fonds d'Equipement Communal
GTZ	German Agency for Technical Cooperation
HRD	Human Resources Development
ID	Institutional Development
IDWSSD	International Drinking Water Supply and Sanitation Decade
INSFOPAL	National Institute for Municipal Development (Colombia)
LDC	Least developed country
MEP	Minimum Evaluation Procedure
MPLD	Ministry of Panchayats and Local Development (Nepal)
NAC	National Action Committee
NGO	Non-Governmental Organization
NP	National Decade Plan
OMFL	Organizational, Managerial, Financial and Legal
ONEP	Office National de l'Eau Potable (Morocco)
PHC	Primary Health Care
PWD	Public Works Departments (Malaysia)
RR/UNDP	UNDP Resident Representative
RWSU	Rural Water Supply Unit (Sierra Leone)
SEARO	WHO Regional Office for South-East Asia
SMS	Subject Matter Specialist
SR	Sector Report
TCDC	Technical Cooperation among Developing Countries
TST	Technical Support Team
T&V	Training and Visit System
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VEW	Village Expansion Worker
VLW	Village Level Workers
WB	World Bank
WHO	World Health Organization
WSD	Water Supply Division (Sierra Leone)

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## 0. INTRODUCTION

0.01 An informal consultation was held at the Headquarters of the World Health Organization (WHO) in Geneva, from 18 to 22 November 1985, on Institutional Development in Community Water Supply and Sanitation (CWS). The recommendations of the consultation were published by WHO in March 1986 under the title: "Institutional Development in Community Water Supply and Sanitation: Report of an Informal Consultation, Geneva, 18-22 November 1985" (WHO/CWS/86.4). This report (Abstracts in Annexes I and III) has provided a broad basis for the elaboration of proposals and recommendations on selected aspects of institutional development in CWS which are the subject of the present review. Annex II provides a list of other documents which have been used in the various chapters.

0.02 The approaches of the International Drinking Water Supply and Sanitation Decade (IDWSSD) emphasize complementarity of water supply and sanitation, precedence to be given to underserved populations, self-reliant and self-sustaining action; socially relevant systems, community involvement, and association of CWS with programmes in related sectors, particularly Primary Health Care (PHC). In many countries, the present structural arrangements are not oriented towards the implementation of these approaches: different agencies deal with water supply and sanitation respectively, and do not adequately coordinate their efforts; water utilities operating urban systems continue to give precedence to the more privileged population groups; agencies remain centralized and therefore development continues to be based on government plans rather than community objectives, self-reliance is not sufficiently enhanced, new installations do not correspond to people's needs and means, and community involvement remains a subject of official policy statements rather than a common feature in CWS projects. Besides, the present structures do not provide for easy coordination and association of CWS with related sectors, particularly with PHC; the health education, human resources development, and institutional strengthening components of PHC programmes are not sufficiently used to foster CWS development. The mechanisms which are studied in this report are those which allow vertical (from central to local) and horizontal (intersectoral) cooperation. They have been broadly designated as decentralization, coordination and other transfers of resources (funds, people's participation, manpower, technology).

0.03 The main objectives of this paper are to provide a description of some achievements and an assessment of progress in the area of institution building/strengthening in CWS, and to describe major issues and alternative development schemes. For training purposes, the paper has been subdivided according to the major issues commonly encountered in Institutional Development:

- adoption of a methodology for assessment of the present situation and implementation of required improvements,
- special problems encountered in planning Institutional Development in an IDWSSD context,
- identification of major constraints in Decade implementation,
- design of a decentralized CWS administration,
- resources transfers,
- intersectoral cooperation and coordination,
- community motivation and involvement,
- human resources development.

## 1. METHODOLOGY FOR INSTITUTIONAL REVIEWS

1.01 Most institutional improvements are based on performance assessments which should be undertaken sectorwide. The main steps to be followed in an institutional analysis and in interventions designed to improve the institutional framework of CWS are described in Annex IV, Tables I through IX. The Community Water Supply and Sanitation sector is the part of the national economy which includes all structures, mechanisms and transactions related to the supply of water for domestic, industrial and municipal use, and the sanitary collection and disposal of wastes. The constraints which hamper the development of this sector are important in both urban and rural areas; they are especially serious in the rapidly expanding suburbs of large agglomerations, although these often benefit from the services of well structured institutions. They are perhaps more difficult to overcome in the rural sub-sector, which in most countries comprises thousands of villages and hamlets, and which rarely has an adequate institutional framework.

1.02 The process of institutional development (Annex IV, Table I) starts from an assessment of the resources and performance of existing institutions. Because of multiple interventions of agencies from different sectors in community water supply and sanitation, either as providers or beneficiaries, this evaluation cannot be over-simplified. It requires a good knowledge of the country's administrative structures as well as of the sector itself : a rapid SECTOR REVIEW is generally warranted to describe the structures, mechanisms and transactions which exist within the sector, and between community water supply and sanitation and other sectors of the economy. According to the characteristics of the country or service area, and the quality of already available information, the time needed for this review (which is not a full sector study) may vary from one to two weeks, or more. The team in charge normally consists of a sanitary engineer and an economist/ financial analyst, preferably national sector officials. The services of a national official with good knowledge of the country's administrative organization are of great value at this stage to prepare for the assessment of the sector's institutions.

1.03 While the sector review should as much as possible be carried out by national staff, the intervention of independent (foreign) specialists is usually advisable at the stage of INSTITUTIONAL ASSESSMENT, as this includes an evaluation of performance (based on selected indicators - Annex IV, Tables II and III) which may not be favourable to some of the parties concerned. However, in order to minimize the personal involvement of outside specialists and their costs, data collection tasks should be guided rather than executed by them. An institutional development study should therefore start with a RECONNAISSANCE MISSION, which should prepare a SECTOR BRIEF (based on the sector review), TERMS OF REFERENCE for the data collection team (to be organized and adequately briefed) and an outline of the institutional assessment PROCESS (to be submitted to national authorities for approval). This mission should preferably be carried out by the institutional development specialist who will later be responsible for performance evaluation. It may last from one to two weeks; the sector brief should specify those development constraints which probably can be attributed to institutional weaknesses (Annex IV, Table IV).

1.04 Although the institutional assessment itself is an inter-disciplinary task, it may not require several outside experts of distinct disciplines. The most important requirement is that one independent institutional development specialist take responsibility for the overall PERFORMANCE EVALUATION; he can be assisted in this task by national or foreign specialists of the various disciplines. The evaluation may take from two to four weeks, and usually leads to the preparation of a short ISSUES PAPER showing the main shortcomings of the existing institutional framework, their probable outcomes, some tentative criteria for realignment (Annex IV, Tables V, VI and VII), and recommendations for immediate measures as well as more in-depth studies designed for the removal of general and specific constraints.



The SUBMISSION of this document to national authorities and their DECISION TO PROCEED with an overall institutional development programme, or with specific studies, represent essential phases in the general process. One to two additional weeks in the country will probably be required to obtain confirmation of this decision and submit more detailed proposals for implementation.

1.05 Whether the government has decided in favour of an overall institutional development programme with long-term improvement objectives, or specific studies and actions aimed at the removal of some of the identified constraints, these decisions mark the initiation of an OVERALL INSTITUTIONAL DEVELOPMENT PROCESS, because of the close relationship between the various functions within an organization, and therefore of the corresponding interventions (Annex IV, Tables VIII and IX). An INTER-DISCIPLINARY and PARTICIPATORY approach will generally be required. It should be inter-disciplinary in order to ensure for instance that improvements in financial management do not result in HRD or technical constraints; it should be participatory in order to enhance the development of the agency, and to ensure that national expertise will be available in those areas which are influenced by the interventions of foreign personnel. This again requires the creation of a team of specialists of various disciplines, combining national and foreign expertise. The creation of this team constitutes the first step of the institutional study itself, and it should be considered as a preamble to any future activity. It usually requires little time in the field, as the national members will have been identified during the assessment phase.

1.06 The following specific interventions have been carried out in several countries, with or without external support:

- evaluation of alternative institutional arrangements;
- institutional framework for water supply in urban poor areas;
- utilization of the concept of project replicability for planning institutional development in CWS;
- financial studies (e.g. tariff structures, development funds)

In many Latin American countries, the process of institutional assessment and development is particularly advanced, and full use is made of a comprehensive participatory approach, as described in publications of WHO/AMRO on institutional development. This approach has been the subject of consultations with AMRO staff and is used in several sections of the present document.

## 2. PLANNING INSTITUTIONAL DEVELOPMENT IN AN IDWSSD CONTEXT

### Specificity of IDWSSD (Decade, 1981-1990) Programmes

2.01 National development plans prepared for the Decade indicate investment needs which in most cases exceed the implementation capacity of the responsible agencies. Failures to adapt the conventional institutional framework of CWS to new approaches, erroneous interpretations of stated objectives, and conservative attitudes of planning and project preparation specialists are the main reasons for this situation, which it seems vain to blame on the reserve of financing agencies.

2.02 The institutional, economic and financial feasibility of Decade programmes, particularly those concerning CWS for urban poor and rural areas, is too often compared to that of conventional urban water supply projects. IDWSSD approaches are primarily "qualitative", meaning that preference is given to improvements as opposed to new works; the action is "community-based", meaning that reliance is placed on resources and efforts of intended beneficiaries; development is "incremental", meaning that it proceeds gradually, by steps, and efforts are made to avoid massive investment. As a result of implementing these various concepts and methods, the present cost price of future investment is comparatively low. Besides, the cost of a project is by itself one of its benefits, if it makes use of national resources which might otherwise remain idle.

### A changing frame

2.03 Decade programmes are executed in an intersectoral context, and favour the development of support activities, particularly at the level of public health agencies; this tends to reinforce those government bodies which usually have less resources than those responsible for the development of infrastructures. CWS uses resources from related sectors, on which the implementation of Decade projects has beneficial effects. It is therefore probably wrong to apply exclusively those criteria which are specific to the water supply and sanitation sector, or even to the whole of Primary Health Care (PHC), when appraising Decade plans, programmes and projects.

2.04 The above, however, does not imply that the appraisal criteria should be less strict for this type of development activities; they should simply be different, which requires the study and implementation of new project preparation methods. The enforcement of strict appraisal criteria leads to beneficial institutional, legal and financial reforms, which may not have been undertaken in the absence of concrete projects. The criterion of financial autonomy should probably be further reinforced for urban programmes, particularly in water supply. It has been shown that this sub-sector can, in most cases, develop in good conditions of financial equilibrium, without need for subsidies; this is also true for the urban poor areas, if they have the benefits of indirect subsidization through differential tariffs. Where financial autonomy has not been achieved in urban areas, the development of rural water supply and sanitation can be postponed indefinitely; in many countries, this can jeopardize the result of efforts made towards the attainment of the Decade objective of Water and Sanitation for All.

### Concept of Feasibility

2.05 When applied to plans, programmes and projects elaborated in preparation for construction and operation of new works, the concept of feasibility is an exact synonym of viability, which is literally defined as "the capability of maintaining life". Technical elements have been assembled in order to create an embryo corresponding to specific criteria; however, this embryo can only develop and survive if its existence is justified, if it has access to resources, and if there are mechanisms to ensure its equilibrium with its environment. Those plans, programmes and projects which meet these conditions are considered feasible, and therefore they can be of interest to agencies which are likely to participate

in their implementation; a plan, programme or project, even though technically sound, cannot be feasible if it does not correspond to an actual need, if it cannot be expected that sufficient resources will be made available to ensure its perennality, or if it is so mismanaged that it results in waste. In these cases, the outcome of all preinvestment work will be a net loss.

2.06 The confusion between feasibility in general, and financial feasibility, is frequent, because the financial constraint is the easiest to identify. The removal of this constraint may not by itself be sufficient to ensure the feasibility of a development effort. In several Sahelian countries for instance, progress in the construction of latrines in rural areas can be slower than that of rural water supply, although the latter is much more costly. This is generally due to difficulties in construction, lack of adequate institutional framework, or insufficient government commitment to sanitation which is often given lower priority than water supply, as the latter is easier to justify in economic terms in national development plans.

2.07 Constraints related to inadequate human resources development cause frequent delays in the implementation of projects which could be financed. This applies in particular to those programmes which rely heavily on community involvement, which constitutes one of the fundamental approaches of the Decade, but requires the mobilization of considerable resources for the training of community workers and promotion and mid-management personnel. Given its specific technical characteristics, the feasibility of a Decade project depends therefore on the institution in charge of the construction, operation and maintenance of the works, particularly on its equipment and personnel resources. This is at least as important as the relationship between income and expenditures related to the service improvement corresponding to the project, or the cost-benefit ratio as seen in a national economic context.

2.08 After ensuring that a plan, programme or project is technically sound, its institutional, financial, economic and legal feasibility should be checked. In order to avoid unwarranted and useless expenditures in pre-investment work, this type of pre-appraisal should take place at each stage of the project or planning cycle. It is also desirable to obtain from national and foreign financing agencies a clear definition of the criteria which they intend to use for accepting or rejecting specific programmes.

2.09 Water supply and sanitation projects, especially in the rural sub-sector are particularly complex. In most cases, they involve several sectors and ministerial agencies, as well as numerous private and semi-public bodies; their construction costs are often uncertain, and their operational income is even less predictable; finally, their economic justification is in most cases based on an evaluation of their cost/benefit ratio. While economic and financial costs can be evaluated with some degree of realism, it is nearly impossible to forecast benefits, particularly as regards public health. A frequently adopted hypothesis is that the product of a project can be represented by the financial receipts resulting from the operation of the new works; this is questionable in urban areas, and in most cases unrealistic in rural areas, in the absence of water or sanitation tariffs.

#### Concept of Development

2.10 In water supply and sanitation, the concept of development has evolved in the framework of Decade approaches. Its previous definition corresponded for most countries to a continuous extension of service areas, which would be achieved through gradual deconcentration of structures and resources, so that coverage would be extended from capital cities to medium-size towns, then to the larger rural agglomerations, then to the small villages, to the hamlets, and at last to dispersed populations. Although logical, this conception has proved difficult to apply to CWS in many developing countries. It does not adequately account for the growth of urban demand, the extension of urban poor districts, and the constant rehabilitation needs of existing facilities, which result in most urban systems having a life expectancy of at best two decades. The design period cautiously adopted by consulting engineers in master planning rarely exceeds twenty years, even though the facilities are likely to be operated over a longer period.

2.11 At the time when the sector is prepared for service extensions towards rural areas, rehabilitation and extension works are required in urban systems, the costs of which are further increased by the need for used water collection and disposal facilities, and by the running deficits of public utilities. These are often subsidized to such an extent that it becomes difficult for government to reserve funds for service extensions towards rural areas. Such extensions, if they take place, are often disorganized as a result of lack of adequate structures, insufficient human resources, inappropriate technology, and lack of training and health education of the beneficiaries; the methods used are often conventional and costly, and while it is difficult to evaluate positive results, each error is the subject of much publicity.

2.12 One of the results of government commitment to the Decade objectives has been in many countries the simultaneous undertaking of urban and rural development programmes, which requires an immediate transfer of government resources from towns to villages. At the same time, the limits of the decentralisation potential of the traditional sector agencies appear more clearly, both in terms of resources and logistics. The role of "peripheral" units, i.e. communities, has been emphasized. They should be involved at every stage of the project cycle, and operate and maintain their facilities with their own resources. They should also have access to support structures, which often cannot be those of the traditional sector agencies; the absence or insufficiency of such structures create difficult problems, requiring an intersectoral approach which until now has been undertaken in a few countries only.

2.13 The above suggests that CWS development, and the feasibility of CWS plans, programmes and projects are largely dependent on the development of CWS institutions and on the organizational, managerial, financial and legal (OMFL) characteristics of the CWS sector as a whole. Further details on planning institutional development are provided below.

#### Institutional Feasibility of IDWSSD Programmes

2.14 The institutional framework of the sector is so complex that it is advisable to start its review with a general profile, which will show the type of involvement and respective responsibilities of the various agencies concerned, as well as possible overlappings. Matrices are commonly used in this type of analysis, e.g. responsibilities and activities can be indicated in rows while entries in columns represent agencies involved in water supply and sanitation respectively. In the context of a sector planning study, matrix representations will show development constraints caused either by the lack of adequate structures for specific activities in specific sub-sectors, or the multiplicity and overlapping of agencies in other sub-sectors.

#### Organization

2.15 The "WHAT - WHO" matrix, which identifies sector roles in rows and agencies which fulfil these roles in columns, can be usefully supplemented by other distribution matrices. Thus, a matrix "WHO - WHO" will illustrate the hierarchical structure and coordination mechanisms, while a matrix "WHAT - WHAT" will show the sequence of effects of interventions of sector agencies.

2.16 When starting a programme or project, it is advisable to envisage the institutional framework as a whole, including technical and support agencies, and also to analyse in detail the structures and operational mechanisms of the agency which will be responsible for the execution of the project. The inventory of human and financial resources is particularly important in this context. In nearly all cases, the financial viability is studied in detail, at least for the first implementation phase. In urban water supply and sanitation, financial analysis uses comparatively precise instruments, methods and criteria, while economic justification is more important for rural areas, for which the instruments and data required for financial analysis are often lacking. Data available for analysing and projecting human resources development are often insufficient, both in quantitative and qualitative terms. Training resources and facilities are sometimes well known, but the results of HRD activities are rarely evaluated in the long term.

2.17 In those sectors which are following a deconcentration process, as is the case in water supply and sanitation, recently trained mid-management staff and high-level professionals are often reluctant to be stationed outside the capital city; while the creation of a number of deconcentrated structures, with the required staffing, and the corresponding training facilities, may have been accurately planned, it is not certain that the vacancies will be filled. Conversely, considerable efforts have been made in many cases to train staff, which subsequently could not find employment, as new posts had not been created. It is important in this context to emphasize the growing importance of regular budgets required for sector operation. While the availability of investment funds used to be the main concern of financial planners, they are currently emphasizing operation and maintenance of the facilities, health education of the beneficiaries, promotion of community participation, quality surveillance, and structures to support community involvement. This new orientation requires considerable increases of regular budget resources, and should result in a better utilization and protection of the facilities. The development of human resources is therefore a fundamental aspect of the institutional viability of water supply and sanitation projects.

2.18 Another important aspect of the viability of sector institutions is the logistic aspect, including procurement, storage and transportation methods. While the corresponding resources are usually allocated at the time when the project is constructed, the logistic support required for the operation and maintenance of the facilities is often neither planned nor budgeted. What is required here is not only the creation of a permanent working capital, but also and more important the design of systems and the allocation of resources required for its optimum utilization. While financial aspects are nearly always examined in detail, logistic aspects are often ignored, e.g. funds may have been allocated for the procurement of spare parts, but the problem of timely transportation to the site may have been overlooked.

### Management

2.19 As the most important asset to ensure the feasibility of any programme is the quality of its management, the personality of the managers of the various agencies involved is of particular importance. The adage according to which nobody is irreplaceable is sometimes wrong in public service, and very often does not apply to water supply and sanitation, particularly in rural areas. The recruitment of qualified and motivated personnel seems more difficult in this sub-sector than in many others. In urban areas, there exist water supply agencies which enjoy financial autonomy; their salaries are often not subject to alignment with those of the public service. This situation is rare in rural water supply or in the sanitation sub-sector in general. Staff in these services are often insufficiently remunerated, they can be transferred in the context of decentralization programmes, and their professional merits are often unknown, even at a high level in hierarchy, so that their chances of social promotion and their personal satisfaction are limited. At all levels of management and execution, employees' motivation in this sector

seems to be related to their own professional and social conscience, rather than their remuneration and chances of promotion. It is therefore nearly impossible to influence employees' behaviour, other than by exception to correct the most visible inequalities or inequities at lower levels, and to encourage as much as possible the recruitment at key management posts of the most motivated and capable individuals.

### Laws and Regulations

2.20 The viability of plans, programmes and projects, and of the institutions which conceive and execute them, is subject to the existence of an appropriate legal framework. In many countries, the lack of such a statutory and regulatory instrument is currently seen as a major constraint. Thus, among the numerous IDWSSD National Action Committees, few have had their prerogatives and responsibilities formalized by law. Similarly, national plans elaborated for the Decade can only be enforced if they are incorporated in full in the national development plans.

2.21 A number of countries are currently preparing codes to regulate the use of water resources in general, covering the problems of development, rights and priorities of use, qualitative protection, quantitative conservation, and allocation of rights and responsibilities for intervention at each stage of the water cycle. The share of drinking water supply and sanitation should be the subject of numerous provisions in the framework of a Water Code, particularly concerning priorities of use, water rights, and qualitative protection. Besides such general provisions, a number of specific rules should exist to facilitate the operation of a water supply agency. This should be capable to maintain, repair, and construct as required facilities which it is responsible to manage: this implies that the agency should have the benefit of a right to use the resource, and also some rights of way and temporary or permanent occupation of land. Particular importance should be given to the commercial aspects of management; a tariff policy for instance can only be implemented if it is reflected in a legal text which should specify the structure and progression of the rates, the right to collect, and the penalties in case of default.

2.22 The importance of the legal aspect of the viability of a project can be illustrated by the example of Turkey, where the multiplicity and complexity of individual rights of use of the water resource where in the past a serious constraint to the development of rural water supply; some twenty years ago, a very large programme was undertaken, and one of the criteria for granting priority to a village was the voluntary abandon of water rights. Similarly, in many countries where tariff systems have been designed to ensure the perennity of the resource and of the service, strict regulations have been adopted, and reflected in legal texts. Finally, the statutes which govern the structures and the operation of sector institutions are often vague and incomplete; a legal study should be undertaken at the time when the institutional feasibility of a plan, programme or project is analyzed. In order to foresee the required measures and regulations as early as possible: changes in legislation take a long time, and as a result the programme appraisal and implementation phases may be postponed.

