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**KERALA WATER AUTHORITY
ORGANISATION REVIEW STUDY
INCEPTION REPORT**

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11 SEPTEMBER 1992

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LIST OF ABBREVIATIONS

ARU	Account Rendering Unit
AFF	A.F.Ferguson
CE	Chief Engineer
CRWSS	Comprehensive Rural Water Schemes
CWRDM	Centre for Water Resources Development Management
FM&CAO	Finance Manager and Chief Accounts Officer
GOK	Government of Kerala
IPD	Investigation, Planning and Design
KWA	Kerala Water Authority
KUDP	Kerala Urban Development Project
KWSS	Kerala Water Supply and Sewerage
NGO	Non Government Organisations
PMU	Project Management Unit
PROWESS	Promotion of the Role of Women in Water and Environmental Sanitation
PHED	Public Health Engineering Department
PSG	Planning Services and General
PIS	Personnel Information System
RWSS	Rural Water Supply Schemes
SEU	Socio Economic Unit
TWSS	Tubewell Water Supply Schemes
TCS	Tata Consultancy Services
UWSS	Urban Water Supply Schemes
UNDP	United Nations Development Programme
WB	World Bank

1 INTRODUCTION

In response to Kerala Water Authority's (KWA) invitation in terms of letter No.KWA/PMU/WB/24/ACTION 11/NOV 90 dated October 5, 1991, Price Waterhouse (PW) submitted its proposal on November 7, 1991 for the Organisation Review Study. KWA has awarded the study to PW in terms of letter No.KWA/PMU/WB/24/ACTION 11/NOV 90 dated May 20, 1992. As per the terms indicated in the proposal, PW commenced the Organisation Review Study on August 12, 1992.

1.1 Coverage of Inception Report

This Inception Report - details :

- o PW's General approach for each module
- o the focus areas of the study based on the discussions with top management and field level officials of KWA.
- o methods, procedures and analysis to be used in various modules of the study.
- o summary of the basic information gathered to date.
- o the data requirements against the adequacy of available data.
- o issues that would govern implementation of recommendations and counter part role of KWA.
- o detailed workplan with task time schedules for each module.

1.2 Report Structure

The objective of the study is to develop sound recommendations to KWA's Board on a programme of changes to organisation, staffing and systems with a view to strengthen KWA's capacity to provide efficient and cost effective services in the state of Kerala. The study objectives and detailed scope of work as defined by KWA are detailed in Chapter II.

The subsequent chapters of this report are primarily organised in terms of deliverables/outputs expected from this study. The study has been classified into six major modules or areas of study from the view point of deliverables and convenience of execution. For each of the modules this report covers the details mentioned in paragraph 1.1.

Module	TOR Coverage Ref. (as specified in the agreement)	Deliverable	Chapter Ref
1 Review of objectives & strategies	III (a)(b)&(c)	Interim Report 4	Chapter II
2 Study on existing structure	III (e)	Interim Report 2	Chapter VI
3 Analysis of existing staffing arrangements	III (f)	Interim Report 2	Chapter V
4 Review of existing systems & operational requirements	III (d)	Interim Report 2	Chapter VI
5 Development of detailed recommendations	III (g)	Interim Report 3	Chapter VI
6 Implementation strategies	III (h)	Draft final report	Chapter VI

Note: In addition to the above mentioned deliverables PW would submit a final report by consolidating the recommendations of interim reports and draft final report. In the final report PW would also incorporate necessary changes based on feedback from KWA's Board and World Bank mission officials.

2 TERMS OF REFERENCE

The study objectives and scope of work as defined by KWA are presented in this chapter.

2.1 Objective

The objective of the study is to develop sound and well justified recommendations to KWA's Board and senior management on a staged programme of changes to KWA's organisation and staff complement, by various categories of staff with a view to strengthen KWA's capacity to provide efficient, cost effective and popularly respected water supply and sewerage/ sanitation services to people, enterprises and institutions in the State of Kerala and to the maximum extent, recover the investment and annual cost of such services from the beneficiaries.