### Privatization

2.23 One of the most controversial legal issues, particularly in urban water supply, concerns the frequent cases in which a public utility service is operated by private or semi-private agencies, with a view to improving overall efficiency; this objective is not always attained. It is generally difficult to compare two agencies with different legal status. The most interesting and most current dichotomy is probably between management, costs and tariffs of a municipal agency on the one hand, and a private water supply company on the other hand. Taking into account the characteristics of two agglomerations and two water supply systems, the problem is to determine the comparative advantages and drawbacks of two systems of management of a service of public interest: on the one hand a private water supply company, which can be primarily concerned with efficiency, on the other hand a public agency, which can be primarily concerned by equity. However, both concerns for efficiency and equity are usually present, which justifies that these two types of agencies can be made responsible for the management of a public interest service.

2.24 For the comparison between these two types of management to be valid, since they may result in very different cost prices and tariffs for the same service criteria, the following questions should be asked: to which degree of financial autonomy is each agency committed, either statutorily, or contractually, or in terms of objectives; what is the ratio of staff to number of connections in each case; what are the preferential conditions in terms of procurement of raw materials, consumables or equipment; are there tax exemptions, or free contributions from other sectors; what are the respective proportions of overheads to overall costs; are there special advantages with regards to borrowing and debt servicing; finally, what are the respective policies and commitments of the two agencies with regard to allowances for depreciation and bad debts, and provisions for network extensions.

2.25 Besides these operational data, the balance sheets should also be examined, particularly the shares of fixed assets and borrowed funds; the forecast of sources and applications of funds will determine the liquidity potential of the agency, but this can be increased if temporary overdrafts are allowed; it is therefore important to know the level of independence to which each agency is committed. Finally, these various indications are only valid if they can be placed in a real context. It is therefore essential to analyze not only the legal status of each agency, but also the characteristics of the agglomeration which is served. The main data required are related to the differences of access to the water resource, density of habitat, length of networks in operation, storage required, water quality criteria and required level of treatment, share of industrial demand, respective shares of large, intermediate and small consumers, and qualitative and quantitative service levels provided.

#### Financial Aspects

2.26 The financial feasibility of a programme or project is normally envisaged in two different situations. In the first, it is assumed that the project will not be implemented, and the financial situation of the responsible agency is analysed on the basis of the results of its last years of operation, and of financial projections based on installed capacity. In a second situation, financial projections are made on the basis of improvements corresponding to the implementation of the project, therefore taking into account the corresponding additional expenditures and income. In both cases, it is advisable to forecast a realistic component of community participation, either through tariffs, or through voluntary contributions in kind or in cash, or through subsidies, which correspond to an indirect taxation method. The accounts used in analysing the financial feasibility are the balance sheets, the statements of income and expenditure, and the statement of sources and applications of funds. Data required for forecasting income and expenditures include the complete programme of forthcoming investment, projections of demand and sales, and a tabulation of dates of maturity and amounts of debt-service for existing and future long-term payables. The interventions of government as regards possible subsidies should also be known.

2.27 The preparation of sales forecasts requires a complex calculation. The first requirement is that the limits within which water production capacities can increase should be evaluated and projected, as well as the limits within which unaccounted for water, either not metered or lost, can be decreased. This generally requires master metering as well as distribution metering. The number of private connections per consumption category, and the number of public standposts should be evaluated, and their future evolution should be projected. While demand at the public standpost is generally stable, the consumption of a private connection can increase, and this should be taken into account. Eventually the quantitative sales forecast, which precedes the valuation of future income, is the result of two types of calculations: a projection of systems extension on the one hand, and a forecast of consumption per consumer category on the other hand.

2.28 In most cases, the study of the price elasticity of demand is difficult due to lack of data, and it does not significantly affect the growth assumptions. Large consumers have a nearly inelastic demand, as the cost of water accounts for only a small share of their total expenditures; as regards domestic consumers, the coverage of their needs is so low, and the price which they are willing to pay to water vendors is so high, that their demand can be

regarded as inelastic in the low consumption categories, although household income may be comparatively low in these population groups. It is therefore in the intermediate consumption category only that consumers have an actual option of reducing or increasing demand as a function of price, and such changes are generally small in proportion of the whole of their consumption. Besides, this intermediate consumption category tends to decrease in relation to total urban population in many developing countries, as a result of the extension of the poorer urban districts. This accounts for errors in the conception of some projects: while the price elasticity of individual demand is low, the collective demand of a community can be highly responsive to a decreasing trend in the average income of its members. Thus it is in most cases erroneous to use identical growth rates for the populations of large, intermediate and small consumers. If industry is stagnating, and the number of wealthy households increases slowly, while the category of low-income small consumers increases very rapidly, the respective growth rates of per capita demand and total population can evolve in opposite directions.

2.29 The financial feasibility of a project depends at each stage of its development on a series of conditions. While the facilities are under construction, it is important to make sure that the total financial resources of the institution, including subsidies, proceeds from loans and internal cash generation, will cover all costs expressed in current prices, i.e. including inflation. During this period, the agency makes very important expenditures, while its income does not increase; it is therefore often necessary to obtain the benefit of a grace period, during which debt-service is limited to the payment of interest. Besides, urban water supply projects, particularly if they require mobilization of surface water, and urban sewerage projects, are designed for the construction of facilities which cannot be constantly redimensioned and reconstructed, and which are therefore dimensioned to meet the demand over a long design period, generally from twenty to twenty-five years. As a result, these facilities are under-utilized during the first years after they have been commissioned. It is essentially during this period that a project may not be financially feasible, unless tariffs are such that total income is higher than the breakeven point of operation, so that a permanent financial reserve can be constituted, which will compensate for temporary cash deficits.

2.30 During the entire life of the installations, operation and maintenance costs should be covered by income from tariffs: the adequacy of water rates, which sometimes include a provision for rehabilitation and extension of the facilities, is therefore the essential condition for a project to be feasible. A distinction should be made between average tariffs and tariff structures; average tariffs should cover all operation and maintenance costs including allowances for depreciation, and interest (but not repayment of principal, which is not recorded in the statement of income and expenditures). The tariff structure should be such that the least privileged part of the population have easy access to safe water at a reasonable distance, at a price not exceeding an affordable share, often estimated at three to five per cent, of the household budget. Also the tariff structure should be such that the large consumers pay a price corresponding to the economic value of water, thereby compensating all or part of the loss resulting from the service to the small consumers. In this context, the notion of financial feasibility is closely linked to the concepts of economic feasibility and justification.

#### Economic Feasibility and Justification

2.31 While the financial feasibility of a project is related to the ratios of operating income to expenditures on the one hand, and sources to applications of funds on the other hand, with all entries in financial terms at market prices, the economic feasibility of a project, and its justification, can only be ascertained through a comparison between the costs and the benefits of this project to the national economy. Among the elements of cost which are relevant to the determination of tariffs, it is particularly important to take into account the long-run marginal cost of water. This can be defined as the cost to the economy as a whole of mobilizing a new resource and operating a new network, as a result of insufficient capacity of the existing system to meet additional demands in a specific period.



2.32 The long-run marginal cost of water can be approximated by dividing the costs of a development programme by its product. This amounts to dividing the sum of present values of investment and operation and maintenance costs by the volume sold, based on the life expectancy of the facilities. A close enough approximation is obtained by considering the development programme over about ten years, and the life duration of the facilities over 25 years. This calculation provides an estimate of the value of water for the entire economy, rather than in the restricted framework of the sector or of a public utility. It therefore requires that the economic costs of a water supply project be evaluated, as they are quite different from the market values: the foreign exchange component may be under-rated, and in this case the ratio of actual value to the official rate of exchange is higher than one for everything which is imported; as regards the local currency component, the economic costs of local supplies, materials and equipment generally correspond to market prices, except where national production is encouraged by government subsidization. The economic cost of local labour is generally lower than its market price, as a result of under-employment in many developing countries.

2.33 All inputs and outputs are discounted at rates which represent the interest that the capital could produce if it were invested in other activities or sectors, and the consumer's preference for improvements in water supply (and sanitation) services, as opposed to creation or expansion of other services. In view of the uncertainty of these various parameters, it is recommended to change the shadow-pricing coefficients and the discount rate in order to obtain a reliable average value. The sensitivity analysis provides a long-run marginal cost which will be used in the determination of a tariff which should best correspond to the requirements of the economy as a whole. The objective of such a tariff is to provide the potential consumer with the information which he needs in order to decide whether he is going to increase his consumption or not. Consumptions will be restricted without reason if water tariffs are higher than the long-run marginal cost, and this will result in an under-utilization of the sector's facilities; if tariffs are lower than long-run marginal cost, increases in water consumptions will be encouraged without reason (while the consumption of other goods will be decreased without reason); costly investments will have to be made, while they could have been postponed.

#### OMFL implications

2.34 After having incorporated the long-run marginal cost of water in the tariff structure, it is essential to envisage the practical, legal and management aspects of the implementation of the tariff legislation. Some of the main questions to answer are the following: should there be one or several water tariffs nation-wide; should the practice of providing free water be abolished; how can the tariff be revised periodically, based on inflation and the corresponding revaluation of fixed assets. It is also important to ensure that any cash surplus resulting from the new tariff be earmarked exclusively for the economic objective of the agency, i.e. the extension and maintenance of the facilities which it operates.

2.35 The economic justification of plans, programmes and projects is generally based on a concept of profitability which goes beyond yearly financial rates of return. It is therefore important to underline the uncertainty of economic data concerning costs; the estimates of potential benefits are even more uncertain. As regards costs, the shadow pricing coefficients utilized in the preparation of projections reflect the situation at the time when the project is appraised, particularly as regards the labour market and the financial market, especially in relation to foreign currencies. In subsequent years, some countries are subject to important economic changes; this illustrates the limits of the reliability of this approach. Besides, the "externalities", i.e. external costs or benefits associated to the projects, are rarely accounted for: the construction of a water supply system may for instance create a need for sewerage, which may cost more than the original water project.

2.36 As regards the benefits of water supply and sanitation, they are generally difficult to quantify, particularly in terms of health improvements. Due to lack of precise data, the tendency is to regard as a benefit the creation of resources which often cannot be used: this is for instance the case of working hours gained in a situation where unemployment prevails. It is generally difficult to estimate the cause-effect relationship between the

extension of water supply and sanitation services and the health and economic benefits which are associated to it. For this reason, there is a tendency, particularly in urban areas, to simply compare operational cost and income, omitting those elements which are more difficult to quantify, and thereby reducing complex research efforts in economics to the over-simplified level of financial analysis.

2.37 The existence of an appropriate institutional framework is one of the most important feasibility criteria for Decade projects, particularly in rural areas. During the preceding decades, satisfactory solutions have been found for urban areas, particularly in water supply, which adapts better than sanitation to commercial-type management, by agencies with a large degree of autonomy. Rural water supply and sanitation are almost exclusively dealt with by communities and governments. Local communities often have very limited resources: their activity should therefore benefit from the support of governmental water supply and sanitation structures. But very often the decentralization potential of these government agencies is limited to a few regional capitals, therefore these agencies are out of reach of villages and dispersed population. This situation necessitates and justifies an intersectoral approach, i.e. in water supply and sanitation, the community should benefit from the support of those government structures which are the most accessible to it, irrespective of the sector to which they belong. But this approach cannot by itself ensure the successful implementation of construction projects or maintenance programmes which require a technical specialization; it can at best be used for improving the qualitative surveillance of water points and sanitation facilities, and the health education of users, and to promote community participation. Besides, it requires a considerable development of human resources, including in particular the training in water supply and sanitation techniques of specialists of other sectors and community workers.

2.38 In rural areas, the implementation of large construction programmes, and thereafter the operation and maintenance of the works, require not only the support of other sectors, but also the creation of embryos of water supply and sanitation structures, and their gradual development, to the level where permanent sector structures, accessible to the communities, become justified. One of the major difficulties of Decade programmes is in fact to create a development nucleus for water supply and sanitation structures, in a zone where such structures are non-existent. Besides intersectoral actions, non-governmental organizations can be used to support small units responsible for space- and time-limited programmes, which have as one of their essential feasibility criteria a large potential of extension and replicability, until the scale of implementation of the programme, associated to projects in other sectors, particularly public health and agriculture, requires and justifies the creation of multi-sectoral government structures, to which private interest may be associated.

2.39 This is therefore a true development programme with a predominantly social character, which concerns the economy as a whole, thereby reducing the importance of feasibility criteria based on strictly financial considerations. Another consequence of this situation is that the appraisal of an isolated project is of little interest. Water supply and sanitation projects, like probably all primary health care projects, should therefore be envisaged in a sectoral and intersectoral context, and with the prospect of developing government structures in support to the communities, where such structures are lacking. The creation of such development nuclei in the framework of a national land-use plan is not the result of a new strategy; it has been done in many countries which are now developed, and has contributed to their economic progress. In this context, the Decade appears as an overall development plan which is certainly justified, subject however to its progressing at pace with activities of similar importance in other sectors; efforts should also be made in the more-privileged urban areas to suppress losses, as these are a major reason for postponing the development of rural water supply and sanitation.

### 3. IDENTIFICATION OF MAJOR CONSTRAINTS

3.01 During an informal consultation held in the WHO Regional Office for South-East Asia (SEARO) from 24 to 28 June 1985, a number of major constraints were identified, which affect the community water supply and sanitation sector in many countries and hamper its development in the context of the IDWSSD. The SEARO consultation concluded that the present institutional structure and mode of operation of CWS agencies are, to some extent, responsible for the limitations in efficiency and effectiveness observed in Decade implementation, especially at the rural level. In addition to chronic deficiencies in infrastructure, manpower and managerial practices, the sector agencies are usually centralized and have limited outreach in rural and even urban poor areas. Where municipalities or other units of local government are responsible for CWS development, sector resources, particularly qualified staff, are excessively fragmented. Where the sector is entirely managed by central government agencies, salary scales are aligned on the basis of public service regulations, which also results in a lack of flexibility of personnel structures. Rewards and career development prospects are very limited for staff assigned to positions which are remote from the centre. Careers are also less attractive for staff engaged in support activities (e.g., health education) than for those who are involved in the construction of new facilities. The overall institutional weakness of sector agencies in many countries is largely the result of inadequate personnel policies. CWS agencies often do not have the orientation capabilities required to involve people as partners in planning, implementation and operation and maintenance of schemes. As a result, the full health and social benefits of CWS projects are rarely attained.

#### Limitations in efficiency and effectiveness in Decade implementation

3.02 Many CWS agencies exhibit chronic deficiencies in infrastructure, manpower development and management; they are usually centralized and have limited outreach to urban poor and rural areas; they are preoccupied with construction of new facilities; they often do not have the orientation and capabilities required to involve people as partners in planning and implementation; they have a technical bias, overshadowing the socio-economic considerations and the flexibility in the choice of technology options which should prevail in CWS. There is generally no agency with qualified staff in charge of helping communities to decide on their priorities and organize their participation in CWS projects.

#### Gap between planners and people

3.03 The goal of the Decade to provide CWS coverage to the largest possible number of people has been elaborated in National Decade Plans and interpreted by most sector agencies as a mandate to construct as many new systems as possible between 1981 and 1990. In this accelerated development, little attention could be paid to the actual wishes of the communities. The resulting gap between planners and people poses a serious problem: unless the communities are involved, and their needs, perceptions, wishes and capabilities are considered, large investments in efforts and funds may not result in providing long-lasting appropriate and self-sustaining systems. Among the senior technocrats, there is also an apprehension that involvement of communities could make management difficult. Professional uncertainty and vested interests are reinforced by some justification that consulting each community individually may not be practical, though admittedly the Decade is conceived to serve the people, not the agencies.

#### Weak intersectoral collaboration

3.04 The humanitarian goal of the Decade requires the mobilization of all possible resources and capabilities. Intersectoral collaboration has promising prospects to fill the gap between what is needed and what CWS agencies can provide. Ministries of Health, for example, are usually more deconcentrated and have the proper orientation and facilities to engage in health education, community motivation and other hygiene promotion activities at

village level. Local government and local bodies may be better suited for community organization. At central level, cooperation with the Ministry of Health, National Planning Commissions, the private sector, industry, etc. may result in streamlining of water supply and sanitation policies, directives and operations to benefit from other sectors' resources and capabilities at all levels.

3.05 However, the individual sector institutions have generally been weak and their programmes have been affected by many problems of their own. At central level, people sometimes have not been fully convinced of the benefits of intersectoral collaboration. They have perceived it as unlikely to ease their difficulties but rather as adding to them. They have looked at it as an additional unfeasible and burdensome task. Also, inadequate and unclear regulations and procedures have not protected the staff nor reduced their fear that they might be charged for the errors of other agencies.

3.06 A great deal of institutional readjustment has been required but changes have been difficult to bring about in only a few government agencies, as in any country all must move in step. Lack of adequate funds and other resources as well as lack of proper institutional arrangements have been seen as constraints to intersectoral collaboration. One common mistake has been to concentrate all efforts on the creation of coordinating structures and mechanisms between government agencies which wish to maintain their independence, instead of training and empowering the community to draw resources from different sources as required.

#### Inadequacies in organization, management, finance and legislation (OMFL)

3.07 Most sector agencies suffer from poor infrastructure, shortage of qualified manpower, insufficient managerial capabilities, and inadequate funding mechanisms and resources. Also, the lack of clear policies and supporting legislation in respect of tariffs, resources allocation, quality and other sector issues causes difficulties. Such shortcomings are generally country-specific, and within a country, agency-specific. Nonetheless, some general observations are highlighted below.

3.08 CWS agencies often use traditional engineering approaches in project design and implementation; their organizational pattern is not such as to encourage community involvement and build up community-level competence. There is a need to involve women and disadvantaged groups to the extent possible within the constraints of specific cultural settings. Sector agencies are often not decentralized enough to be able to serve rural communities. Their outreach is limited; there is little devolution of authority. Central agency staff are generally not willing to work at the levels where water and sanitation systems have to be built and operated. Strengthening of sector agencies often results in strengthening their central offices only, while leaving the field offices relatively weak to perform their referral and support functions. Adequate manpower is required in order to support activities at community level. Finally, central agencies are preoccupied with the needs of urban areas where investments are large and require sophisticated technical skills. Yet, urban facilities are often operated at a loss. The financial autonomy of the urban subsector should be regarded as a prerequisite to CWS development in rural areas. Also, there are programme areas (e.g., rural sanitation) which are not effectively covered either by the sector agency or the community or by any established intersectoral action.

3.09 Bureaucratic approaches are often slow and frustrating. Managerial practices need urgent realignment. Financial management procedures are often archaic. The staff need training and continuing education. Among other general observations on matters of concern, monitoring and management information systems are generally absent and need to be introduced; public relations and information dissemination need attention; organizations are hierarchy-conscious and not adequately responsive to emerging situations; intrasectoral coordination is often more difficult to achieve than intersectoral collaboration; most financing agencies are more interested in lending for urban projects than in funding rural subsector programmes. The keywords which summarize the various problem areas of national institutional development are probably "human resources development", "devolution", and "deconcentration". "Devolution" requires strengthening of community capabilities and resources. "Deconcentration" is only feasible within limits, beyond which intersectoral collaboration is in many cases essential.

3.10 In Decade-oriented institutions, the focus of planning and implementation activities should shift from the centre to the community, and the sector agency's role should be that of a supporting partner working closely with the intended beneficiaries. In following a community-based approach, therefore, the first priority of Decade-oriented institutions should be to develop community-based competence. This can be achieved through effective decentralization of CWS agencies, which would involve "deconcentration" of the agencies to the extent feasible for providing the required support to communities and, concurrently, some "devolution" of authority to communal level to promote community involvement and improve efficiency. In some of the countries where this process is giving good results, some functions of CWS agencies have remained centralized, e.g., procurement; a gradual deconcentration process has allowed these agencies to create "field" branches responsible for support, e.g., provision of spare parts to communities; devolution has occurred in the sense that full authority and responsibility have been given to the community for specific tasks, e.g., operation and maintenance of CWS facilities. Community-based development is sometimes interpreted as implying that all authority and responsibility are at local level; in this context, it is the community which devolves some of its powers and functions, or discharges itself to higher levels of tasks which it cannot fulfil by itself.

3.11 Among other essential requirements for establishing a successful community-based approach are the provision of referral systems for back-up support, and intersectoral collaboration. In the overall development process involving central agencies, their deconcentrated units and the communities, the following major constraints have been identified:

- (i) Lack of efficiency and effectiveness of decentralized administrations;
- (ii) Difficulties in resources transfers;
- (iii) Lack of coordination;
- (iv) Inadequacy of community involvement;
- (v) Insuficiencies in human resources development;
- (vi) Inadequacy of technology selection and project contents;

General directions for addressing these various constraints are provided in the following sections.

#### 4. DESIGN OF A DECENTRALIZED CWS ADMINISTRATION

##### Concepts

4.01 "Decentralization", can occur in the form of either "devolution" or "deconcentration", or both. "Deconcentration" means that a central organization extends its structures as far as cost and logistics permit in order to become less distant from the communities which it serves. The deconcentration potential of agencies responsible for the construction of new works or the supply of equipment is generally quite limited because of constraints related to the high cost and the logistic and physical difficulty of transferring materials and equipment to remote areas, and also because of the lower rate of return of smaller projects; these agencies are often referred to as "hardware" agencies. By contrast "software" agencies, meaning those which provide education, motivation, promotion, surveillance and evaluation, are much easier to decentralize, essentially because they offer staff services rather than equipment or supplies, and therefore they can generally be represented at levels which are closer to the communities.