2.2 Scope of Work

The Consultant is to complete a comprehensive study of the present organisation and suggest necessary changes / modifications for the consideration of how the operations can best be facilitated and co-ordinated to achieve KWA's objectives. While carrying out the organisation review and framing recommendations, the Consultant should, in close association with the Management and the staff of KWA and other concerned agencies carry out the following :

- Study the objectives of the organisation as laid down in the Kerala Water Supply & Sewerage Act 1986 vis-a-vis the approach and performance ;
- Study the strategies for KWA to achieve its objectives ;
- Analyse the objectives and strategies and determine functional requirements at every step to the KWA ;
- Review the operational requirements of the existing organisation keeping in view the following:
 - o management activities in general management, financial management and accounting responsibilities, project management, materials management, operations & maintenance, training, personnel policies & practices, consumer relations
 - o organisational functions and systems ;
 - o decision making processes and management information systems that support them ; and
 - o findings of various consultancy studies carried out and being arranged

- Study the existing structure in the context of :
 - o integration of water supply functions and staff of Municipal Corporations and Municipalities ;
 - o completion of time bound projects already in progress and also the forthcoming KUDP project ;
 - o span of control over the KWA by State Government ;
 - o powers delegated to the officials at various levels;
 - o decision making levels and reporting procedure ;
 - ✓ o public and employer-employee relations ; and
 - o career prospects of personnel
- Identify problems in relation to performance of KWA in various functions and responsibilities in institutional, operational and financial performance, and diagnose the root causes for such problems, in terms of :
 - o structure ;
 - o systems and control ;
 - o appropriateness of structure to meet objectives ;
 - o problems in the existing structure ;
 - o problems in career path of engineering, administration and accounts personnel ;
 - o management information systems ; and
 - o adequacy of staffing
- The Consultant should frame detailed recommendations on :
 - o organisation structure specifying positions, levels, span of control ;
 - o delegation of power for various level of officers ;
 - o duties and responsibilities of all levels of officers
 - o training and personnel policies ;
 - o consumer relations and publicity ; and
 - o manpower requirements and recruitment policy for various levels of officers / staff.

2.3 The report shall bring out the logic for the recommendations and fix priorities of the recommendation for implementation specifying a clear time frame. The consultant shall bring out the estimated cost of the recommendations prioritised by the importance to the performance of KWA and their ease of implementation.

3 OBJECTIVES & STRATEGIES

3.1 The Perspective

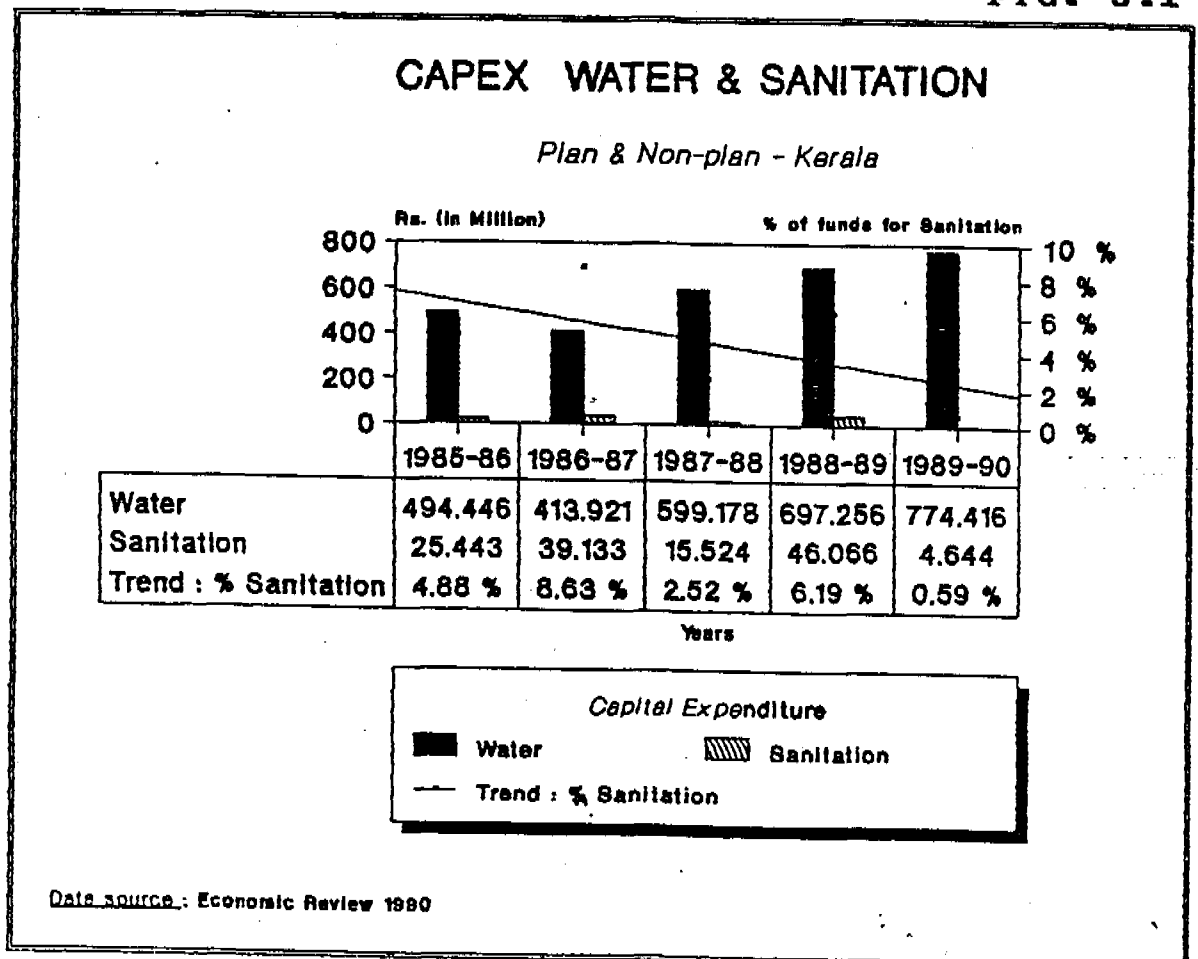
3.1.1 Review of past performance

For many people in developing countries water supply, sanitation and disposal of solid wastes are the most important factors - other than reasonably equitable distribution of income and well structured public expenditure - influencing the health status and human development.

3.1.2 Realising the potential health benefits from improved water and sanitation, the United Nations declared the 1980s as the Drinking Water and Sanitation Decade. The developments during the Water and Sanitation decade in Kerala like many other parts of the developing world can be summarised as follows :

- Larger availability of financial resources for Water and Sanitation sector (especially for drinking water projects) from Government & International Funding Agencies. (Refer fig.3.1)

FIG. 3.1



- A wider coverage of people with access to water of reasonable quality.
- Lesser progress in providing the sanitation facilities for both urban & rural population.
- Non-fulfillment of decade targets & goals both in water and sanitation sector.
- Increased coverage often with lower quality of service (levels of leakage, non-working meters, non-registered connections - issue of an efficient operation & maintenance).
- Risk of sustaining the same level of capital investments due to poor internal revenue generation and increasingly lower govt. allocations.
- Shortage of sound, well-prepared projects that would be implemented quickly.
- Delays in completion of projects.

3.1.3 Linkages between other sectors

Water supply alone is not adequate to control infectious diseases. A combined approach is usually required which includes ample water supply (clean & quality water), hygienic disposal of excreta, education in water usage practices and household hygiene to change traditional beliefs and habits and improved garbage collection.