4.02 There exists an area where deconcentrated government structures are too thin within any single sector to fulfil their mandate of helping the communities, and where "inter-sectoral" action, with several complementary or closely related sectors of the economy contributing to the realization of a common objective, is particularly effective. This area extends from the most deconcentrated "hardware" unit of central government to the level at which "software" providers are available to assist the community. The "area" concept is not exclusively related to the distribution of agglomerations in space; rather it is based on evidence that the grid of administrative structures, particularly those of hardware providers, can usually not cover all community referral needs. It is an area which communities cannot enter because they are at remote locations, where public utilities are inoperative due to cost constraints, and where liaison is required between CWS hardware providers, and software agencies from other sectors where deconcentration is easier, so that the gap between central government and the community can be bridged. "Devolution" means that authority and responsibilities are given by a central institution to a local organization. For this process to be effective, some form of clustered strength must exist; this is found at the level of a "community" or some substitute institutional arrangement which may exist between dispersed or nomadic populations (e.g. nomads' informal agreements for use of water points).

##### Technical agencies

4.03 The central structure dealing with rural water supply and sanitation is usually within a technical government agency, for instance a Ministry of Public Health or a Public Works Department, or often a Ministry of Agriculture or Rural Development. These three types of agencies usually exhibit specific symptoms of weakness: the Ministry of Public Health often does not have the resources required to implement infrastructure works in the larger villages; the Ministry of Public Works often deals with the sector through a public utility, or a national water authority: these are run on commercial bases, and therefore there are limits to their decentralization potential; the Ministry of Agriculture gives a large share of its resources to irrigation, access roads and other projects which have measurable benefits to the economy, often at the expense of rural water supply. Sanitation is neglected, except for actions of Ministries of Health in excreta disposal. A Ministry of Mines and Energy may also play a role, and in this case drinking water supply is often envisaged within the context of the overall water resources sector, in which it has a quantitatively low share.

4.04 Other arms of government which have a significant influence on the sector may be user Ministries, particularly Industry and Agriculture, and any government agency dealing with integrated development. Consumers' representation is also very important. In countries at intermediate stages of development, provincial and municipal structures are usually complete and multisectoral, so that Ministries of Interior or Local Government may play an essential role in community water supply, more rarely in sanitation, except for water-borne sewerage. This institutional framework has proven satisfactory in the case of many developed countries, where it is often supplemented by the intervention of water basin agencies which

regulate all water resources. There is a danger, however, that the sector be governed by political preferences, and have low technical performance and cost efficiency, due to fragmentation, lack of economies of scale, and difficulty in central planning. Fragmentation of resources and responsibilities within a single sector can be a major constraint to development. It is often increased as a result of isolated actions of non-governmental organizations (NGOs); these are usually not adequately represented or coordinated at central level; in many countries they serve the useful purpose of bridging gaps where government cannot provide adequate service.

4.05 The decentralized structure is also often organized on the basis of project units or reinforced by them: these units are small autonomous teams created especially for the purpose of managing a specific programme or project. They tend to proliferate where there is not enough confidence from technical and financial support agencies in the capabilities of national institutions; as a result, the sector becomes excessively fragmented; NGOs sometimes have a similar fragmentation effect. When government finds that project units or NGOs are no longer under control, it tends to reinforce the central agency so that it can play its full role and not be superseded by fragmented interests. This reinforcement is generally costly and often politically difficult. It seems preferable to start from a central structure and reinforce it through projects which it implements by itself, with the help of well controlled project units and NGOs as required. These can subsequently be organized in permanent structures (as programmes expand through replicable projects) which bridge the gap between central agencies and communities.

#### Support agencies

4.06 The main support agencies are usually the Ministries of Planning, Health, Finance, Interior, Community Development and Education. In some countries, however, one of these ministries fulfils in fact a leadership role, often exercised through a national development bank or fund. As planning and support activities may be more important in rural areas than the direct provision of infrastructure, the agency which plans sector development can establish criteria, implement development and monitoring systems, organize sector financing for construction and sometimes operation and maintenance activities, and evaluate results. Although it should normally be limited to support functions, it therefore may play the most important role in the sector.

4.07 With few exceptions, support agencies have little prestige among CWS providers. The importance of their role is however amply demonstrated by numerous examples of failures to actually extend coverage or improve levels of service by CWS agencies alone. In the last fifteen years, sector investments for the provision of hardware (essentially construction of new facilities) have considerably increased in real terms, while resources allocated to operation and maintenance in many cases did not increase, even at current prices. As to the software agencies responsible for health education, promotion of community involvement or water quality surveillance, it was very rare to see their recurrent expenditures increase in support of the development of the CWS sector. In some cases, they did not even have a clear mandate to strengthen this support, which CWS hardware agencies undertook to provide by themselves. As a result, many recently constructed installations fell into disrepair, quantitative improvements were often achieved at the expense of quality and reliability of the service; due to the low level of involvement of communities, hardware agencies often experienced the frustration of providing costly equipment which either did not correspond to a perceived need or could not be adequately maintained. This continues to be one of the most serious constraints to CWS development during the present decade.

4.08 There is usually a need for an agency (or a group of agencies) in charge of providing the software services required to ensure efficiency and effectiveness in the provision and subsequent care of hardware. In order to attract qualified staff, such an agency should offer career development opportunities and have some leverage vis-à-vis conventional public utilities, particularly in terms of planning, decision-making and resources allocation. Ministries of Public Health for instance should be consulted on priorities in planning CWS development, but this is rarely done. Where they could play an

active role in health education, promotion of community involvement and water quality surveillance, their human and financial resources are generally insufficient, and they also have other needs and priorities in other areas of Primary Health Care (PHC), which they sometimes regard as more directly relevant to their mandate than CWS.

#### Coordinating agencies

4.09 Because of sector fragmentation, the role of central coordinating agencies is essential. It was one of the first findings of IDWSSD promoters that before comprehensive sector programmes could be planned, it was necessary to create a structure including representation of all agencies active in water supply and sanitation. This has frequently taken the form of a National Action Committee (NAC), usually with representation of the Ministries of Planning and Health and the technical ministries directly involved in the provision of CWS services. As fragmentation also exists among foreign agencies which have technical and financial support activities in the sector, it was found equally desirable to create another Decade structure, designated as the Technical Support Team (TST). In the overall coordinating structure including NACs and TSTs, the UNDP Resident Representative (RRUNDP) acts as focal point for the IDWSSD.

4.10 In several countries, these arrangements have not yet fulfilled their purpose. While the creation of NACs often proved successful in pooling sector responsibilities and activities, one of the main outcomes being the preparation of National Decade Plans, foreign agencies sometimes did not succeed in their efforts to cooperate within TSTs. The role of the RR/UNDP as focal point is difficult because of numerous and possibly conflicting interests among closely related sectors represented in the NAC, or insufficient dialogue between the NAC and the TST, and because the RRUNDP does not have the official mandate or the resources required to actually coordinate the actions of all foreign agencies. Most Decade Plans require budgets which far exceed anticipated resources, and it is therefore desirable that well programmed actions be presented by one central coordinating agency. The development of NACs should be encouraged, essentially because of the intersectoral character of rural water supply and sanitation.

4.11 A major constraint which has been hampering the work and progress of NACs is that they often do not have well defined legal status and procedures (ref. 2.20); there is also generally no legal or informal arrangement to ensure that decisions made by the NAC will be reflected in the National Plan or in the country programmes of external agencies. This situation can be improved if the NAC is chaired by a representative of the Ministry of Planning rather than by an official of a technical ministry. NACs should also be provided with the resources required for their operation, on a permanent rather than occasional basis. As to the TSTs, they can be useful if effective cooperation can be obtained from all foreign agencies; this, however, is often not the case.

4.12 Although Decade promoters claim the merits of community-based approaches, IDWSSD coordination structures and mechanisms such as the NAC, the TST and other inter-agency or intersectoral arrangements seem to have failed to meet the requirements of communities or even to involve them, and this may be a major reason for their slow progress. A reversal of the present trend may be warranted: rather than trying to reconcile the diverging interests of central agencies, some support could be provided to communities to enable them to better define their priorities, know from which agency they can obtain the required resources, and eventually force coordination to happen at higher levels. This would be more consistent with the so-called "bottom-up" approach, and could eventually result in increased recognition and more effective role of NACs, TSTs and other intersectoral coordinating structures.

#### Common features in the design of CWS structures

4.13 Institutional development patterns which are common to the Decade strategies of most governments correspond to choices based on criteria which the national authorities use to ensure that the institutional arrangements for water supply and sanitation are (i) Decade-oriented, (ii) economically sound, (iii) conveniently integrated, (iv) sufficiently decentralized, (v) easy to implement, (vi) intersectoral, and (vii) feasible. These seven



criteria are described in more detail in Annex III (Country presentations A to E, and common design features in section F).

Criteria for design

- (1) THE STRUCTURE SHOULD BE CONSISTENT WITH THE APPROACHES OF THE DECADE; THESE HAVE IMPLICATIONS ON SECTOR TRANSFERS;
- (ii) THE STRUCTURE SHOULD ALSO BE CONSISTENT WITH SECTOR-SPECIFIC CRITERIA, SUCH AS FULFILMENT OF ESSENTIAL NEEDS, FINANCIAL EQUILIBRIUM OF THE AGENCY, AND CONSERVATION OF THE WATER RESOURCE;
- (iii) AN OPTIMUM LEVEL OF INTEGRATION SHOULD BE FOUND BECAUSE WHILE EXCESSIVE FRAGMENTATION IS A RISK, THE POOLING OF ALL RESOURCES AND RESPONSIBILITIES WITHIN ONE AGENCY MAY HAMPER THE DEVELOPMENT OF MULTI-SECTORAL PROGRAMMES AND THE SUCCESS OF THE INTERSECTORAL APPROACH;
- (iv) AN OPTIMUM LEVEL OF DECENTRALIZATION SHOULD BE FOUND; THIS WILL VARY BETWEEN COUNTRIES AND THE STRENGTH OF DECENTRALIZED UNITS OF OTHER SECTORS OF GOVERNMENT; COUNTRY PROFILES SHOULD BE PREPARED TO GUIDE THE DECISION-MAKER;
- (v) AN OPTIMUM ARRANGEMENT SHOULD BE FOUND TO FACILITATE THE FLOW OF RESOURCES LIKE FUNDS, MANPOWER, MATERIALS AND EQUIPMENT FROM CENTRAL TO LOCAL LEVELS;
- (vi) THE STRUCTURE SHOULD BE SUCH AS TO ALLOW FOR INTEGRATION OF THE WATER SUPPLY AND SANITATION SECTOR WITH OTHER ELEMENTS OF PRIMARY HEALTH CARE, PARTICULARLY IN RURAL AREAS;
- (vii) AN OPTIMUM SOLUTION SHOULD BE FOUND TO FACILITATE THE TRANSITION FROM EXISTING TO NEW OR IMPROVED INSTITUTIONAL ARRANGEMENTS.

## 5. RESOURCES TRANSFERS IN A DECENTRALIZED CWS ADMINISTRATION

### General approach

5.01 Most of the governments which are committed to the attainment of Decade goals tend to promote the development of self-sustained, performance-oriented national institutions responsible for water supply and sanitation; this requires the design of arrangements to bridge the gap between the limited service which conventional public utilities can provide and the IDWSSD humanitarian goals. Because of resources limitations and logistic difficulties, action will often be directed towards minimum required qualitative improvements of traditional supplies and disposal means, in the absence of public hardware service, rather than impressive new installations benefitting only a few; development will also be gradual rather than massive, and it will always be at local level. In this context, the Decade is often referred to as an "incremental, qualitative, and community-based" action plan. Decentralization can be organized in line with this Decade approach. Decisions on mode and extent of decentralization are generally based on experience of country situations as well as on some more general assumptions. There are some limitations to the process as illustrated below.

### Assumptions

5.02 Decentralization takes various forms according to topographic, climatic and demographic conditions, and such physical and human characteristics often play an important role in the need for decentralization and its success.

5.03 While the limits of decentralization are country-specific, some generalization can be drawn from types of population distribution and administrative organization, and it can be assumed that these characteristics predetermine the decentralization potential of water supply and sanitation agencies.

5.04 While central CWS agencies have known limits to their decentralization potential, software providers such as Ministries of Health or Interior are usually more deconcentrated, because they must be located close to the communities. Integration of water supply and sanitation with other elements of PHC can serve as support to the decentralization process of CWS institutions, particularly in rural areas.

5.05 Devolution of authority and responsibility to self-reliant community structures with support from software providers is probably the most effective arrangement to foster development in most countries. It requires important recurrent budget increases.

5.06 In many instances even though decentralization of water supply and sanitation institutions takes place, there is little increase in actual spending for the rural sub-sector. While the attention of Decade promoters is currently focused on rural CWS, financial autonomy should at least be achieved in the urban sub-sector, before decentralization can be effective in extending coverage of rural needs: this requires a strong government commitment.

### Limitations

5.07 Deconcentration of hardware providers is particularly difficult, as the general scarcity of resources is compounded by logistic constraints. There appears to be a limit beyond which construction (if done by the central agency) operation and maintenance unit costs become so high as to offset the potential benefits of the process.

5.08 Some countries have adopted a central Fund arrangement to channel surplus funds from urban to rural areas; however, the possibilities of generating a substantial surplus for cross-subsidies are limited, and the costs of decentralized structures may exceed the amounts transferred.

5.09 As a result of transfer of financial and other resources by cross-subsidy from urban to rural areas, urban consumers' contributions may become excessively high; alternatively, urban tariffs cannot be raised and the water agency may be in danger of losing its financial autonomy.

5.10 In countries which have developed strong local or regional government, municipal or provincial agencies often construct and operate water supply and sanitation installations. Deconcentration may be difficult or useless if the central agency overlaps in some of its roles with strong regional or local agencies.

5.11 In most of the least developed countries, deconcentration is very limited in all sectors, because of lack of support and contact structures such as provided by provincial capitals or regional development centres. This affects the decentralization potential of CWS agencies.

#### Financial aspects

5.12 In rural and urban poor areas of developing countries, it is commonly recognized that internal fund generation from water rates is at best barely sufficient to cover the recurrent costs of the service. In the more privileged districts of the larger cities, tariffs can usually provide the resources required to cover both capital and operation and maintenance costs, and sometimes generate a surplus for service improvement or extension to less favoured areas.

5.13 Investment in CWS may proceed in several ways. It can be by massive lump-sum capital outlays, with lengthy design periods during which new works are mostly utilized at less than full capacity. This is for instance the case when, for lack of an alternative source, distant surface waters must be treated for the supply of a large town, as it is often impracticable to phase the development of a long trunk main or of some elements of a treatment plant. In other situations the investment curve may be smooth, proceeding by small increments, each of which is meant to meet a segment of demand as it grows: this is often the case of groundwater supplies through well fields for neighbouring urban districts or villages.

5.14 A combination of both patterns is found in many instances, particularly in urban water systems which are operated at full capacity. In the common situation of continuing demand growth, the price to pay for such systems to expand further, i.e. the long run marginal cost of water, may be very high in the case of distant polluted surface sources. Groundwater sources will usually be preferred, so that the investment curve can become as exactly adjusted as possible to the demand growth curve. In all cases the difficulty of matching supply and demand increases over time, as demand continues to expand, costs are inflated, and water resources are gradually depleted.

#### Transfer of resources: The revolving fund model

5.15 As there will always be a need for construction of new works and rehabilitation and replacement of existing ones, it is an admitted principle of sound financial management to provide in advance for the corresponding expenditures. In strict accounting terms this means recording allowances for depreciation of fixed assets, so that they can be renewed as needed, and generation of a surplus, usually expressed as a rate of return on fixed assets in operation, which corresponds to the need for expansion of existing systems. Both entries should be calculated as percentages, not of historical values, which are said to be meaningless, but rather of adjusted fixed assets values which are meant to give an indication of current replacement costs.

5.16 Fixed-interest debt-service entries do not need to be revalued, since they correspond to past expenditures, which were made to purchase assets at their historical rather than present value. The foreign exchange component of both principal and interest may, however, be subject to change if exchange rates have varied. Debt-service entries will also have to be adjusted in the case of variable interest rates.

5.17 A revolving fund consists of a fixed amount initially invested, plus the periodic return on this investment. This concept has been found attractive by financial planners in water supply, because of the monopolistic situation of public utilities in this sector, which ensures that all surplus generated can be reinvested in water rather than diverted to other uses, and because revolving funds are viewed as a permanent device allowing for investment financing in phase with growing demand.

5.18 In physical and financial terms, the fund and its proceeds are applied entirely to the construction of new assets for previously unserved populations, which in turn contribute a surplus for the continuation of the expansion. As service is extended to less and less privileged social groups, either its standards must be lowered, or tariff structures should be designed to ensure that the more privileged will pay a growing share of the total proceeds. This is required for the process to perpetuate itself and eventually provide a permanent solution to the demand/supply equation of the water market.

#### Accounting for inflation: Cost as a constraint

5.19 Water is a commodity of public interest, and water supply services should be gradually extended to the entire population. As the utility in charge of the supply is in most cases granted a monopoly, the consumer usually does not have an option to abstain altogether from consuming, or to choose an alternative source of supply. The costing, pricing and marketing rules of the private sector generally do not apply to the supply/demand situation which exists in water supply.

5.20 As a result many governments have adopted the principle that water should be charged for, not according to its value based on what has been spent in the past for its production (a value which would be obtained from free competition on a private market), but rather according to its future production cost. Where the revolving fund concept has been adopted, it is actually the difference between these two values which should represent the input to the fund and which should serve as the initiator of a dynamic process allowing extension of coverage, thereby resulting in the obtention of additional proceeds.

5.21 As a result of accounting for inflation and expansion needs, the cost of water may become so high as to defeat the purpose for which renewal and extension funds are usually created. On the other hand the cash flow situation of the utility, i.e. its ability to meet its debt-service and other obligations, is very much improved, and the financial agencies on which the utility depends for its development, will therefore give preference to a costing/pricing approach based on future costs, rather than to the conventional historical accounting approach.

#### Demand/Supply limitations: Zero growth as a constraint

5.22 Revolving fund arrangements such as outlined above can meet their purpose only if growth occurs at every stage of the sector's development process. The assumptions that demand would continuously grow, and/or water rates could easily be increased, have led financial planners to conclude that surplus funds could be generated, in a decreasing order of magnitude, in all sizes of communities even at the most remote level.

5.23 These assumptions are based on the recognition that the price elasticity of demand for essential services such as water is low for large industrial or wealthy domestic consumers, and virtually nil at the level at which consumption is barely equivalent to basic needs. This assessment is probably correct within limits; however, it applies to individual rather than collective demand, i.e. tariff increases may not have much effect on the demand of one specific industry, or one individual household.

5.24 This type of rationale is probably totally irrelevant when appraising the growth potential in terms of demand and income of a community, which is typically the service area of a water supply system. It is often wrong to assume that large industries and wealthy residential areas have the same growth potential as for instance the urban slums; the opposite situation is observed in many large cities of the developing world (ref. 2.28).

5.25 Large consumptions are also limited as a result of constraints in the supply. Service is often intermittent, high leakage is the rule. Large consumers generally will not ration their consumption, but they will endeavour to build their own water installations, rather than relying on public supplies. Capacity limitations may well be the most important constraining factor, as in most developing countries urban systems are working at full capacity, and resources are lacking to extend existing installations. The consumption pattern of large consumers, who could generate a surplus as an input to a revolving fund, is often a pattern of zero growth. Cross-subsidies to rural areas are therefore limited; besides, they are subject to the requirement that at least the urban subsector should achieve financial autonomy.

5.26 In urban areas, it is assumed that cost will decrease as the number of beneficiaries increases within each system. Again this is only true of the rare systems which operate at less than full capacity. Where a lump-sum capital investment is required for extension, this will be designed for a lengthy period of time, and even though the number of beneficiaries increases, per capita costs may not decrease. They may even go up as a result of under-utilization of the new or extended facilities.

5.27 By contrast, in rural areas it is assumed that as the number of beneficiaries per system decreases, overall costs also decrease, so that even per capita costs remain low, because system capacity can be calculated accurately for small communities, appropriate low cost technology can be adopted, and expansion can be tailored to the mode of growth of villages. Provided some form of income could be generated, there would therefore be a surplus available at least in medium-size towns and large villages, for service extension to more dispersed populations.

5.28 This is generally not the case. Because of limitations in water resources, economic stagnation and migration towards large cities, the demand for drinking water in small towns and villages may become stagnant or decrease. There are also competing water demands, i.e. for irrigation, cattle and other non-domestic uses, and it has been shown in many instances that where abundant quantities of water were provided to rural settlements, human consumption did not increase, but there was a revival of agricultural activities which had been discontinued during long periods of drought.

5.29 The zero growth assumption means that rural water demand may not grow beyond the level of minimum needs, at least for drinking and domestic uses, i.e. for the type of use and service for which people are more prepared to pay, and urban water demand grows in such a manner that any surplus income is at best sufficient to cover urban expansion and replacement needs. Therefore internal funds generation within the sector, as development progresses from urban to rural areas, may be assumed to decrease from a very limited surplus in urban areas, not to a minimum level but to zero level in rural areas, so that the revolving fund model is restricted to very narrow limits.

#### Transfer of resources: Institutions as constraints

5.30 As service is extended to smaller agglomerations, investment costs may in some cases decrease, but important additional expenditures are incurred in the transfer of goods and services; these are often recorded as operational costs, although they are actually related to investment. More serious is the recurrent deficit on operation and maintenance, which tends to increase as the number of beneficiaries of the service decreases. As a result, a centrally-managed water supply authority or agency providing satisfactory service to urban areas may be reluctant to extend its activities to rural agglomerations, since this will often result in lowering the utility's financial performance.

5.31 In order to alleviate this constraint, governments take a growing share in management responsibilities, and endeavour to bring public utilities as close as possible to the smaller communities. In this deconcentration process, cost and logistic issues, and difficulties in human resources development, become gradually more binding. Eventually there are limits to the deconcentration potential of any sector agency. These are the limits

within which revolving funds are operated. Their proceeds will therefore be at best returned to their origin, i.e. to urban water supply, the needs of which are practically never solved in terms of rehabilitation and extension. At worst, the proceeds of the funds may be transferred to other sectors.