- ### 3.1.4 Inadequate sanitation is a major cause of the degradation of the quality of groundwater and surface water. While the most widespread contamination of surface water is from disease-bearing human wastes, the principal origin of ground water pollution is seepage from the improper disposal of industrial and other hazardous wastes and over exploitation of aquifers in coastal areas.

The provision of water for increasing demands from agriculture, industrial and household uses will be an environmental challenge.

3.1.5 Institutional Development

A recent comprehensive review of forty years of World Bank experience in Water and Sanitation pinpoints "Institutional failure" as the most frequent and persistent cause of poor performance by public utilities.

A well co-ordinated, responsive and capable organisations/institutional arrangements are required to effectively handle the complex tasks ahead. The role, objectives and strategy of any organisation in the water sector are thus determined by the over all tasks in the sector as well as responsibilities and capabilities of other organisation in the sector.

3.1.6 Priorities and tasks ahead

In the context of the above situation it would be required

- to evolve, define and enforce an appropriate legal, regulatory and administrative framework for environmentally sustainable water resources management.
- to develop capable and responsive institutional mechanisms/arrangements.
- to create conditions for participation of NGOs, communities and private sector.
- to evolve a comprehensive public finance policy to ensure that public funds are used to attain wider community benefits.
- to strengthen the network of field offices for technical support and effective mobilisation of community.

3.2 Focus Areas

3.2.1 Institutional arrangements & Legal framework

An agency responsibility matrix detailing the role and responsibility of various agencies in water and health sector would be prepared. This would help understanding the adequacy of legal, regulatory and administrative framework in this sector as well as the function of various organisations. This effort would focus on :

- ✓ - Water resources policy
- ✓ - Rights over use/extraction of surface & ground water
- ✓ - Conservation, ecological upkeep & other environmental related issues.
- ✓ - Implementation of capital projects
- ✓ - Operation and maintenance of existing projects.
- ✓ - Public education in health, sanitation & water uses.
- ✓ - Human Resource Development/skills developments for the sector
- ✓ - Conflict resolution between various users - irrigation, industry, household

The Organisations other than KWA that would be covered in this regard are :

- Water Resources Control Board.
- Irrigation Department
- State Ground Water Board
- Central Ground Water Board
- Local Bodies
- CWRDM

The analysis of agencies responsibility would help define the role & responsibilities of KWA and identify gaps in the sector (policy and implementation) that would affect the performance of KWA.

3.2.2 Performance Evaluation of KWA

The performance evaluation of KWA in its areas of responsibility would be carried out to identify the strengths & weaknesses of the organisation. How the formation of KWA, a semi autonomous body, has facilitated the provision of drinking water and sanitation services in Kerala would be evaluated. This would help to arrive at realistic goals & targets for KWA.

3.2.3 Scope of activities & role of KWA

The Kerala Water Supply and Sewerage Act 1986 envisages a state wide function for KWA both in water supply and waste water disposal. This would involve preparation, execution, promotion, operation, maintenance and financing of the schemes for water supply and sewerage systems. While a single organisation with a network of field offices would facilitate the achievement of overall objectives and policies, the cost effectiveness of such an arrangement needs to be studied in the context of the following :

- Financial constraints in taking up capital projects at large scale/state wide, and thus justify the organisation & staffing. This is especially true of sanitation & sewerage projects.
- Due to the above reasons there is a need to use low cost technology, which would enable a larger coverage with a reasonable service solution. The implementation, operation and maintenance of these low cost technology systems (which requires lesser capital investment and relatively low skilled human intervention) with high powered engineering organisation makes it cost ineffective. The above factors are especially true of operation and maintenance of rural systems. yes!
- Special studies by National Drinking Water mission and UNICEF recommended integration of different programmes including rural water supply and sanitation under a single department ie. Rural Development Department. The States of Orissa, Andhra Pradesh and Karnataka have such an integrated Rural Development Department.

The scope of activities and role of KWA can be defined in the following alternative forms.