5.32 The above suggests that the operation of a revolving fund to extend coverage in water supply requires not only constant generation of resources at all levels, but also a delivery system in all areas. One of the main short-comings of the model is that the proceeds of the fund, which are to be channeled to smaller communities, may be inferior to the cost of extending services to these communities.

#### Positive aspects

5.33 Where they are financially feasible, revolving funds have considerable benefits, essentially because they force the sector into a disciplined and reliable organizational framework. They are also well adapted to the development characteristics of domestic water supply, which has lengthy design periods and considerable intersectoral impact. If the costs and benefits of water supply services are "shadow-priced" i.e. given values which reflect their impact on the economy as a whole rather than on a single sector or public utility, and if revolving funds are envisaged in their role of supporting the long-term development, not only of water supply, but also of the water industry in general, these funds may be regarded as highly justified in economic terms. This, however, depends on the extent to which governments are committed to improvements in CWS financial performance, water demand continues to grow and to be met by existing as well as new supplies, institutions are created or expanded to support the funds and channel their proceeds, and all surplus income in the sector is earmarked to ensure that these funds do revolve.

#### Cost recovery

5.34 Countries with different political and economic systems and at various levels of development have different views of the tariff issue, which in water supply is usually quite controversial. Such views are reflected in the determination of average tariffs, which in some cases differ from average costs. Differential tariff structures are widely used for the implementation of rational pricing policies. In the context of a general increase in water demand, the introduction by most water utilities of inflation accounting for fixed assets valuation, and the recognition of the relevance of long-run marginal costing and pricing to the attainment of economic efficiency objectives, have led to changes in the common understanding of the value of water, and generally resulted in substantial increases of average water tariffs during the last decade. The main purpose of differential tariff structures is to alleviate the burden of such increases for those who must have water at low cost, while ensuring that optimum use is made of the scarce water resource and that the financial situation of the water utility is not compromised.

#### Design of tariff structures

5.35 As service should not be extended to the less privileged at the expense of an overall deterioration of the supply, tariff structures should be related to cost structures to ensure that all of the utility's needs are met, and that consumption and expansion are either encouraged or limited as warranted; they should also be based on a common yardstick, e.g., consumption, to measure the benefits which various types of consumers derive from the service.

5.36 Tariff structures are difficult to implement without metering, which often results in cumbersome reading, billing and collection procedures, particularly in the case of cross-subsidized structures involving several tariff blocks. Many countries have retained the practice of flat rates, either because the initial and recurrent costs of metering are high, or often because of the concern of water utilities to avoid administrative complexity. However, experience shows that both production and consumption meters are required if accounting and statistical systems are designed to actually reflect differentials in cost by source and tariff by beneficiary.

5.37 Average water rates correspond to average income per unit sold, resulting from differential tariffs applied to various categories of consumers. They are usually based on criteria consistent with three main objectives: (i) sound management of the resource: waste and misuse should be discouraged, and every effort should be made to postpone investment in new works, where its benefit to the national economy does not exceed its cost; (ii) financial equilibrium of the utility: the average selling price of water should be set as near as possible to its average cost price; (iii) satisfaction of the health, social and economic needs of the entire population at a price all can afford. In order to meet these objectives, differential tariff structures are often designed so that large industrial, commercial and municipal consumers pay the long-run marginal (economic) cost of water (ref. 2.30, 2.31, 2.32), and smaller domestic consumers pay the average (financial) cost; the resulting income to the utility is usually enough to compensate for some loss in revenue from other consumers' categories; these pay lifeline rates not exceeding about 5% of household income, which for domestic consumption is regarded as an acceptable share; tariffs can also be kept low for institutional use (e.g., hospitals and schools) where this is regarded as economically or socially essential.

#### A common yardstick

5.38 In order to apportion the burden of tariff increases between various consumers' categories, an instrument is needed to measure differences in income, property, consumption or location. While income or property may be valid indicators, their use is often discouraged because they are not measurable in volumes and they require complex evaluation procedures which can always be challenged. With adequate metering, tariff structures can be designed on the basis of volumes; this provides the consumer with information and motivation to decrease consumption; long-run marginal costing also has an effect on large consumptions: these now tend to be penalized rather than encouraged, especially in developing countries. As to location, the practice of charging differential tariffs according to differences in cost between areas is quite common. In developing countries, where water often represents a large share of the household budget, tariff differentials based on location tend to be discouraged, as they may result in penalization of those consumers who are located in areas where the supply is difficult and costly.

#### Free water: A political issue

5.39 The erroneous concept of free water is still in use in many countries, with politicians advocating equity and philosophers arguing that human rights to water were recognized in the most ancient cultures and religions. Some countries also subsidize water for public use, so that governments have free water, then compensate by subsidies for revenue lost by public utilities. Water as a public commodity should be available to all. In most developing countries, where full coverage is far from attained, the supply of free water to any given consumer implies that the service will not be extended to others who have equal right to it.

#### Measures to increase revenue

5.40 Where the concept of free water has been rejected, tariff structures are designed to mobilize resources from all those who benefit from the service. It is therefore important to determine where exactly these resources are, and whether they are sufficient in total to assure that revenues cover costs, after these have been optimized (e.g. labour costs can generally be reduced through well-conceived HRD). Changes in fiscal or technical policies are usually costly and irreversible, and they should therefore be directed at key factors which affect income.

5.41 Prior to increasing tariffs, most water utilities try to improve the systems which they operate. Water consumption through illegal connections is important in many cases. Unaccounted-for water is often high, of 20 to 30% in developed countries and in excess of 50% in many developing countries. A substantial portion of this is due to leakage, which may result in incapacity to meet the demand; where supplies are intermittent, consumers may not accept tariff increases without matching service improvements. The amounts of water lost at

the consumers' premises are also often substantial. Intensive leak-detection and repair programmes may result in postponement of new construction works, improve consumers' satisfaction and increase revenue. Interventions in metering, billing and collection are also important, as deficiencies in these areas account for substantial revenue losses.

5.42 An important contributor to revenue is the low-income/low-consumption category, which in developing countries often represents the largest segment of the population; service is at best by social connections, and more commonly through public standposts. It is often assumed that water at the standpost should be free, with large consumers compensating for loss in revenue. This is generally not feasible in the many countries where hundreds of thousands of consumers are either served by standposts, or not served, while only a few hundreds of those with private connections can be regarded as large consumers. In some cases, tap committees or local authorities collect fees to be paid to the water utility. Such fees however are often too small, and collection difficulties result in important arrears.

5.43 A large share of the sector's income goes to water vendors: the less privileged consumers who do not even have standpost service often pay ten times as much for water as the clients who enjoy the benefit of a private house connection. As urban networks are being extended to less privileged areas, a new distribution, billing and collection system is being tried in some countries; it consists essentially in the institutionalization of water vendors, who are provided with a private metered connection supplying a public standpost. A concession agreement is made between the utility and the vendor, with covenants stipulating the concessionaire's maximum sale price and other obligations. While consumers pay much less than they would to vendors, the concessionaire can be guaranteed a profit at least equivalent to the minimum salary in the area.

5.44 Other important contributors include large and intermediate consumers. Since a substantial part of the tariff burden can be absorbed by large consumers, it is essential for a water utility to ensure that all large meters are in working order; water rights and private supplies should also be checked. As regards intermediate consumers, sales and revenue projections are usually made with caution, as demand can react in various ways to changes in price: while consumption may decrease in some cases, more important is the tendency to disconnect or refuse new connections. This is very common to the case of house-owners who must connect simultaneously to water supply and waterborne sewerage systems, while they have already constructed, at their own expense, alternative sources of supply (such as shallow wells) and installations for disposal (such as septic tanks). Those who must rent property from these house-owners are often deprived of the public service; in some countries, social connections programmes have been implemented for the benefit of this consumers' category.

#### Social and public health aspects

5.45 Well-designed tariff structures have three major aspects and benefits: (i) their social component allows for extension of the service to the less privileged; (ii) their progressive aspect discourages excess use, waste and misuse by large consumers; (iii) as they rely on average tariffs which cover average costs, including a rate of return to enable water utilities to cope with increases in water demand, they result both in financial equilibrium of the utilities and in gradual extension of the service as demand increases. Thus, their overall benefits in terms of public health and social welfare are threefold: (i) they help in providing equal access to a commodity which is essential to health; (ii) they help in the protection and conservation of a scarce resource of high economic value, thereby providing for the sharing of its benefits by a larger part of the population; (iii) they help in maintaining the continuity of the service, and expanding it to match increases in population and water demand.



Other resource transfers

5.46 Although some of the mechanisms and methods previously described, such as revolving funds or differential tariffs, apply strictly to the transfer of financial resources, they are indirectly related to goods and services which can be mobilized at decentralized levels for service to the communities. Motivated and qualified staff are probably the most important of these resources, and they pose numerous problems in terms of transfer from central agencies to remote rural locations. It has become a common practice to assign qualified personnel to a project site, which it leaves to return to the central agency after construction has been completed. There is a need to provide for more permanent structures which can offer career opportunities, and to motivate qualified staff to face the challenge of leaving their comfortable and rewarding positions and accept the less rewarding tasks of operation and maintenance and provision of software in rural areas. Major changes in orientation of institutional development and manpower policies are likely to be required to achieve this objective. The general issue of human resources development is dealt with in Section 8 of this paper, which describes in particular the special software needs of Decade-oriented institutions and some methods to fulfill these needs.

## 6. COORDINATION (INTERSECTORAL COOPERATION)

### The New Look

6.01 Traditionally, CWS was regarded as a component of the infrastructure sector; it was therefore of the sole competence of technical ministries. In the Decade context, water tomorrow should be as safe in the most remote village, as in the centres of capital cities. Clearly this goal cannot be achieved through conventional methods; also, to be valid, it should have recognized public health implications. The Decade, therefore, corresponds to a new rationale, whereby public health plays a very important role in CWS, and the institutions of the health sector should be developed to cope with this mandate.

### OMFL implications

6.02 This evolution has resulted in changes in organizational, managerial, financial and legal (OMFL) concerns, concepts and patterns. In terms of organization, as service is extended to smaller agglomerations, community structures become increasingly cumbersome for a single sector, as they require excessive financial and manpower resources; intersectoral approaches are necessary to make sector community schemes feasible. The same applies in terms of management, as it becomes an operational requirement to pool resources from several sectors in order to improve the situation in CWS.

6.03 In terms of finance, the Decade and other Health for All programmes are based on the recognition that investment budgets are often too limited to achieve total coverage and equal access goals in a short time. This implies that recurrent budgets are now a matter of increased concern: "software" (surveillance, maintenance) is increasingly superseding "hardware" (construction). Where the provision of new works is required, it should be conceived as a sequence of small incremental improvements; where old installations cause problems, emphasis is placed on rehabilitation rather than renewal.

6.04 The legal provisions concerning the sector are also subject to change. Although adequate quantities of water solve problems, qualitative improvements should be the main thrust of the Decade, and this requires adequate regulations as well as penalties to enforce them. There is also a tendency on the part of governments to restrict water rights where they are a constraint to sector development. Water allocation has often been a privilege of Ministries of Agriculture or Natural Resources, with a strong bias towards irrigation needs; there is currently a tendency to restore the priority of drinking water supply.

6.05 In this context, the coincidence of the Drinking Water Supply and Sanitation Decade and the worldwide water resources assessment resolved at Mar del Plata is important. It provides the entire Water sector with an opportunity to draw additional resources. The unity and importance of community water supply in the overall institutional framework of Water are gradually recognized; the general reinforcement of the water resources sector should be conducive to improvements of the institutional framework in drinking water supply and sanitation.

### Qualitative, incremental and community-based approaches

6.06 Since the Decade aims at the provision to all of a socially relevant service through a community-based approach, it requires: (i) that the service correspond to an expressed need which is for a specific qualitative level; (ii) that the product be at a cost which the individual and the community can afford; and (iii) that the delivery structures and mechanisms be acceptable to the community, so as to ensure equal involvement and access to all.

6.07 With such a change in sector profile, the Decade appears as a very economic programme of intersectoral action for health: it relies on (i) qualitative improvements rather than expensive hardware, (ii) gradual combined intersectoral action rather than massive lump-sum investment in one sector, and (iii) self-reliance rather than costly decentralized structures.

#### Intersectoral implications

6.08 Requirement (i) that the Decade be "qualitative" implies that traditional CWS providers are now associated with other structures. Previously the water industry alone provided plant and operators; communities were passive recipients. The Decade requires public as well as private and communal contributions, and interplay of several sectors of the economy, i.e. quality control, promotion and surveillance by Health agencies, Education for effective community participation, involvement of local Industry, and of Agriculture in the context of integrated projects, promotion by agencies of Local Government, and coordination with all HFA programmes.

6.09 Requirement (ii) that the Decade be "incremental" is of major economic importance: whereas lump-sum investment in one sector, particularly water, would result in under-utilization and high cost, in the Decade context the investment curve is smooth and has a low foreign exchange component and important intersectoral contributions: this results in an overall low present worth of future expenditures.

6.10 Requirement (iii) that the Decade be "community-based" results in devolution, which consists in vesting the community with most CWS responsibilities, as the limits of central planning and deconcentration are recognized. At community level, CWS draws resources from other sectors, on which it also has effects. Sector structures are too centralized to be used at first referral level, where the intervention of such deconcentrated agencies as Public Health or Local Government is required.

#### Evaluation of intersectoral coordination and impact

6.11 Because they are labour intensive, they can be phased, and they mobilize national resources from sectors where they may be under-employed, Decade projects probably have values to the individual and the economy which are higher than those reflected by market prices or sector accounts, and it seems essential to devote more research on criteria for their evaluation.

7. COMMUNITY MOTIVATION AND INVOLVEMENTLimitations of central models

7.01 The urban subsector is managed by public utilities or other centralized agencies, often on a commercial basis; the main instrument used to increase consumers' contributions is the tariff structure. In rural areas, where water tariffs and institutions capable of enforcing them are often non-existent, contributions can be obtained in cash, kind or voluntary labour. This requires that the communities be involved in planning and programming, in order to ensure their effective participation in construction, operation and rational utilization of CWS facilities. For this approach to be effective, it should be developed within a specific institutional framework providing for involvement of the most motivated and capable individuals or segments of the community, with adequate support from various levels of government, and in some cases from NGO's.

7.02 The central model, usually based on moderately deconcentrated structures of public works departments or national water authorities, with public health agencies playing a limited, essentially qualitative role, has been the most widely adopted in developing countries; where geographic, demographic and economic conditions warrant its use, deconcentration can be effective in extending coverage of rural needs. By contrast, in developed countries which have achieved total coverage during the last fifty years, the model of deconcentration from a national focal point has often been supplemented by devolution of authority and responsibility to communities and individual householders, with support from Health agencies in surveillance.

7.03 The communities themselves often play a lesser role in CWS development than the individual householders. In North America for instance, there are thousands of small "well and septic tank" communities, where the quality of the water and the level of in-house service are matters of individual concern. Water quality surveillance is upon request rather than on a routine basis. Plumbing as well as waste disposal installations are usually in conformity with official norms and codes (financing agencies will require that standards be met).

7.04 The responsibility of individual householders to take care of their own water supply and waste disposal needs, with exceptional rather than routine support from central agencies, is often ignored, and there is a general lack of institutions which could encourage, persuade, advise and support householders in the acceptance of this responsibility and of its correlates of construction and maintenance of CWS facilities.

7.05 During emergency relief operations, such as those which followed the Sahel droughts of the last Decade, new technology was often introduced without prior consultation with representatives of rural communities, and in many instances the installations were not used or were rapidly damaged. Also local acceptance was often motivated by hunger rather than thirst, and the outcome of the relief operation could be an increase in the cattle population, which tended to aggravate the human consequences of the drought.

7.06 In the case of isolated settlements or small villages and hamlets totally unserved, informal structures are constituted by families or groups, with women and children carrying water from distant sources to the household; in few instances, members of the community organize the surveillance and protection of wells or streams used by humans and cattle. Where a central water source exists, the institution becomes more formalized because the users are individually and collectively concerned that the source should remain perennial, accessible to all, and free from pollution. This requires that a community worker be trained to operate and maintain the installations and adequately compensated for this work. This requirement, and the need for spare parts to repair damaged equipment, were often overlooked in emergency relief programmes, with the result that only a small percentage of new works were in working order, less than a year after they had been installed.

### Rationale for community-based structures

7.07 When dealing with water, ignorance, superstition, fear for self and cost of intervention are major factors which account for the fact that most people prefer to rely on others. One of the major problems in designing institutional arrangements for CWS is to determine which social groups can be more instrumental in implementing required improvements, and whether these social groups and these improvements will be acceptable to the community. The approach consists of learning more about what people do to satisfy their drinking water supply and sanitation needs, what groups are formed, which institutions represent these groups, what are some of the achievements and the constraints of these groups and institutions.

7.08 Although a wide variety of structural patterns emerge from some one hundred countries on which reliable data are available, the most common are centralization of sector institutions on the one hand, and community self-reliance on the other. Some governments reinforce centralized agencies because they have been successful in achieving assigned objectives. Others provide a large degree of autonomy to deconcentrated units such as regional water boards or river basin agencies.

7.09 In some countries, community participation is strongly enhanced while the institutional framework remains centralized; in others, efforts are made by the central government to rationalize community work on a technical basis, while leaving a large degree of autonomy to local authorities. In many countries, new rural water supply or sanitation projects require the creation of specialized project units; as previously indicated, this is often encouraged by financing agencies, and may result in excessive sector fragmentation.

7.10 Only a few countries are deliberately departing from the centralized model, and promoting sector development through their least technical and most deconcentrated agencies, which in most cases are the Ministry of Interior or Local Government, the Ministry of Health, the Ministry of Education and in some instances the Ministry of Rural or Community Development; these structures are usually in contact with the most remote agglomerations, but they often have few resources to deal with water supply and sanitation programmes at that level.

7.11 Individual behaviour towards water and sanitation needs, individual motivations to demand or accept public services to fulfill such needs, and the way in which individuals organize in the community to plan, design, build, operate and maintain water supply and sanitation works, as well as to finance such works and regulate their use, have therefore become major themes in the design of structures for Decade work, especially in rural areas; thus a "participatory" approach, based on individual and community needs and means, is proposed as an addition or even an alternative to the central model, to extend coverage beyond the limits set on decentralization by cost, scarcity of human resources and logistic constraints.

### Features of participatory programmes

7.12 Community-based approaches require time for sociological analysis, and for promotion; it is conceivable that the most useful projects would be those which could be extended from communities to regions, hence the concept of replicability as an essential element in the design of structures. Technical considerations also are often of paramount importance in CWS, together with their political and financial correlates which can almost always be traced to the individual and his willingness to rely on the community, but only in so far as other elements of his welfare are not threatened.

7.13 Ignorance, fear and passive resistance may be more serious obstacles to Decade development than scarce resources would; individual health education at all levels may be as important as any other form of promotion of community participation. It is, therefore, essential that the design of institutional arrangements for rural water supply include support structures at various referral levels. The degree to which such support structures, which would invariably stem from central or regional government authorities, could be

deconcentrated, varies in direct proportion of the importance of their software elements; structures which support the provision of software, like for instance health education or water quality surveillance, have a greater deconcentration potential than construction companies; one of the difficulties is to identify the areas between the most deconcentrated institutions and the largest community structures, and to bridge the gap so that community action can be adequately supported. Annex VIII provides some indications on structures which can be used at first-referral level, e.g. project units, intersectoral groups, local interest groups and NGO's.

#### The two ends of the spectrum

7.14 Devolution, deconcentration, intersectoral and community-based approaches have been regarded in previous sections as ways to cover the entire spectrum of a country's needs, from the central level to the most remote agglomeration. Constraints related to weakness or in some cases absence of a central agency to deal with CWS have not been dealt with, as the subject is abundantly documented elsewhere. They are however of obvious importance, since there cannot exist a solar system without sun.

7.15 At the other end of the spectrum, dispersed populations, which represent 60% to 95% of some of the LDC's, provide the most difficult challenge and perhaps the best opportunity for intersectoral action for health. These populations often cannot be well organized in communities. Instead of being incorporated in the overall rural world, they are often regarded as a distinct major category, probably the most difficult and costly to serve in conventional terms.

7.16 Constraints due to very dispersed habitat sometimes do not receive adequate attention, probably because such habitat tends to exist where there is coincidence of abundant water and rich arable land, and the resulting high average population densities are deceiving. In deserts and forests, which are often the subject of more concern, habitat is generally more concentrated and the operation of CWS services may therefore be easier.

7.17 In dispersed habitat conditions, the prevalence of water-related diseases may be high, and their endemic character may result in permanent physical under-development of the population. However, as the risk of major epidemic outbreaks is low as compared to that in larger agglomerations, the public health justification of costly government interventions and permanent structures is often questioned, as they may result in depriving of scarce resources those population groups which are more visibly at risk.

7.18 Improvements required for small communities and dispersed habitat are generally not of the same type as those which are characteristic of urban areas, particularly in water supply. "Lumpiness", which corresponds to the necessity to invest large sums of money at one time for very long design periods, and in costly operation at less than full capacity, can be reduced to a minimum in rural water supply and sanitation, which usually proceeds by small increments and has a smooth investment curve. This has important consequences as regards socio-economic changes and institutional structures, which generally need not to be as top-heavy in rural water supply and sanitation as they would be for urban areas, thereby resulting in less reliance on central models.

7.19 In many countries, the concept of public infrastructure service, as applied to water and sanitation, is currently being revised, with more emphasis placed on health education and promotion of self-help than on direct provision of equipment: this is however subject to technical limitations, e.g. boreholes have to be drilled where hand-dug wells are unpractical. Where equipment can be provided, it should ideally require no further intervention from the public services, and this constitutes a difficult challenge in terms of technological innovation.

7.20 Where adapted technology is not available to cope with the needs of regions with dispersed populations, traditional family practices will continue: support structures are required to monitor existing water supply and sanitation facilities, which have been used for

a long time, and improve them as needed, rather than provide new equipment on a systematic basis. In this context, the provision of software becomes more important than that of hardware, and the qualitative improvement aspects of the Decade, as well as its total coverage goal, have their full meaning.

7.21 These qualitative, incremental and community-based approaches of the Decade are often perceived differently at each end of the spectrum. At central level, despite the efforts of IDWSSD promoters, there sometimes persist a preference for provision of hardware and lump-sum investment, and some resistance to vesting communities with sector responsibilities. At community level, reliance on central government has often been perpetuated by a long tradition. Both ends should agree on ways and means to overcome the difficulties encountered in previous attempts to bridge the gap between central and local structures<sup>1</sup>, and Decade approaches may well prove effective in this context.

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<sup>1</sup> Annex V provides examples of referral agencies and mechanisms for resources transfers.

8. HUMAN RESOURCES DEVELOPMENT (HRD)

Present situation

8.01 The IDWSSD has focussed attention on worldwide deficiencies in coverage. Plans call for substantial expansions, particularly to improve service to the heretofore neglected rural and urban poor population groups. Lack of facilities is not the only deficiency in the sector. Operation and maintenance are often neglected. The result is that many urban systems provide inadequate service with many interruptions and rural facilities are frequently out of order.

8.02 The Decade therefore has to focus as much or more on improving operation and maintenance as on new investment, to ensure that funds spent in support of CWS development are not wasted; if facilities are not properly maintained, increases in number of installations will be reflected in satisfactory statistical results without, however, improving service significantly.

Reasons for deficiencies

8.03 Technologies are often selected without due regard to the ability of intended beneficiaries to meet operation and maintenance requirements in the long term; lack of spare parts is a frequent problem. The most important issue, however, is related to the insufficient number of adequately trained and motivated staff.

8.04 Inadequate staffing has many causes, some of which are not under the control of CWS organizations. These institutions are generally under government ministries. As a consequence, salaries are controlled, either directly by making them subject to civil service regulations, or indirectly by restricting water rates increases and thus income available for personnel expenditures. Because governments often keep tariffs and wages low in an effort to reduce inflation, salaries in CWS agencies often lag far behind those paid to qualified staff in the private sector.

8.05 Other factors discouraging competent staff from remaining with CWS organizations are politically motivated promotional and recruitment policies which affect particularly middle and upper management. Also, unfavourable local economic conditions may encourage specialized staff to seek employment beyond national boundaries in search of monetary rewards and professional satisfaction. As a result, organizations are often left with staff not qualified for employment elsewhere, and only a few motivated individuals who remain despite the lack of real career opportunities.

Principles

8.06 Training of staff is often provided in the context of project development and implementation. Planners are supposed to acquire the necessary skills as part of project preparation teams whose primary interest is in technical work, even when some of their members have skills as trainers. Operation and maintenance personnel are expected to be trained in a short time after the facilities have been commissioned.

8.07 Training alone cannot solve all problems. Permanent improvements require actions at different levels as part of a human resource development effort. The most important of these actions are:

- adoption of a government policy of clear allocation of responsibility and adequate management authority to the organization responsible for selection, remuneration and promotion of staff;
- adoption by CWS agencies of personnel policies which reward merit, keep remuneration competitive and provide career development opportunities;



- continuing staff development with training programmes oriented to qualify staff for promotion to higher levels and thereby compensate for inevitable loss of trained personnel to other sectors or industries;
- particularly important for Decade-oriented organizations are careerpaths which give opportunities to those professionals active in the areas of community participation and operation and maintenance equal to those customarily available to those responsible for construction.

#### Special needs of Decade-oriented institutions<sup>(1)</sup>

8.08 The focus on underserved populations implies the need for planners to consider the development of a workforce including many new types of skilled and less skilled people. It is important to explore the human potential in underserved rural and urban populations, such as educated school leavers, who in many countries constitute a sizeable underused resource. During slack seasons, many people in rural communities may be available to participate in the development of sanitation facilities and improved water supplies for their own communities.

8.09 Alternatives for developing and utilizing community potential should be assessed and set out in a plan. A major problem is the establishment of functional and social relationships between community participants and government-paid workers. First comes the task of motivating community members to participate in the Decade by convincing them that safe water and adequate sanitation facilities for members of their families and the community at large are by themselves the main reward for their participation, and cannot anyway be otherwise provided. The plan should make provision for a promotional campaign, initially among community leaders, that will enable people to appreciate the value of safe drinking water and appropriate sanitation, help them to understand the role they can play, and encourage their active participation.

8.10 To date, far too little health education has been provided for communities most in need. Plans should take into account the important task of developing good teaching staff for a variety of education and training programmes, including staff concerned with the training of different categories of health workers, those involved in the training of development workers, those in general education programmes, and those in literacy programmes for adults.

8.11 Women's roles in water and sanitation are key, and thus local women's organizations are especially important community-based resources. These organizations exist as part of the traditional settings, and are concerned with many of the basic community and family welfare activities. They naturally link water and sanitation with primary health care and other development actions, as their priorities are seen as part of their whole life situation, rather than as separate sectoral programmes. Women's organizations can have an impact on the social and behavioural changes required, but they face constraints of inadequate education and training, as well as limited access to external support. Consideration should also be given to the skills and funds required to train people, which include teachers, teaching/learning materials, buildings, equipment, supplies, stipends, transport, etc. Plans should anticipate the use of all available resources, including facilities and staff of primary health care units, of water and sanitation agencies, and of educational, training and management programmes.

#### Planning HRD

8.12 HRD plans are often confined to proposed training activities, with little concern as to how, when, where, and even whether the knowledge and skills acquired will be used for the benefit of the society which provided the training. Such lack of concern is by no means confined to the water and sanitation sector. It can result in the unemployment, underemployment, or malemployment of the persons trained or in their migration to other countries. This in turn represents a waste of the society's money, and adds to a country's social and economic burden.

(1) The end of section 8. is abstracted from document EHE 82.35, Basic Strategy Document on Human Resources Development, April 1982.

8.13 Short-term and long-term planning should address the capacity of the CWS sector to provide jobs commensurate with the new knowledge and skills which better training creates. The content of training programmes should also reflect the requirements of the jobs to be filled. This means that the development of policies, plans and budgetary allocations for adequate staffing should precede the formulation of training plans.

8.14 Planning for HRD needs to be improved in many countries. This may be due to ineffective or non-existent communication between institutions responsible for services and those responsible for training. In the water and sanitation sector, service agencies tend to focus on hardware, with little thought for the people needed to use it properly. Similarly, training institutions often show little concern as to whether the service area needs or can absorb the people being trained.

8.15 Coordination between the two sets of institutions is imperative. This may call for a planning body in which both are represented, or for direct participation of training institutions in field operations. Although training institutions will rarely take part in major coverage programmes, they should nevertheless broaden their sectoral experience by associating their staff with pilot field work. Because of the important role that many of the users of water and sanitation facilities should play in the construction, operation, maintenance, and protection of facilities, the interests of the consumers should also be represented in the planning body. Within the community, women play an important role in water and sanitation. The extent to which they know about, use, and promote hygienic practices largely conditions the state of health of family members. Women should be represented in the planning body.

#### Programme contents

8.16 To heighten community awareness of water supply and sanitation needs and related health issues, Decade projects will have to penetrate many kinds of educational institutions and programmes serving all ages and social levels. This is particularly urgent for people who need specific job skills in order to achieve Decade targets. Programmes should be designed to be of direct operational relevance to the task to be performed. Many institutional facilities will need to be mobilized. Long-term Decade HRD programmes will support the further development of graduate and post-graduate education in relevant disciplines.

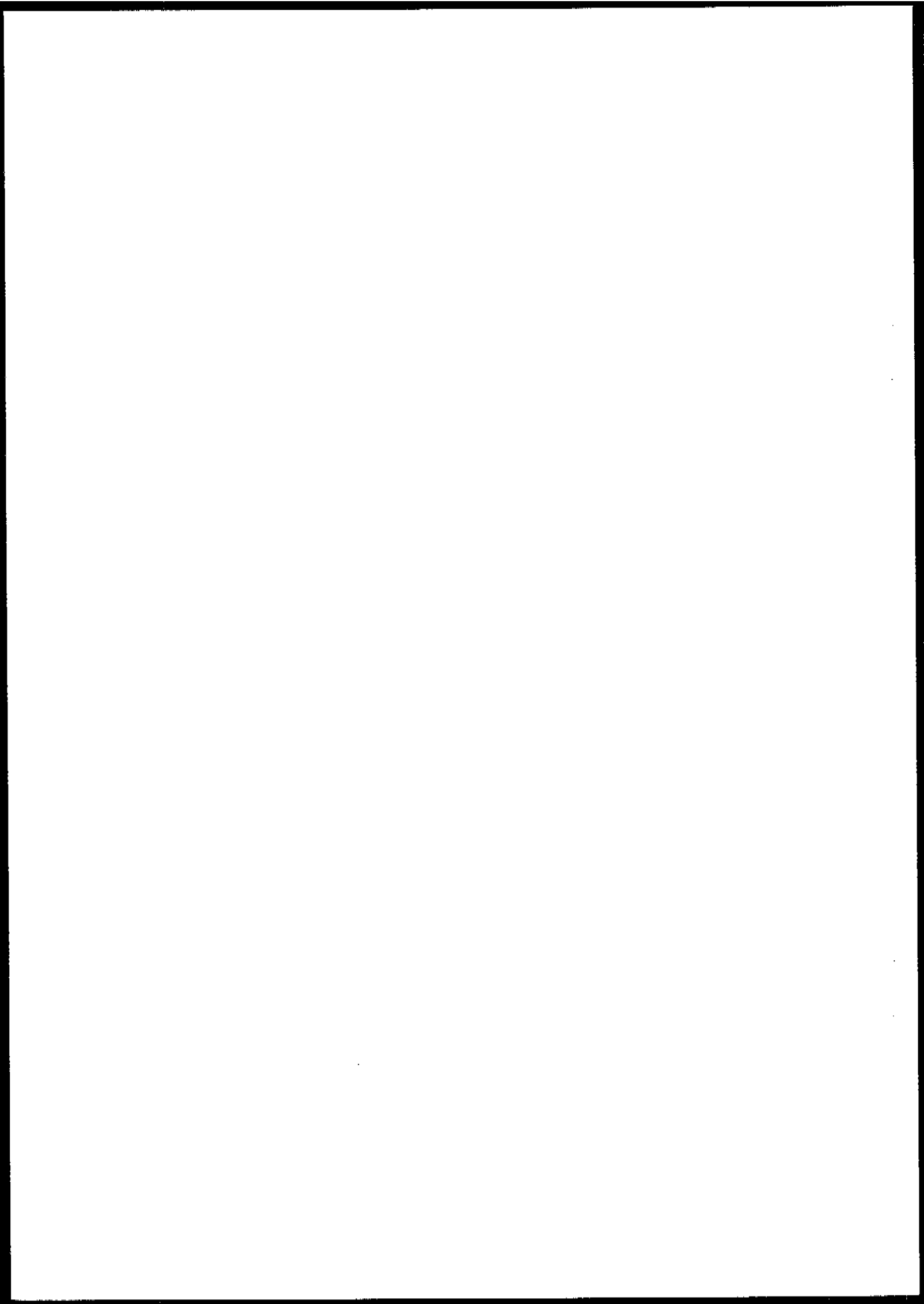
8.17 Initial priority programmes to meet urgent needs are likely to include:

- short high level courses in specialized technical areas and management;
- technical training programmes for sub-graduate skills;
- vocational programmes for trade skills (carpenters, masons, etc);
- non-formal and community-based programmes for co-operative, extension and volunteer workers;
- schools for basic education leading to paid or voluntary community sectoral involvement, and for basic health and hygiene education;
- formal programmes of water supply and sanitation sector institutions for teaching pre-service or in-service groups of employees the skills associated with specific sectoral needs.

#### Institutional requirements

8.18 The effective organization and operation of a system for the planning, production, and management of human resources for the Decade transcends the authority and resources of any one institution, ministry, or sector in a country and requires an intersectoral and multi-disciplinary approach simultaneously designed to maximize community involvement.

8.19 In most countries, responsibilities for Decade HRD are likely to continue to be shared among different ministries and other public and private entities. This highlights the need for a coordinating institution or department within government with responsibility for harmonizing the efforts of the various organizations. Countries will vary in their choice of institution. Some may choose a suitable management institute if such exists. Others may regard the national vocational structure, the national water authority, or some other organized entity as more appropriate. Suitable criteria should be applied to the selection of the coordinating institution, which should be directly linked with the NAC or any equivalent overall coordination structure.



A N N E X E S

ANNEX I  
ABSTRACTS OF THE RECOMMENDATIONS  
OF A WHO INFORMAL CONSULTATION ON INSTITUTIONAL DEVELOPMENT  
Geneva, 18-22 November 1985

Design of structures for service extensions to remote areas

1. Decentralization can occur in the form of either devolution or deconcentration or both:

- devolution occurs when authority and responsibilities are given (delegated) by a central institution to another organization (e.g., a Village Council);
- deconcentration occurs when a central agency entrusts parts of its authority and responsibilities to its own field offices at lower levels;
- for decentralization to be successful, both deconcentration and devolution are required:
  - . deconcentration is necessary to provide effective support to communities;
  - . devolution is a prerequisite to community involvement.

2. One of the main challenges of the Decade is to foster community-based development, and to bring central government's support as close as possible to the town, village or hamlet, where decisions could be made and implemented. Frequent misunderstandings of the decentralization process result, however, in a trend towards deconcentration without appropriate delegation of authority and responsibilities to the communities. Conversely, many governments and international agencies tend to focus their efforts in institutional development on the sole promotion of community involvement (through devolution): due to cost and logistic constraints, CWS agencies are often unable to deconcentrate their structures to a level allowing the community to have easy access to those services which it cannot by itself provide.

3. The administrative mechanisms for the planning and implementation of Decade programmes in individual countries should be such as to ensure the involvement of the intended beneficiaries of designed improvements. This requires that authority and responsibility for certain tasks be devolved upon groups formed at local level; also, these groups should have access to appropriately deconcentrated units of central agencies. These should expand their structures to various levels from the centre outwards, on the basis of an action plan for nationwide coverage of needs. Staff deployment should be organized and effective as soon as possible, in view of the predictable increase in demands from local institutions, and the responsiveness of agencies' staff resources to local needs should be ensured.

4. In order to make the process cost-effective and economically feasible, local institutions should be enabled to mobilize sufficient local resources and in particular to appoint staff accountable to themselves rather than to deconcentrated units of government agencies. Training programmes and procedures for reporting and other transactions, including planning transactions, should be developed between the centre and the deconcentrated units of sector agencies. A system of advanced planning should be established at national level to provide resources and other support to local institutions.

5. Three main alternatives are offered to decision-makers for the development of a CWS administration nationwide:

- (i) government to deconcentrate its own structures to a level as close as possible to the communities; authority and responsibility to be devolved upon the community for certain tasks; ability of the community to mobilize resources; determination of an appropriate intersectoral software/hardware mix to bridge the gap between deconcentrated units of central government and communities;
- (ii) government to entrust a CWS agency enjoying a large degree of autonomy with all sector responsibilities; this agency to deconcentrate its own structures to a level as close as possible to the community; government to support and monitor progress through the provision of software services; communities to buy CWS services from the autonomous agency (partial or full cost recovery); alternatively, the agency is financed by government which thus provides an indirect subsidy to the community;

(iii) a combination of alternatives (i) and (ii), i.e. government to decentralize its own structures to a level where they can appropriately deal with communities; these communities depend upon local autonomous institutions for their supplies; in this alternative, government can choose to deconcentrate its hardware structures only within manageable limits, beyond which autonomous agencies take over; the support of deconcentrated software branches of central government is still required to assist and control regional or local CWS agencies.

6. In reviewing the organization charts of Annex III, Malaysia, Nepal and Sierra Leone appear to have developed structures and mechanisms consistent with alternative (i) above, while Morocco, with the ONEP-Régies model, is closer to alternative (iii); Colombia has experienced all three alternatives; currently, the general trend in this country is towards reinforcement of municipal structures, and deconcentration of the CWS sector to a level close to the community, with emphasis on mobilization of local resources and intersectoral coordination.

7. In the design of national CWS administrative structures, consideration should be given to the following :

- (a) since the devolution of increased authority and responsibility to communities is an essential element of Decade approaches, the conditions in which this process can be established and intensified should be studied, preferably in the context of nationwide sector reviews by staff of sector and planning agencies, with support from external agencies and major development banks; such studies should be followed by national workshops with a view to developing action plans to be submitted to central government;
- (b) the intent to proceed with decentralization (or centralization) should be firmly established by national legislation, which should include provisions for determination of the limits of devolution, boundaries of deconcentration and mechanisms for horizontal and vertical integration, and authorization for resource mobilization; in order to accelerate this process, study tours of sector administrators could be organized, with support from external agencies as required, to allow them to benefit from other countries' experience in a TCDC (technical cooperation among developing countries) context;
- (c) institutions should be strengthened (or in some cases created), at users' level, at the level of Village Councils or other community organizations, and at the various planning and referral levels; support from external technical agencies can be required in this process, for instance for human resources development and for the preparation of manuals and guidelines for Users' Groups, Village Councils and planning and referral institutions;
- (d) the process should be continuously monitored at both political and executive levels, preferably by independent committees or special task forces; National Action Committees can play an important role in this respect; the feedback from these monitoring groups should be used to further stimulate local institutions towards improvements in planning and implementation, and to reinforce institutional cooperation and coordination; another important outcome of monitoring should be the gradual identification of gaps between the communities and the deconcentrated structures of central agencies, and the adjustment of resources at first referral level in order to fill these gaps.

#### Organization of financial transfers

8. Communities as well as CWS agencies have few resources for new undertakings; their funds and their personnel are usually overcommitted. The possibilities of generating a surplus in towns for transfer to the urban poor and rural subsectors are limited. The motivation for such a transfer is often non-existent; qualified personnel working in towns are reluctant to leave their comfortable positions; CWS managers are equally reluctant to allocate funds to service extensions in urban poor and rural areas, because of considerable risks, low expected returns, and sometimes ignorance of CWS development conditions,

particularly in villages. For political, financial and social reasons, there is a permanent commitment of CWS agencies to maintain and improve service in large towns. Many of these are in need of major rehabilitation and network extension during the present Decade, while IDWSSD efforts are intended to focus on the underserved rural and urban poor populations.

9. Resources allocation policies and transfer mechanisms should be oriented towards the goal of financial self-sufficiency of the CWS sector. It is however recognized that the lengths of time required to achieve such an objective vary between subsectors; partial or even full cost recovery can be prescribed as a solution to improve urban water supply in the short term, while it will for some time remain a long-term objective in rural water supply; sanitation can be expected to lag behind in terms of financial performance as well as in extension of coverage. Financial autonomy is distinct from the fulfillment of a country's economic objective. It is largely a public utilities' concept: in order to ensure the financial equilibrium of the utility, the selling price of water should be at least equal to its all-inclusive financial cost. This goal has economic implications: its attainment requires that the cost price of water be within the limits of what householders and other consumers can afford and are willing to pay; it also has the indirect effect of discouraging excessive uses of scarce resources, particularly water. It does not however have the effect of adjusting demand to a level corresponding to an optimum use of the resource.

10. This effect is best attained by charging the full economic cost of CWS services. The incremental, qualitative, and community-based aspects of the Decade are particularly important in this context, as each one of these characteristics has the effect of lowering economic costs and increasing benefits. Transfers of resources therefore should be analyzed in two ways:

- (i) flows of funds (and other resources) to and from the sector agency or the community operating and maintaining CWS installations (financial transfers);
- (ii) flows of sector resources towards other sectors which in turn contribute to CWS development (economic transfers).

11. This suggests that there are broadly two ways to optimize the use of financial and other resources:

- (i) the financial approach, which consists in minimizing costs, maximizing revenues, and obtaining contributions to equity and loans or grants in the most favourable conditions;
- (ii) the economic approach, which consists in mobilizing national resources to the extent possible, and achieving gradual increases in coverage through progressive, essentially qualitative improvements requiring contributions from other sectors and effective participation of intended beneficiaries.

12. In the organization of resources transfers, consideration should be given to the following :

- (a) water rates and other charges for CWS services should be based on both financial and economic considerations. Since financial autonomy can only be achieved if average tariff exceeds average cost, detailed resources studies are required in order to determine how costs can be minimized. On the revenue side, the feasibility of charging an average tariff which will ensure financial autonomy should be checked against the ability and willingness of various consumers' categories to pay their share of the cost of water;
- (b) the determination of a sound financial development policy requires studies of the potential demand for CWS services, the scope for reducing costs and increasing revenues, and the conditions under which all types of resources which contribute to CWS improvements can be mobilized. In this approach, the objective of "full cost recovery" becomes secondary to those of "minimum cost", "high cost effectiveness", and "high benefit - cost ratio";



- (c) in view of the necessity to reconcile economic and financial objectives, tariffs for CWS services should be set as close as possible to their full economic cost (long-run marginal cost): this is the information which the consumer needs to decide rationally whether he should increase or decrease consumption; the economic cost should be based on a costing of the various resources which reflect their values to the economy rather than their market prices;
- (d) in financial terms, tariff structures should be designed to alleviate the burden of high water rates for those who must have water at low cost, while ensuring that optimum use is made of the scarce water resource and that the financial situation of the water utility or agency is not compromised;
- (e) financial mechanisms should be designed to ensure that CWS funds will be used exclusively in the sector:
  - . to cover the full cost of operation and maintenance,
  - . to finance sector development;

of the various mechanisms which exist for this purpose, the best known is the "revolving" Fund, with income corresponding to loans and grants from government and other agencies and from debt-service payments by the beneficiaries, while the proceedings go to loans and grants to sector institutions and to cover the operating and financial expenses of the Fund;
- (f) the operation of a Fund requires (and often results in) stability of sector institutions (in view of the long-term commitments which must be made), allocation of proceedings according to the socio-economic conditions of the intended beneficiaries, direct remittance of the Fund's surplus to the institution responsible for project implementation and operation, monitoring of performance, and provision of technical assistance to borrowers;
- (g) the feasibility of reducing costs and improving services through selective privatization of some CWS activities should be checked; such activities include for instance billing and collection, treatment plant operation, leak detection and repair, and rural water point maintenance;
- (h) the financial impact of decentralization should be evaluated, and measures should be studied to optimize at central level the financial efficiency of deconcentrated administrations (joint procurement, standardization of equipment and methods, etc);
- (i) the effect on cost of physical and administrative "leak" detection and reduction, as well as selection of appropriate technology should be studied; the compatibility of tariffs with the goals of economic efficiency (including social justice, cross-subsidization) and financial viability (including appropriate allowances for depreciation, bad debts, extension and inflation) should also be checked;
- (j) the analysis of transfers of funds and other resources requires extensive studies which can be supported by major development banks and agencies which are frequently involved in pre-investment programmes.