- Capital and Operation & Maintenance of Water Supply and Sanitation for entire state (as at present)
- Capital and Operation & Maintenance of Water Supply and Sanitation for urban areas.
- Capital Works for entire State and Operation & Maintenance for urban areas only (or major cities only).

The consultants would evaluate the above alternatives keeping in view the following :

- the effectiveness of services to the people and institutions of Kerala.
- the other organisations and their capacity to provide the required service.
- the longterm financial and other implications for KWA/ Sector.

3.2.4 Status of coverage & service levels

As per the data available with KWA about 70% of the urban and 38% of the rural population have been provided with water supply. On the other hand, progress on the sanitation front has been very slow. Only 30% of Thiruvananthapuram city and a minor percentage in Kochi are covered by sewerage facilities ie. Water borne sewerage. The treatment facilities for sewerage however do not exist to the desirable levels. However the low cost sanitation programme in urban and rural area is implemented through Directorate of Municipalities & Panchayats to increase the coverage. (refer fig.3.2 & 3.3 in the following page)

FIG. 3.2

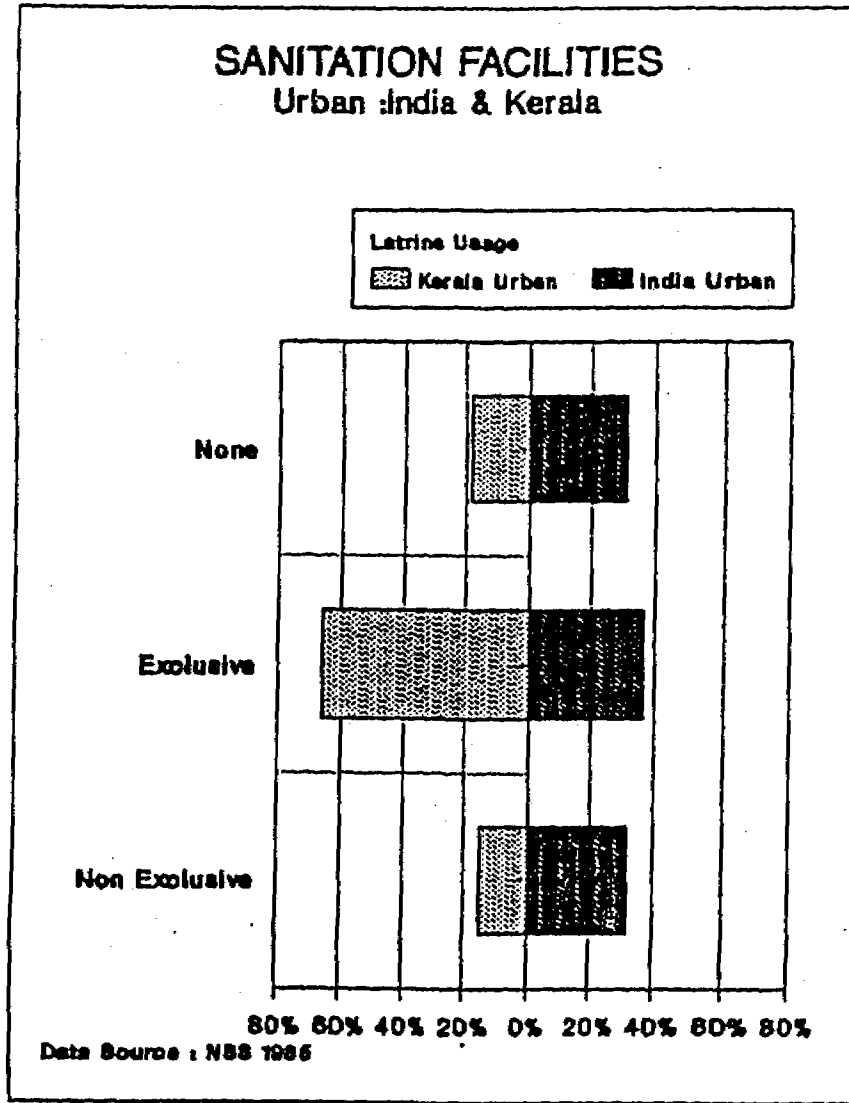
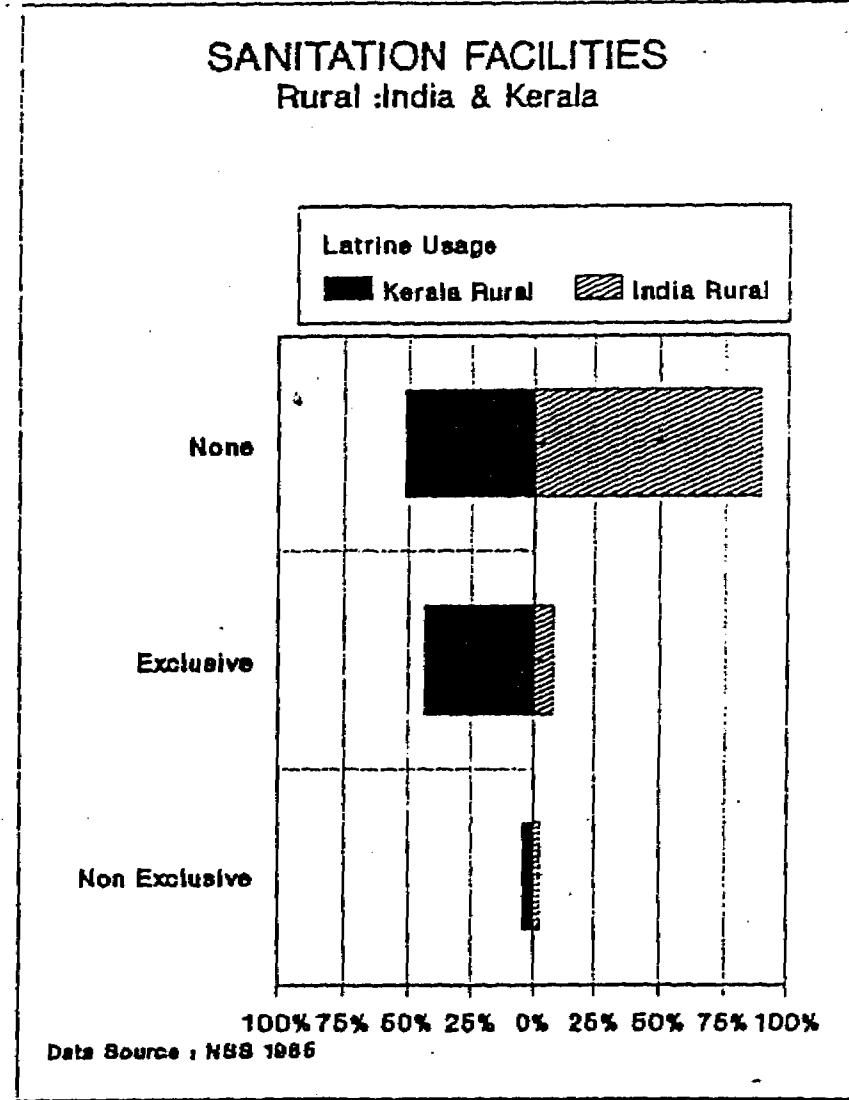


FIG. 3.3



Since the statistics of coverage is area bound, the increased population in the respective areas are also considered as "covered" population. While it is partially true that existing system (without augmentation) has covered the increased population, it has in fact resulted in a decreasing service level to the consumers.