#### Intra- and intersectoral cooperation and coordination

13. The commonly encountered fragmentation of CWS responsibilities between a large number of agencies and sectors has some advantages; these include:
- (i) the ability to give priority to sanitation when there exists an agency in charge of this subsector only. Sanitation is often a neglected function in those agencies which are in charge of the CWS sector as a whole;

- (ii) similarly, the ability to plan and implement CWS services in rural areas, through an agency dealing with rural CWS only, thereby preventing the rural subsector from lagging behind urban CWS;
- (iii) similarly, the ability to foster the development of operation and maintenance, which are often neglected in agencies which are primarily oriented towards construction of new works;
- (iv) similarly, the ability to ensure that adequate support to the development of the CWS sector is provided by other sectors responsible for instance for health education, promotion of community participation, and water quality surveillance;
- (v) it is easier to develop procedures and technologies suitable for specific situations if agencies are specialized;
- (vi) the overall direction of priorities is less affected by political pressures once the various programmes and plans of many different agencies have been adopted and are being implemented.

14. The disadvantages of sector fragmentation include:

- (i) the possibility of overlapping or duplication of functions and responsibilities between agencies;
- (ii) the chance that there may be gaps between the service areas of various agencies;
- (iii) the sum of overhead costs of various agencies will generally be higher than in the case of a single agency;
- (iv) there will be duplication of efforts in areas such as manpower development;
- (v) it will be more difficult to attract resources unless the plans of the various agencies active in CWS can be integrated.

15. It may be feasible to reduce sector fragmentation by restructuring organizations or by reallocation of agency functions; coordination within and between sectors is necessary:

- (i) to ensure that the impacts of investments in CWS are maximized;
- (ii) to prevent waste and achieve maximum economy;
- (iii) to speed up the delivery of services to the communities;
- (iv) to prevent overlaps or gaps in coverage;
- (v) to improve the operation of the services;
- (vi) to ensure community acceptance and support;
- (vii) to control more effectively the overall national planning and implementation processes.

16. For coordination and intrasectoral and intersectoral cooperation to succeed:

- (i) there should be at least one common objective adopted by all parties involved;
- (ii) there should be advantages for each agency to participate, with respect to its own responsibilities or programmes;
- (iii) one single agency at each level should be given the responsibility and authority to carry out a coordinating role;
- (iv) lateral (interagency or between sectors) as well as vertical (within agencies) coordination should be simultaneously organized;
- (v) the coordinator should in all cases be a national agency; international agencies can only play an advisory role.

17. Probably the most important aspect of intersectoral cooperation and coordination is related to the integration of water supply and sanitation in the development of PHC. This integrated approach has a multiplying effect in terms of extension of coverage and impact of CWS improvements. For it to be effective, selected members of the community (facilitators, community health workers, etc) should be trained to work with the community in identifying its needs and priorities (water supply, sanitation, nutrition, etc), and to seek technical assistance from responsible government agencies (Ministry of Health, Public Works Department, Ministry of Education, etc) to enable the community to plan, construct, operate and maintain its water supply and sanitation facilities. Sector agencies will need to deconcentrate their structures and to develop technical capabilities and resources to support these community efforts. There should also be a feedback mechanism within these agencies to facilitate the flow of information related to needs expressed by communities, so that strategies and policies developed at national level can be appropriately adjusted. Since the community becomes the focal point of the various sector agencies (bottom-up approach), it should also be the most effective coordinator.

18. In the organization and implementation of intersectoral action, consideration should be given to the following :

- (a) intra- and intersectoral cooperation and coordination should be organized broadly in five phases:

(i) a study phase including a review of the institutional situation with identification of overlaps, gaps and other constraints in CWS development, proposals for new definitions of agencies' responsibilities and functions, draft legislation, recommendations on coordination at all levels, and identification of information and training needs and systems;

(ii) an implementation phase, corresponding to the reorganization of the agencies and the development of information systems;

(iii) a planning phase, based on a situation analysis, with formulation of intersectoral policies and strategies, identification of projects and preparation of programmes;

(iv) an integration phase, where all plans are coordinated in terms of objectives and staging, and resources are allocated;

(v) a project development phase, extending from construction to operation, maintenance, monitoring and evaluation.

- (b) by its very nature, the organization of intersectoral cooperation requires the active involvement of all technical ministries in charge of providing and monitoring CWS services, particularly the Ministry of Public Works (or equivalent), the main CWS agencies and the Ministries of Public Health and Community Development (or equivalent); the community should play a major role in the process; support can be provided by external agencies.

#### Community involvement

19. In promoting, planning and organizing community involvement, consideration should be given to the following :

- (a) permanent community involvement is a long term goal, which in the context of CWS development requires intersectoral action, involving in particular the Ministry of Health (in the context of integrated PHC programmes) and all Ministries concerned with Education, Local Government, Planning and Social Affairs (more specifically community development); the attainment of this goal requires a phased approach, including a demonstration stage in the short term and gradual extension to full-scale programmes in the medium term;

- (b) in order to demonstrate the feasibility and benefits of community-based approaches, a pilot project should be undertaken; of particular importance is the selection of the project area according to specific demographic, socio-economic, technical, resources and public health criteria; external technical agencies can support the project identification and formulation process, which requires a detailed study;
- (c) the institutions (e.g. users' groups) and project personnel (e.g. facilitators) which are to operate at community level should be well identified, and adequate resources should be made available to them at the beginning of the project;
- (d) the medium-term phase should consist in an extension to a full scale of the improvements reached in pilot projects based on intersectoral cooperation and community involvement; this extension should take place gradually, after each previous project has been evaluated, and after having gathered all community-expressed priority needs and project requests; project selection should continue to be based on established public health, socio-economic and technical criteria;
- (e) the overall organization chart for the promotion and organization of community involvement should include a special CWS Programme Unit within the Ministry of Plan, deconcentrated at regional level, with interface with users' groups, facilitators and other community organizations.

#### Human resources development (HRD)

20. Besides being the most important component of national institutional development, HRD is regarded as the most critical issue, particularly in the less attractive positions which are offered in software (as opposed to construction) agencies, in rural areas, and in operation and maintenance (as opposed to construction of new works). In planning, promoting and implementing HRD, consideration should be given to the following :

- (a) CWS agencies as well as institutions of other sectors, particularly public health, and specialized training institutes should form a group in charge of undertaking a needs survey, developing a programme, and organizing and evaluating HRD activities; the participation of external agencies could be required to support this development;
- (b) the review should include a survey of relevance of curricula to sector needs, a detailed task analysis of specific jobs, the reorientation of curricula, and a study of the interrelationships between sectors and institutions;
- (c) policy statements and legislation should be drafted to prepare for implementation of required changes; as these take place, job descriptions and performance standards, as well as personnel policy and regulations should be reviewed with the objectives of minimizing political and other influences in selection and evaluation of staff, and improving efficiency and effectiveness.

#### Institutional implications of technology choices

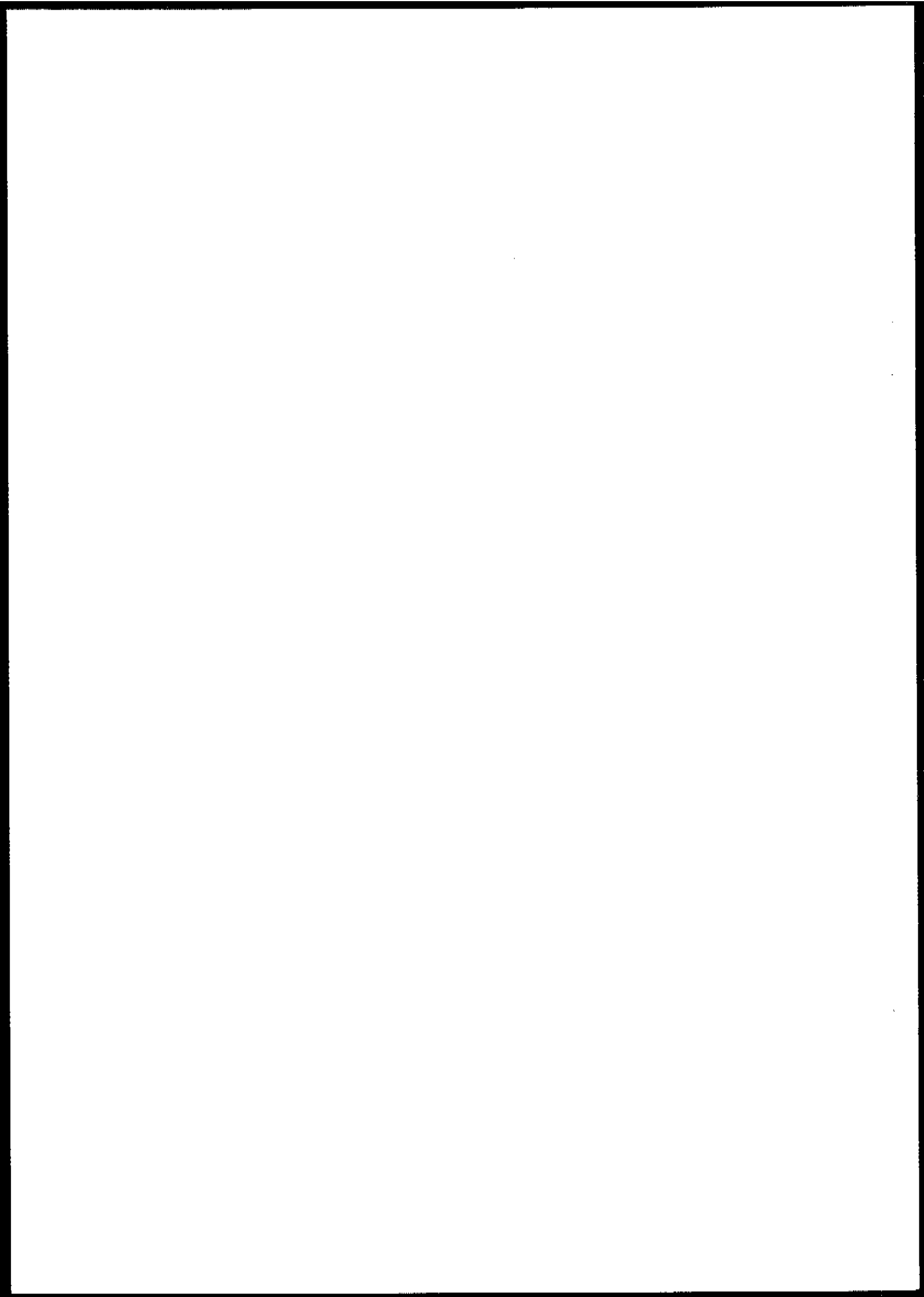
21. The adoption of appropriate low-cost technology has important institutional implications, and requires the involvement of the main ministries and coordinating bodies concerned, with CWS agencies playing the major central role. The following should be considered :

- (a) technology selection should be preceded by a feasibility study of identified technical alternatives, giving appropriate weight to their operation, maintenance, public health, economic, financial, and also institutional implications;
- (b) because of the relevance of intersectoral considerations in this selection process, all sector agencies, particularly public utilities and government CWS divisions, the Ministry of Health and the Economic Planning Unit, and/or any Decade coordinating body such as the National Action Committee, should be involved;

- (c) support can be provided by Technical Support Teams (TST), the office of the RR/UNDP, groups engaged in research on appropriate technology, and external technical agencies, for evaluation of the relevance and validity of the proposed technology, as well as organization of integrated primary health care development in order to provide maximum health benefits;
- (d) as in the case of community involvement, the benefits of appropriate technology should be demonstrated through pilot projects requiring the involvement of national CWS agencies, and technical cooperation from external research groups; the procedure for selection and implementation of such pilot projects is as previously described in the case of small-scale projects designed to enhance community involvement and demonstrate its benefits;
- (e) in the medium term, full-scale programmes can be implemented; they require surveys of sector conditions, the setting of national (or regional) objectives and goals, the selection of individual projects, the procurement of resources, and implementation by stages; besides CWS agencies, the involvement of higher levels of government, particularly the Planning Ministry, is required; external organizations (major development banks, bilateral and technical agencies) can be instrumental in supporting this development.

#### WHO's role in institutional development in CWS

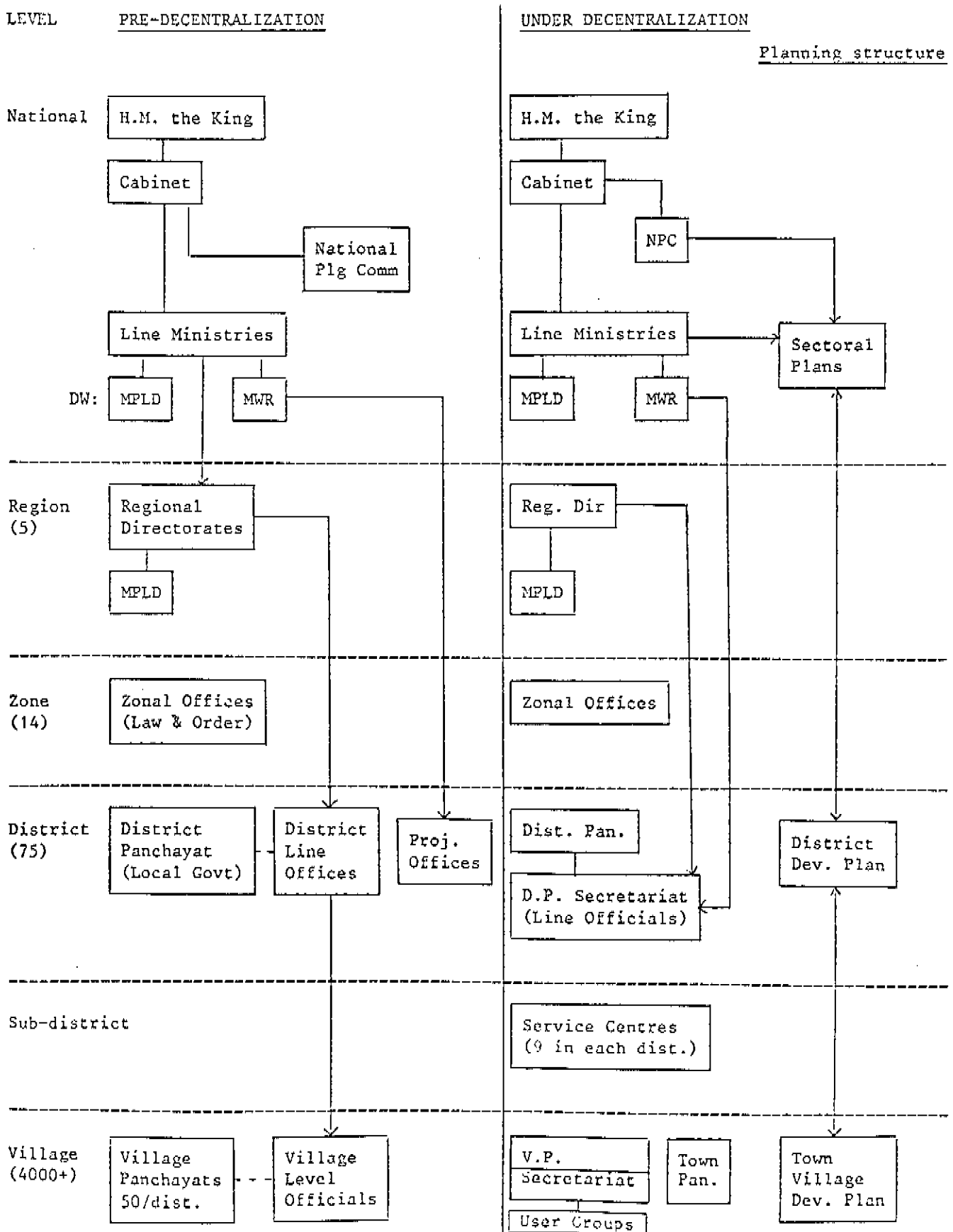
22. The Geneva consultation identified various interventions in which WHO could play a useful role, particularly in connection with recommendations 7(a): sector reviews, 12(j): studies of resources transfers, 18(b): organization of intersectoral cooperation, 19(b): feasibility study of community-based approaches, 20(a): HRD programmes, and 21(c): evaluation of selected technology. The participatory approach promoted by WHO should be intensified in institutional development, so that support can be provided to national agencies in the diagnosis of their problems, the search for solutions, and the implementation of required improvements. Another essential role of external technical agencies such as WHO consists in the dissemination of information and the promotion in a TCDC context of methods based on successful experiences. Through the publication of guidelines, and by conducting seminars and workshops, WHO can provide information and directions on evaluation procedures, how to maximize benefits to health, how to integrate CWS development in the framework of broader primary health care programmes, and other methods to be used by software providers; this information should be channelled, not only to government agencies, but also to their consultants and reference centres, and to international and bilateral financing agencies, for which institutional development is often a critical issue in project appraisal.



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NEPAL  
INSTITUTIONAL STRUCTURE FOR LOCAL DEVELOPMENT





A. Nepal: decentralization

1. Insufficient financial and manpower resources and inadequate infrastructure are important, but not critical issues in CWS development, especially in rural areas. The major constraint is institutional: CWS agencies have not been responsive to the needs of the people. They have been primarily concerned by their own technical performance. In the sequence "input-output-effect-impact", their main preoccupations have been to adjust input to budgetary allocations, and to maximize output in technical terms. This has led to the development of a "highly competent, however non-performing bureaucracy".

2. For effect and impact to be optimized, plans should be formulated at the level at which they are to be implemented:

- (i) top-down planning should be replaced by a participatory approach: the community should be regarded as central rather than peripheral, i.e. it should control the delivery of services by agencies;
- (ii) planning should be integrated (complementarity between sectors);
- (iii) domestic savings should be mobilized to supplement government allocations;
- (iv) institutional development should focus on improving the outreach capacity of government, and increasing the reaching out capacity of the people.

3. Effective decentralization of CWS agencies should therefore involve deconcentration of the agencies and devolution of authority to communities. This is currently being tried in CWS and other sectors in Nepal, with a view to attaining a self-sustained development (Decentralization Act, 1982).

4. The following three new structures are being implemented:

- (i) Secretariat of the District Panchayat, composed of line officials with directives from line ministries but reporting to Local Government authorities at District level: development is oriented from this level on the basis of indicative planning figures from line ministries;
- (ii) Service Centres, which are multisectoral and serve as first referral structures (interface between communities and local agencies, at sub-district level);
- (iii) User Groups: their constitution is mandatory for any local project.

5. The need to strengthen recipient bodies has been recognized, as evidenced by the creation of District Panchayat secretariats (deconcentration), and interface between user groups and service centres (devolution, referral). It is also important to reinforce central planning to deal adequately with multiple local requests, particularly in rural CWS (programmes include numerous small projects).

MALAYSIA  
INTERSECTORAL ACTION  
(PWDs and Ministry of Health)

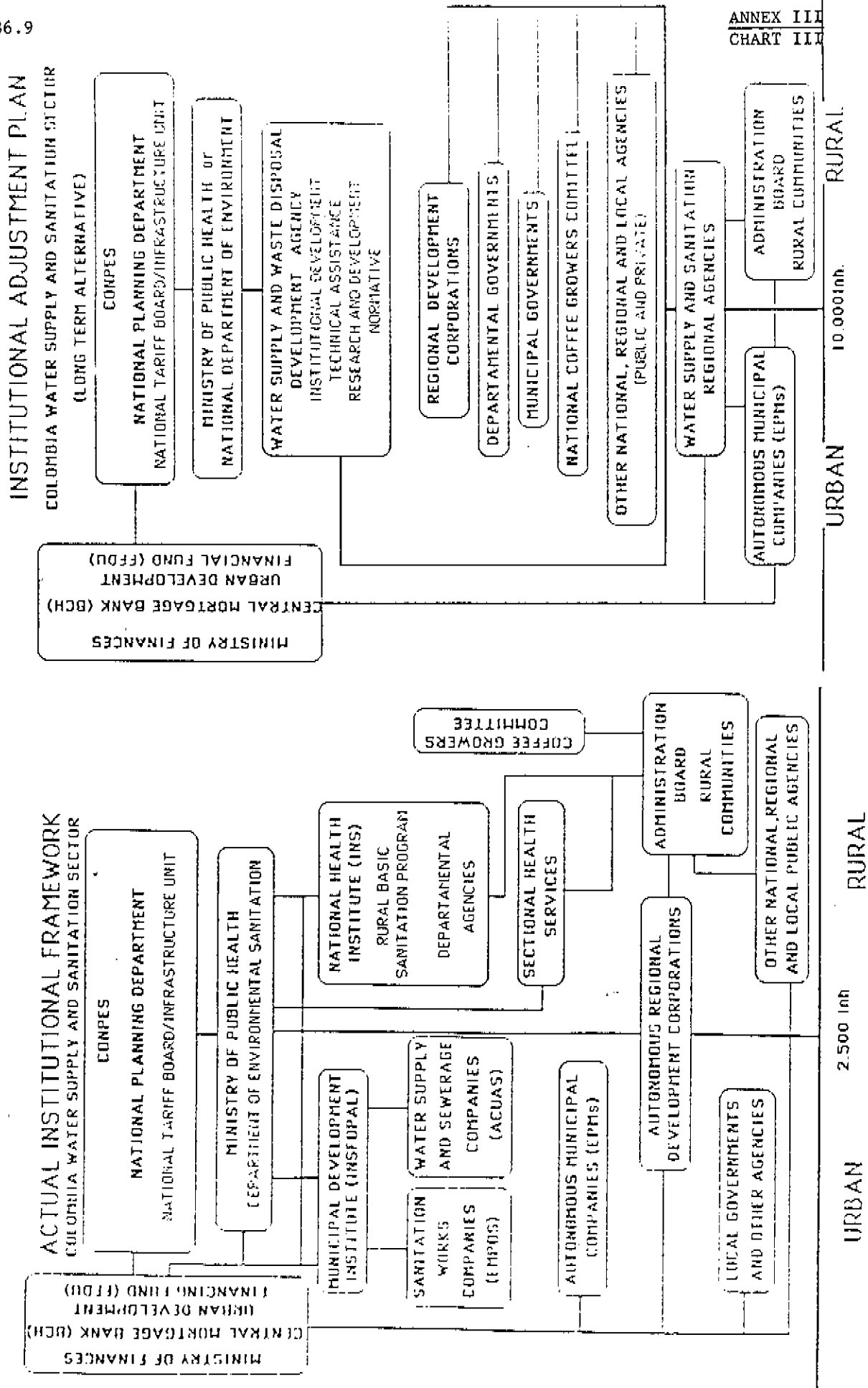
	Organization of Ministry of Health Malaysia (relating to Env. San. Sector)	Organization of Public Works Dept (relating to Water Supply Sector)		
National	<p>Minister of Health Secretary General Director-General of Health Malaysia</p> <pre> graph TD     A[Minister of Health Secretary General Director-General of Health Malaysia] --&gt; B[Dir. of Hith Serv.]     A --&gt; C[Dir of Eng. Serv.]     A --&gt; D[Dir. of Hosp. Serv.]                     </pre>	<p>Minister of Pub. Works Secretary-General Director-General of Pub. Works P. Malaysia</p> <pre> graph TD     E[Minister of Pub. Works Secretary-General Director-General of Pub. Works P. Malaysia] --&gt; F[Dir. of water supplies]                     </pre>	For States with Water Authority only	
State	<p>Director of Med. &amp; Health Services</p> <pre> graph TD     G[Director of Med. &amp; Health Services] --&gt; H[Deputy Dir. (Health)]     G --&gt; I[Deputy Dir. (Hospital)]     H --&gt; J[P.H. Engr. Insp.]     H --&gt; K[Chief Matron P.H.]     I --&gt; L[Nutr. Off.]     I --&gt; M[MCH Off.]     I --&gt; N[Epid. Off. UBDCP Off.]                     </pre>	<p>Director of Pub. Works</p> <pre> graph TD     O[Director of Pub. Works]                     </pre>	<p>Director of Water Supplies</p> <pre> graph TD     P[Director of Water Supplies]                     </pre>	Water Authority
District	<p>Medical Officer of Health</p> <pre> graph TD     Q[Medical Officer of Health] --&gt; R[St. P.H. Insp.]     Q --&gt; S[Sister]     Q --&gt; T[M.D. i/e. O.P.D.]     R --&gt; U[H.I. Env. San.]     R --&gt; V[H.I. FQC]     R --&gt; W[H.I. CDC]     S --&gt; X[H.I. Mobile W/S team]                     </pre>	<p>District Works Engineer</p> <pre> graph TD     Y[District Works Engineer] --&gt; Z[Tech. Asst. Technicians]                     </pre>	<p>District Water Supply Eng.</p> <pre> graph TD     AA[District Water Supply Eng.] --&gt; AB[Tech. Asst Technicians]                     </pre>	
Village	<p>Health Centre for Group of 5 to 20 villages</p> <pre> graph TD     AC[Medical Officer i/c.] --&gt; AD[H.I.]     AC --&gt; AE[P.H. Nurse]     AD --&gt; AF[P.H.O. + San. Lab.]     AD --&gt; AG[P.H.O.]     AE --&gt; AH[Midwife Clinics]                     </pre>			

B. Malaysia: intersectoral action

1. Malaysia has a federal system of government, and responsibilities for the provision of CWS services are shared between federal and State agencies. The Ministry of Health, which is a federal agency, assists those communities which are not serviced by State Public Works Departments (PWDs) or local authorities in the construction and operation and maintenance of drinking water supply facilities.
2. This type of institutional arrangement exists in other countries and regions where it is generally more formalized. In Malaysia, although intersectoral coordination is largely lacking, the rapid growth in coverage is actually the result of intersectoral action.
3. Although committees have been created to identify areas where the two main sector agencies overlap, and to arbitrate conflicts, interagency coordination is very limited. Also, since government is the sole provider of CWS services, including operation and maintenance, incentives are lacking to enhance community motivation; this exists in other sectors, in which the participation of the community in development efforts is actually rewarded.
4. The following required improvements have been identified:
  - (i) to increase community awareness of needs, and community involvement in CWS, thereby decreasing dependence on PWDs and other State government agencies: this requires extension of the programmes of the Ministry of Health, and coordination between these programmes and those of PWDs;
  - (ii) to entrust a single agency with the responsibility to integrate CWS planning and to monitor overall progress;
  - (iii) to enhance community involvement in the determination of the type of system most suitable for local needs; at present, the decision on the level of service (i.e. whether PWDs- or community-based) is based on availability of financial resources for PWDs' interventions and on political commitments, rather than on the community's ability and willingness to use the system;
  - (iv) to support the municipal authorities in their effort to extend and monitor services in those subsectors which lag behind, e.g. sanitation in rapidly expanding urban poor districts.
5. Both intra- and intersectoral cooperation happen in Malaysia, although coordination has not been the subject of specific regulations or efforts. The model may well lend itself to replication in other countries. The achievements are rather impressive and this type of institutional arrangement could therefore be promoted.

COLOMBIA  
PRESENT AND PROPOSED INSTITUTIONAL FRAMEWORK

ANNEX III  
CHART III



C. Colombia: a changing profile

1. While sanitation lags behind, the development of drinking water supply has been satisfactory in Colombia, particularly through autonomous river basin agencies dealing with water resources as a whole. The main constraints are related to sector fragmentation between a large number of agencies at various levels of government, and a comparatively low priority ranking of CWS improvements by communities (water has third priority after roads and electricity). Education is required to convince people that access to safe water is a first step towards health.

2. Institutional fragmentation results in the absence of an integrated view of the sector: this however should be entirely under control of the Ministry of Health. CWS is actually a second priority in this Ministry, which must deal with many other issues. As a result of centralization, communities expect government assistance, and it is difficult to enhance community involvement in sector activities. The sector is locked into a rigid institutional framework, which is hampered by difficulties in software delivery, and need for structural as well as financial improvements. A major issue is related to the difficulty to abolish existing structures and mechanisms.

3. The structural constraints identified in CWS in Colombia are related to the limited outreach of central planning and the lack of information systems and institutions for monitoring progress. The sector appears as excessively centralized in vertical terms, while it is horizontally divided between many agencies. The ideal institutional structure which has been recently defined as a long-range objective for national institutional development in Colombia has the following main characteristics:

- (i) the community is defined as the supporting structure for the entire institutional frame, characterized by extensive decentralization;
- (ii) sector targets are integrated into overall regional and urban development objectives;
- (iii) large communities form local services companies;
- (iv) rural areas form administrative boards;
- (v) communities cooperate horizontally so that support is provided by stronger structures, such as urban companies, to development in the weaker zones;
- (vi) a coordinating body is envisaged at regional level:
  - . to advise municipal and rural communities,
  - . to channel funds,
  - . to monitor the management of CWS services,
  - . to promote horizontal cooperation;
  - . to participate in general planning for optimization of capacity,
  - . to act as linkage agency between national and local levels;
- (vii) at national level, the separation of technical and financial functions is regarded as absolutely necessary, with the financial functions being assigned to a highly specialized entity of the financial sector.



D. Morocco: limits of decentralization

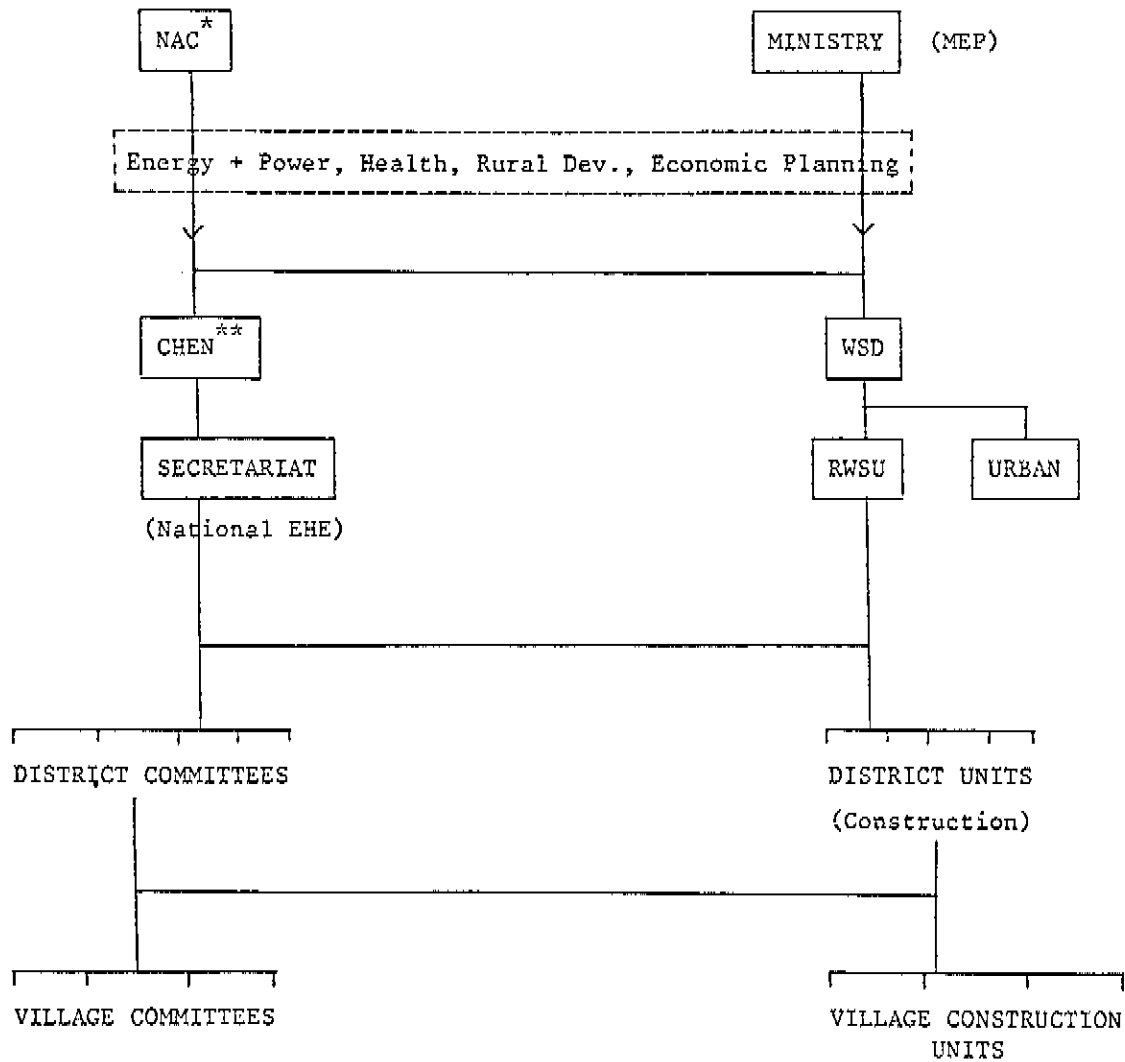
1. The National Drinking Water Supply Organization (ONEP) has seen its role extended from planning for large urban areas to actually supplying water to small communities. Its financial operations are now hampered as the agency must go beyond the limits of its deconcentration potential. These difficulties are compounded by conflicts of interest in resources allocation (especially between CWS and irrigation needs), by the fact that sanitation lags behind water supply, by the excessive fragmentation of sector responsibilities and activities (as a result of strong communal powers), and because CWS accounts for only a small part of the activities of the Ministries of Interior and Health. ONEP must therefore fill gaps, without however having competence to cover the entire sector.

2. A multisectoral pilot project has recently been identified to foster CWS development at provincial level with adequate support from ONEP and other central authorities, at the limit of their deconcentration potential. However, such projects are seen as difficult to implement, particularly because of inadequate coordination at central as well as regional levels. They would have the merit of strengthening regional structures (as first referral level) and increasing self-reliance in CWS development throughout the rural part of Central Morocco.

3. Despite the promotion of intersectoral cooperation through such central agencies as the National Action Committee (NAC) or the High Water Council, rural water supply development in the provinces is difficult to organize centrally. It requires the active participation of at least five ministries or agencies (Equipment/ONEP; Equipment/Direction of Hydraulic Works; Agriculture; Interior/communities/régies; Public Health): for each one of these ministries or agencies, rural water supply represents a difficult challenge with few incentives; extension of sanitation to rural areas and small towns is even less attractive and more difficult to achieve.

4. CWS development in rural areas has also been the subject of severe financial constraints. The allocation of funds to the sector depends to a large extent on the level at which financial and technical agencies can cooperate. For this reason, the Fonds d'Équipement Communal (FEC), which finances community development through loans, is currently studying the feasibility and potential benefits of decentralization for its own structures.

SIERRA LEONE  
ORGANIZATIONAL STRUCTURE



\* National Action Committee (Inter-ministerial)

\*\* Council of Health Education + Nutrition (Inter-ministerial)



E. Sierra Leone: an integrated approach

1. As a result of government commitment to the attainment of the Water and Sanitation Decade goals, the situation of the numerous rural communities which had been hitherto unserved became a matter of official concern, and resources were provided for remedial measures. In the context of a UNDP-sponsored technical cooperation project, a Rural Water Supply Unit (RWSU) has been established and technically organized on the basis of a district level pilot project.
2. The main lesson learnt from this project has been that construction of new works is not by itself an all-inclusive solution to sector problems. Closely related activities such as environmental education, water quality surveillance, rural sanitation and maintenance have been brought together into what is now termed "the integrated approach" involving several agencies and personnel of different sectors, particularly the Ministry of Health which is responsible for environmental sanitation. Efforts have also been made to improve water supplies as components of integrated agricultural development projects coordinated by the Ministry of Agriculture and Forestry.
3. The RWSU, which is thinly staffed at both professional and sub-professional levels is responsible for coordinating, monitoring and assisting in the implementation of five large-scale projects; two other projects have been approved and are scheduled for implementation in 1986. These water supply development activities include the provision of improved wells with community involvement, and this necessarily requires some health education; this fully justifies the participation of health authorities, in programmes which are organized and managed by RWSU, and partly supported by UNDP, UNICEF, WHO and some non-governmental organizations like CARE or the Catholic Relief Services. The government has formed a National Action Committee, consisting of members from governmental and non-governmental agencies, to coordinate the activities of the sector.
4. The present trend is to decentralize some activities which have been recognized as major elements of CWS development. This implies maximum use of deconcentrated software providers for education, surveillance and maintenance tasks, and motivation and training of community members so that they can by themselves take care of the installations. Training can be done by CWS and public health staff, for instance through workshops at community level; primary school teachers can also be involved through a series of in-service training activities at the Teachers Training Colleges.
5. The RWSU is fully committed to the promotion of the integrated approach as described above. The implementation of any new facility is preceded by an environmental education programme, which continues at village level throughout construction and after completion of the works. Members of the environmental health team are trained to carry out simple water quality tests, which are performed on the source of water before construction begins, and at regular intervals after completion. Rural sanitation is also developed by the construction of the VIP latrine which is adapted to the local conditions; the community is encouraged to participate as the units are built for individual households.
6. Maintenance systems are developed at the village level; as technology choices are based on simplicity of maintenance, members of the community can take care of the facilities without much outside assistance. The entire organization of CWS in Sierra Leone is oriented towards the activation of all potential resources at village and district levels, while the more central agencies remain thin and rely on intersectoral action in CWS development.

F. Some common features in the design of institutional arrangements

1. Although the organization of the CWS sector is country-specific and cannot be subject to regional or global generalizations, some common features emerge from the various organization charts provided by the members of the Consultative Group in support of their respective presentations.

2. The similarities between these charts probably reflect common preoccupations; institutional arrangements should be: (i) Decade-oriented; (ii) economically sound; (iii) conveniently integrated; (iv) sufficiently decentralized; (v) easy to implement; (vi) intersectoral; and (vii) feasible.

3. It can be observed for instance that the institutional structure of CWS in Nepal after the Decentralization Act, 1982, and its By-Laws, 1984, fully meets criteria: (i) at all levels; (iii) particularly at the levels of the Secretariat of the District Panchayat, of the Service Centres and of the User Groups; (iv) and (vi) at all levels. However, it may take several years to establish the correspondance with criteria (ii), (v) and (vii), which are related to feasibility aspects.

4. In Malaysia, criteria (i), (iv) and (vi) essentially apply to that part of the sector which is under the responsibility of the Ministry of Health, while the other criteria are generally met by PWDs' operations; this is probably the reason why the two subsectors can develop in harmony, with good results in terms of progress in coverage.

5. In Colombia, the long-term alternative which is recommended by the Institutional Adjustment Plan corresponds at least to criteria (i), (iii), (iv) and (vi), and there are good reasons to believe that the feasibility criteria would also be met. This will however require important behavioral changes at local level, since the community, which was previously a passive recipient of government-provided supplies, should become the basis of all development in CWS.

6. The Morocco case illustrates some of the shortcomings of the model, as only some of the criteria are met, and however coverage is being extended at a rapid rate. CWS institutions are generally Decade-oriented (i) at central and first referral levels. However, community self-reliance is not developed in the form generally recommended. The institutional framework is economically sound (ii), but only so far as sector agencies do not go beyond the limits of their deconcentration potential (iv). There are also difficulties in integration (iii) and in intersectoral action (vi). Institutional changes, such as the creation of a National Action Committee, have proved difficult to implement (v), and in some cases they were not feasible (vii).

7. In Sierra Leone, the integrated approach involving the simultaneous intervention of hardware and software providers corresponds to criteria (i), (iii), (iv) and (vi). As in the case of Nepal, it will probably take some time to establish the correspondance of the model with feasibility criteria (ii), (v) and (vii).

METHODOLOGY FOR  
INSTITUTIONAL REVIEWS

METHODOLOGY FOR ASSESSMENT AND IMPROVEMENT

- (1) INTERVIEW with responsible officers
  - in institution (all levels/vertical/horizontal)
  - outside (related sectors - sponsors - intended beneficiaries)
- (2) STUDY at community level and at branch office level
  - is branch office using services of central agency?
  - is community motivated and educated to use services?
- (3) REVIEW of laws, regulations, prescriptions
  - review of structures
  - review of resources transfer mechanisms
- (4) WORKSHOP on diagnosis, prognosis, causes
  - obtain consensus on major problem areas and causes
  - convince decision-makers on remedial measures
- (5) DIALOGUE on criteria for realignment and on indicators
  - with responsible technical officers
  - with decision makers
- (6) INTERVENTION through participatory approach
  - policy and structural issues
  - resources transfer issues, OMFL arrangements
- (7) EVALUATION
  - MEP
  - more fundamental changes, feedback, redesign

<u>INDICATORS</u>		
(1) Coverage	<ul style="list-style-type: none"><li>- quantitative</li><li>- qualitative</li><li>- both</li></ul>	700 new water points have been created each year during the last 3 years, while objective was 550; however, 50% give water of poor quality (20% not safe), 10% are out of repair and 17% are not used.
(2) MEP	<ul style="list-style-type: none"><li>- functioning</li><li>- utilization</li><li>- impact</li></ul>	12 sewage treatment plants have been built in last 6 years; 5 are by-passed; 7 function irregularly; the pollution of streams near large towns is increasing despite these facilities.
(3)	<ul style="list-style-type: none"><li>- training, career prospects</li><li>- commissioning of new works</li><li>- operation and maintenance</li></ul>	Alignment to public service salaries has caused rapid turnover of staff; works in progress have increased by 70%; no watchmen at standposts; many are broken.
(4)	<ul style="list-style-type: none"><li>- division of tasks</li><li>- hierarchical levels</li><li>- referral functions</li></ul>	Sector is excessively fragmented; each subsector has several layers of hierarchy, still insufficient to reach community and provide support.
(5)	<ul style="list-style-type: none"><li>- tariff structures, revolving funds</li><li>- HRD, community work</li><li>- procurement, borrowings</li></ul>	The following have been studied: long run marginal cost, average cost and price, tariff structure, internal rate of return, consumers' credit, rate of borrowings, number of employees/installations/clients, training capacity.
(6)	<ul style="list-style-type: none"><li>- internal cash generation</li><li>- service to less-privileged</li><li>- enforcement of regulations</li></ul>	The following have been studied: number of standposts and yard and social connections; alternatives to water vendors; performance in collection of arrears; transfer of surplus to extend service to urban poor and rural areas.
(7)	<ul style="list-style-type: none"><li>- % gained in coverage</li><li>- qualitative improvements</li><li>- gains in resources</li></ul>	Some solutions are envisaged to compensate for weaknesses of agency: project units, association with Health and Education Ministries, constitution of users' groups, encouragement to creation of privately-owned service centres.

PERFORMANCE EVALUATION

- |   |   |
|---|---|
| (1) IS THE INSTITUTION ACHIEVING ITS OBJECTIVES?<br>(Is there a need to reformulate objectives?)                | Progress is satisfactory in urban water supply; sewerage lags behind; CWS development is slow in medium-size towns and rural areas.                             |
| (2) ARE THE SERVICES PROVIDED BY THE INSTITUTION UTILIZED?<br>(Is there a need to change nature of services?)   | Public standposts not much used; illegal connections; in rural areas, handpumps break down; public latrines are generally not used.                             |
| (3) IS THE INSTITUTION FUNCTIONING AS REQUIRED?<br>(Is there a need to change regulations?)                     | Although internal regulations and performance objectives are followed, very little progress is achieved in coverage and quality.                                |
| (4) IS THE INSTITUTION STRUCTURED AS REQUIRED?<br>(Is there a need to redesign the organization chart?)         | In its effort to decentralize, the institution has created field offices which have no resource to provide efficient referral services.                         |
| (5) ARE RESOURCES AVAILABLE?<br>(Is there a need to improve transfer mechanisms?)                               | Tariffs have not been adjusted regularly for inflation; there is a lack of qualified midmanagement staff for rural water supply.                                |
| (6) IS THE INSTITUTION CONCEIVED TO ACHIEVE ITS OBJECTIVES?<br>(Is there a need to redefine framework?)         | Main preoccupation has been to maintain level of service in urban centres; urban deficit in finance and coverage affects potential of extension to rural areas. |
| (7) ARE CURRENT REMEDIAL MEASURES GEARED TO IMPROVED PERFORMANCE?<br>(Is there a need to propose new measures?) | The new decentralization programme is failing because devolution cannot be effective in absence of actual deconcentration.                                      |

DIAGNOSIS

- (1) Irrealistic objectives  
Insufficient inputs/outputs/effect/impact  
Ineffective development approach
- (2) Inadequacy of services in relation to needs  
Lack of motivation  
Lack of education
- (3) Inadequacy of prescribed functions as related to official mandate  
Lack of efficiency in performance of prescribed functions  
Lack of effectiveness
- (4) Inadequacy of existing structures  
Limited decentralization potential  
Lack of potential for intersectoral action
- (5) Available resources are not transferred  
Funds, manpower, materials, equipment, leadership are lacking  
Inadequacy of mechanisms for raising resources
- (6) Major OMFL changes are required  
Support is required from other institutions  
The mandate should be fulfilled by another institution
- (7) Failure of current structural changes  
Failure of improved mechanisms to increase or transfer resources  
Need for new approaches and policy decisions

Table V

<u>PROGNOSIS</u>
1. Lack of credibility, failure to meet objectives, low morale
2. Limited contact with community, unsatisfactory O&M and utilization
3. High personnel turnover, high cost, poor results
4. Increasing costs, limited outreach, hardware without software
5. Decreasing absorptive capacity, difficulty to find funds
6. As situation deteriorates, institution less apt to fulfill mandate
7. More resources will be spent with decreasing cost/benefit ratio

Table VI

<u>ASSUMPTIONS ON CAUSES</u>
1. Poor planning: policy issues, resources issues
2. Insufficient software: policy and structural issues
3. Legal and managerial constraints, structural and functional issues
4. Hardware provider overcentralized and isolated action
5. OMFL issues (emphasis on organization)
6. OMFL issues (all)
7. Errors in institutional reforms, poor management

Table VII

<u>CRITERIA FOR REALIGNMENT (ENTRY POINTS)</u>
1. Consistency with Decade approaches (central level)
2. Fulfillment of essential needs (reliance on social sectors)
3. Optimum level of integration (central level)
4. Optimum level of decentralization (first referral level)
5. Easy flow of resources (all levels from central to local)
6. Integrated action with other PHC elements (all levels)
7. Easy transition to improved structures/mechanisms (all levels)

CONTENTS OF INTERVENTIONS:

- planning function
  - . design master plan for ID with first phase
  - . identify prerequisites (resources, policy decisions)
  - . check feasibility based on existing structures
  - . check adequation to objectives
  - . review objectives
  - . organize pre-investment work
  - . check institution's capacity to perform simple tasks
  - . workshop - manuals
- procurement function
  - . map situation in terms of resources mobilization
  - . identify issues in funds mobilization
  - . study work in progress
  - . cost of resources
    - increases by growth
    - increases by inflation
    - economic costing within institution
    - cost projections
  - . workshop - manuals
- service function
  - . delivery of services
    - construction - procedures
    - support services - coordination
    - operation - procedures
    - maintenance - procedures
  - . recovery of cost
    - pricing, billing, collection procedures
    - community contributions
    - study metering issue
  - . promotion
  - . statistical records
  - . extension, rehabilitation
  - . workshops - manuals
  - . training programmes, research
- financial function
  - . tariff studies (structures, average)
  - . accounting (records, cost accounting, valuation)
  - . inflation accounting
  - . revolving funds
    - projecting demand and supply
    - project cost
    - institutions for resources transfers
- administrative function

Table VIII

Table IX

EMPHASIS ON:

- functions and mechanisms to perform them
- transfer of resources
- planned gradual institutional development
- performance of simple repetitive tasks within institution
- adaptation of structures to resources

AVOID IN INITIAL PHASE:

- fundamental structural changes
- planning development beyond absorptive capacity
- designing mechanisms in absence of resources to be channelled
- designing process while ignoring contents
- dealing with one resource and ignoring others



ANNEX V  
TRANSFER OF RESOURCES AND REFERRAL SYSTEMS

Background

1. One of the major obstacles to successful decentralization of CWS agencies is the inability of hardware providers to deconcentrate their structures beyond a certain level, due to cost and logistic constraints, and the resulting lack of adequate first referral structures in support of community work.
2. There are broadly three ways to bridge this gap:
  - CWS agencies can secure the support of agencies of other sectors, such as Public Health, which are more deconcentrated; they can simultaneously endeavour to extend their outreach, for instance through the Training and Visit (T&V) system, which has been extensively applied in the agricultural sector;
  - Project Units can be created, and become permanent structures in the context of large programmes, particularly those based on replicable projects; these Units can then be used as first referral level; NGOs often perform similar functions; it can also be envisaged that a private enterprise be contracted to provide support to the community in the operation and maintenance of facilities;
  - the community itself can expand its structures and increase its resources in order to achieve a higher degree of self-reliance, thereby becoming less dependant of referral systems; this is sometimes achieved through the creation of Water Users Associations or Water Unions; the process can be initiated with the assistance of a facilitator.
3. This Working Paper presents abstracts form several internal documents of the World Bank, without however quoting any value judgement which could be made in these documents. The only purpose of the Paper is to provide some information on Project Units, inter-agency coordination, Training and Visit system, and other ways to "reach the small farmer".

Project Units

4. Project Unit is a broad term covering several types of arrangements: (a) a special unit set up within an organization to undertake a one time activity, such as a major investment, or for launching a new activity for which a specific group of specialists is necessary; (b) a special unit located outside the agency to undertake investments and/or activities which duplicate key functions that the line agency is not considered able to handle effectively; (c) a special unit designed to coordinate several line agencies regarding a particular activity.
5. From an organizational viewpoint, the first and last type usually are legitimate arrangements. Project Units of the second type have been used to circumvent the deficiencies of line agencies in order to get investments and programmes implemented. In these cases, the trade-off between institutional development (ID) and the investment programme was decided in favour of the investment.
6. Project Units of this type can be an unsatisfactory solution if provisions are not made for integrating these units into the line agency once the project is completed, and for using the unit as a demonstrator of better organizational methods and techniques with could later be absorbed by the main agency.
7. Most of these units fulfil their basic purpose, to implement investment. In a few cases, they have been integrated into line agencies, but generally they have achieved little from an institutional viewpoint. The expected demonstration effects did not materialize, the units remaining highly insulated enclaves. Their organizational arrangements, designed for expeditiousness and relying heavily on special budgetary and personnel conditions, proved to be too sophisticated and expensive to be absorbed by the line agencies. In several cases, the units were maintained mainly as channels for funds.

8. The assumption that the model represented by the units would be replicated proved wrong, because many units required departures from the status quo and a level of organizational and political risk that line agencies were unwilling to accept. Also, staff of existing agencies perceived the efficiency of the units as a threat. The demonstration effect was lost if the difference in concept and efficiency between the line agency and the Project Unit was too large. These results confirm the advantage of making changes from within an organization, rather than relying on external demonstration effects that could even have negative consequences.

9. Project Units were sometimes used for introducing new technology which proved to be too complex and expensive to replicate on a countrywide basis. Also, Project Units have often siphoned away funds and sometimes the best staff from the line agencies, while weak institutions related to the project were neglected and even deteriorated. Considerable gains achieved for instance through the application of the Training and Visit system were sometimes lost because the Project Unit alienated existing agencies by taking their staff and working outside normal bureaucratic channels.

10. These negative effects have been, as expected, more acute when the line agencies have been weak and the difference in efficiency between the unit and the agency more pronounced. Also, tensions increase if units, in addition to implementing an investment programme, administer independent activities such as provision of services.

11. What are the operational implications of this experience? Project Units which duplicate existing structures have no place in a strategy aimed at institutional development. Their demonstration effect has been slight, or negative. However, in some cases, the urgency of an investment and the weakness of the existing institutions leave no obvious alternative to a separate Project Unit. This may mean postponing the ID objectives.

12. The first step is to determine the strengths and weaknesses of the existing agency. This assessment should be made by competent professionals. The establishment of a Project Unit is a serious matter and should be treated as such. Many times Project Units have been established where it was not really necessary and, conversely, line agencies have been used when a Unit was justified.

13. The use of a weak line agency to implement relatively large projects could be equally damaging because it can burden the agency to the point of near collapse, aborting the investment and ID. The final decision must be a judgement, by the country authorities, on the relative priorities of the project and of the ID objectives.

14. Several measures could be taken to optimize the use of Project Units: (a) organizational arrangements should be replicable by the line agency at the end of the project implementation period. Thus the gap between the expected efficiency of the unit and that of the line agency should not be too large; (b) detailed provisions should be made for the gradual absorption of the unit by the line agency; (c) key local personnel should be involved in the Project Unit from the beginning; and (d) the project should include an ID programme for the line agency, perhaps with common programmes in areas such as HRD.

#### Interagency coordination

15. Interagency coordination could have several meanings: (a) normal contacts among agencies in the course of their work; (b) specific coordination procedures (one agency requiring action by another before a decision could be taken); (c) "line" coordination, with authority over the agencies being coordinated; and (d) "functional" or advisory coordination by a separate (higher) body, but without authority over the agencies. The latter could be undertaken at different degrees, covering one or more functions in the agencies involved.

16. The "state of the art" treats interagency coordination in a rather formalistic way, mainly within a system's view of the interactions of an institution with its environment, including other institutions, but little is available about the motivational or behavioral aspects: why would an agency, or the actors within an agency, want to coordinate with others?

17. Coordinating committees generally have been unsuccessful, an expected result given their lack of real authority. There are many instances in which poor coordination resulted in inferior performance, or in potential benefits being lost: excessive investments in electricity generation; damaging effects of unregulated competition in transport; delays in agricultural production for lack of inputs at the right time. Inadequate coordination has also appeared because of poorly designed institutional structures.

18. Coordination will become an increasingly important issue in the social subsectors, where it is vital but difficult to achieve. The approaches followed generally are multisectoral in nature, as in integrated rural and urban development, and sometimes the minimum actionable programmes in agriculture are inherently complex and may require the intervention of numerous agencies to provide, for example, marketing, fertilizers, extension, etc. Thus success will depend more on the willingness of agencies to participate effectively in a coordinating mechanism.

19. A problem with the social subsectors is that the agencies involved are among the weakest and least progressive and structured. Coordination is harder, because it is more difficult to work with other agencies from a position of weakness and without clear lines of authority. The organizational dilemma is that agencies dealing with social activities should be more loosely organized, with a significant proportion of the decision-making taking place at low levels. These conditions are not conducive to interagency coordination.

20. At the conceptual level, more effort should focus on the political and motivational aspects of coordination: under what circumstances, and set of incentives, is coordination effective? At the operational level, the lesson is that coordination in the social activities is probably expensive and unlikely to be efficient, and ought to be minimized or moved to the planning stages of an operation.

21. This issue requires further exploration in several directions: (a) the role of incentives on agencies and actors (the advantages of coordination to them could be clarified and studies of coordination issues could have a positive role); (b) the potential of alternative methods for achieving interagency coordination through the normal functioning of the agencies.

22. Two other operational conclusions emerge from this review. First, coordinating mechanisms without authority should be avoided, unless they are not expected to play an operational role. Second, it is essential to have political support before launching a coordinating mechanism.

#### Training and Visit system

23. The Training and Visit system is basically an organizational and managerial approach. Its purpose, as it is applied to extension, is to upgrade the skills of extension staff and to provide farmers<sup>(1)</sup> with professional advice on how to diagnose and solve their operational problems. The T&V method emphasizes the timely and regular delivery of simple technical know-how by village extension workers (VEWs).

24. The VEWs and all other extension personnel are assigned to work on extension full-time, and relieved of other responsibilities. On a fixed day, generally once every two weeks, the VEW visits each "contact farmer", and any interested members of his group in that farmer's fields. The contact farmer is responsible for communicating messages between his group and the VEW. So that the VEW can find answers to questions raised during visits with farmers, and to learn about what recommendations should be stressed to farmers during the coming weeks, the VEW meets with his Agricultural Extension Officer (AEO) routinely, and with Subject Matter Specialists (SMSs), also generally every two weeks.

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(1) The T&V system has been essentially used in the Agriculture sector, although its main features have been shown to apply to other sectors including CWS and Public Health.

25. The AEOs and SMSs, in turn, maintain regular contact with research, in order to help transmit innovations and solutions to the field, and to bring in farmers' questions for which the SMSs themselves cannot supply solutions. The frequent contacts between farmers and VEWs, VEWs and AEOs/SMSs, and extension and research are designed to prompt a continuous, timely flow of information back and forth between research and the field.

26. Six main organizational and managerial principles characterize the T&V system, which make it particularly suited for activities involving large numbers of decision-makers, geographically scattered, and without clearly specified technologies. These principles are:

- (a) Tight and simple management, including a well defined organization, a direct, unified line of command, carefully specified and monitorable tasks, and close supervision.
- (b) Flexibility in content within a tight organization, so that through the continuous contacts among participants recommendations and solutions are tailored to the particular needs and resources of the farmers served.
- (c) Reform within the existing system, rather than creating enclaves or new agencies, in order to ensure a realistic and replicable approach.
- (d) Targets high in visibility and with immediate impact, especially as the system begins; the focus is on innovations which will raise productivity, and hence income, but taking into account existing resource constraints and implying low risk and cost.
- (e) Continuous flow between research and extension, which induces practical problem solving and fast adaptation to changing conditions; regular VEW training sessions are a key element for transmitting information to and from the field; and
- (f) Built-in mechanisms for monitoring and evaluation, through continuous close supervision and periodic evaluation.

27. These principles are interrelated and mutually reinforcing. The linkages among the different parts of the system are essential. For instance, extension could enjoy excellent organization, but would be crippled without a close tie to research. The lack of useful technical messages would discredit the extension service and demoralize its staff. Conversely, research will be discounted as irrelevant without close ties to extension because, to be effective, it has to address the farmers' current problems and get recommendations out to the field efficiently.

#### Applying T&V principles to PHC sectors

28. The organizational and managerial principles on which T&V is based would be applicable to activities in the social sectors that entail delivery of services, e.g., the delivery of health/nutrition/population services.

29. Health delivery (and also nutrition or population) programmes may lend themselves well to T&V principles, both because they encounter similar institutional problems as agricultural extensions and because there are already a number of precedents in health programmes for similar modes of operation (eg., utilizing Village Level Workers (VLWs)). Health agencies are commonly weak, and loosely organized and supervised, particularly at the local level. The application of T&V for tightening control over a decentralized delivery system may be useful in making health activities more effective.

30. To make health programmes more manageable it is necessary to simplify and streamline their organization. Often local programmes fall under the jurisdiction of an agency other than the Health Ministry, such as the Ministry of Local Government, a territorial administration, or a rural development programme. As in T&V, they need a more unified line of command. A controversy exists as to whether vertical health programmes are better than horizontal, fully-integrated programmes. The T&V example would suggest that the answer lies

somewhere in between; the programme should begin with a few high-priority, simpler objectives along vertical lines (e.g., inoculations; material-child health care; supply of contraceptives), but gradually expand to more complex objectives as institutions capabilities grow.

31. In this respect, a key issue that has to be decided is the right balance between curative and preventive health programmes. As in agricultural extension, innovations high in success and visibility are most likely to elicit participation and support. While monetary incentives do not apply here (even though good health indirectly raises productivity and hence income), other equally important incentives relate to health programmes, such as saving lives and visibly relieving disabilities. The problem in health, however, is that many curative and most preventive measures do not have an immediate, obvious impact, or may require ongoing maintenance and follow-up which are hard to control. Moreover, minor failures in implementation by the beneficiaries could neutralize most of the progress made. For example, a preventive programme including the boiling of water could be wasted if the beneficiaries miss applying it even one or two days in a month. Thus, following the T&V approach, health programmes would begin with measures which do have predictable, visible results, perhaps mainly on the curative side of the operation, for instance, inoculation against a spreading contagious disease.

32. Besides visible results, strong VLW work is also important for initial success, since VLWs' credibility and hence morale has been undercut in the past by their inability to deliver good advice or medical supplies, or by their unreliability. Therefore, health programmes based on this system should ensure from the beginning that VLWs possess medical supplies, transmit timely and accurate messages, and maintain regular contact. Later, once community confidence and VLW credibility is established, the programmes can move on to areas of less visible immediate effects. A good example is malaria prevention, which requires the individual to take regular medication, or other measures involving unclear results but requiring consistent follow-up.

33. The link between extension and research work in agriculture would be equivalent to the link between field workers and both medical/health specialists and researchers. Given shortages of specialist staff and the need to reach broad communities, it makes sense that VLWs are not highly skilled but can depend on back-up teams of specialists for new recommendations (e.g., diagnosis of illnesses, preventive measures), and for availability for referrals of serious cases. As in T&V, continuing training is critical not only for updating recommendations, but also for building up the skills of the VLWs.

#### Reaching the small farmer

34. As projects are increasingly directed to reach poorer populations, the particular difficulties of involving and increasing the capabilities of the poor have become more apparent. Nowhere has this been felt more than in agriculture and rural development projects trying to reach small farmers. There are three reasons why this is difficult: (a) traditional incentive systems which worked with commercial farmers have sometimes proven less effective with small subsistence farmers; (b) farmers may be dispersed and fractionalized geographically, socially, culturally, linguistically and politically, making it harder to reach and organize them; and (c) officials and staff in charge of programme implementation have little contact with subsistence farmers, in part because of accessibility problems. Thus, they may not be aware of the farmers' real needs and values.

35. Programmes frequently failed to bring small farmers into the system, essentially for two reasons: first, the farmers tend to be represented as a target number of beneficiaries to be reached, rather than as constituencies to be assimilated into the institutional network serving the sector; second, it is often assumed that the same, perhaps more intensive, strategies that have been successful in reaching modernizing, commercially-oriented groups (i.e., price incentives, subsidized inputs) would apply in reaching these poor farmers, although different strategies with additional elements were actually needed (i.e., involvement in decision-making and their labour commitment to the programme).

36. Some of the new approaches for involving small farmers require fairly radical departures from the ways both governments and aid agencies are used to working. They require a significant investment of time and resources in mobilization at the grassroots level. These approaches also have important political implications, since they involve shifting the balance of power.

37. Montgomery and Esman<sup>(1)</sup> identify six "potential channels for extending services to the poor":

- (a) Market mechanisms impose low administrative and resource demands, but the commercial sector does not find many goods and services needed by the poor profitable, nor are the poor able to participate in markets; market processes may even victimize the poor.
- (b) Voluntary organizations also involve low costs, and are flexible in responding to changing needs and conditions, but they often suffer from poor organization, mistrust by local groups, especially if they are foreign, and service on a limited scale.
- (c) Traditional bureaucratic structures can provide services with reasonable quality and cost standards; but they are slow and the gap between bureaucratic structures and their grassroots constituents limits the structures' possibilities of reaching many of the poor.
- (d) Modified bureaucratic structures<sup>(2)</sup> may respond more sympathetically and flexibly than the traditional bureaucracy, because they help bridge the gap between bureaucracy and grassroots; but developing new intermediary authorities takes considerable preparation, and governments may resist devolving the necessary authority to these structures.
- (e) Devolution to local authorities, such as municipal or provincial government is advantageous because these authorities are closer to the poor, seem more directly accountable to their constituents and can mobilize them more easily. However, their capability to take on such responsibilities has been limited, and it is not clear that they always operate to favour the interests of the poor.
- (f) Involvement of local interest groups,<sup>(3)</sup> formal or informal, benefits from their sensitivity and ability to mobilize their own membership. However, they may be slow to organize, suffer from politicized leadership, and lack the know-how to interact with the existing bureaucracy.

38. Another channel identified by several sources is the "intermediary institution", such as transitional arrangements for irrigation in which the local irrigation association is organized along traditional lines of authority, but managed to assimilate new functions required to link it with the central, more modernized bureaucracy.

39. Two further points are highlighted by experience: (a) new users for institutional channels tend to dramatically change (for better or for worse) those channels in the process, particularly if they had been weak; (b) the effectiveness of a given channel requires fairly simple procedures and lines of authority.

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(1) J. Montgomery, M. Esman, The Administration of Human Resources Development, December 1979, paper written as background for World Development Report III.

(2) May involve decentralization of authority to lower levels of organization, intermediary responsibility as with paramedics and other para-professionals, or special authorities such as parastatals.

(3) Women's groups, credit unions, labour unions, users' associations, etc.