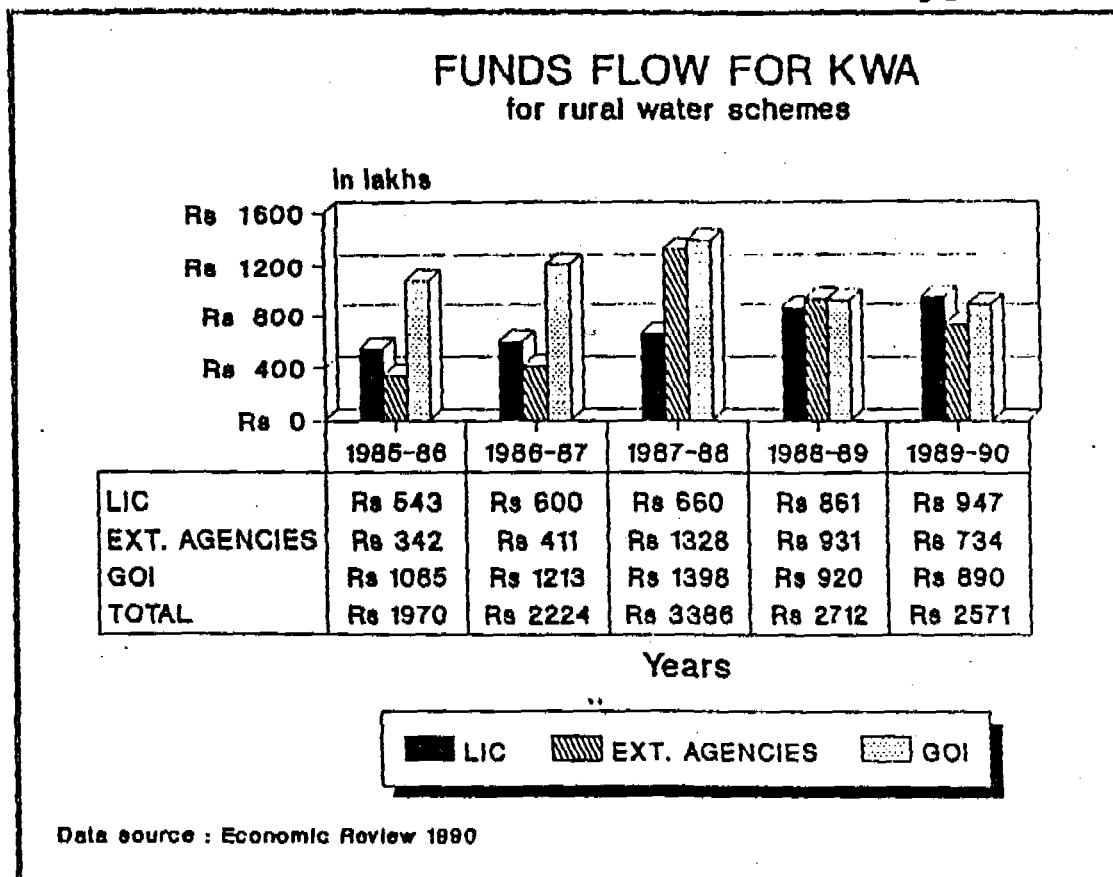
Establishing the actual coverage and service levels in various regions would help evolving the goals and targets for the coming years.

3.2.5 Financial performance & requirements

The general principle that govern KWA's finance as per the KWSS Act is that "the Authority shall not carry on its operations under this Act at a loss and shall so fix and adjust its rates of taxes and charges under this Act as to enable it to meet as soon as feasible of its operation, maintenance and debt service and where practicable to achieve an economic return on its fixed assets".

The analysis, findings, conclusions and recommendations of A.F.Ferguson's cost and revenue study for KWA would be used to evolve specific objectives and goals. The cost recovery norm for various service regimes would be developed. The low industrial base and high dependence on local body payments etc. would be kept in view while evolving a realistic cost recovery strategy. The low level of internal revenue generation has resulted in heavy dependence on external agencies on water supply schemes' investments. (Refer fig.3.4)

FIG. 3-4



A forecast of financial requirements for capital projects (ongoing and eighth plan targets) as well as repayment of interest and principle dues would be undertaken to help evolve a realistic resource mobilisation strategy.

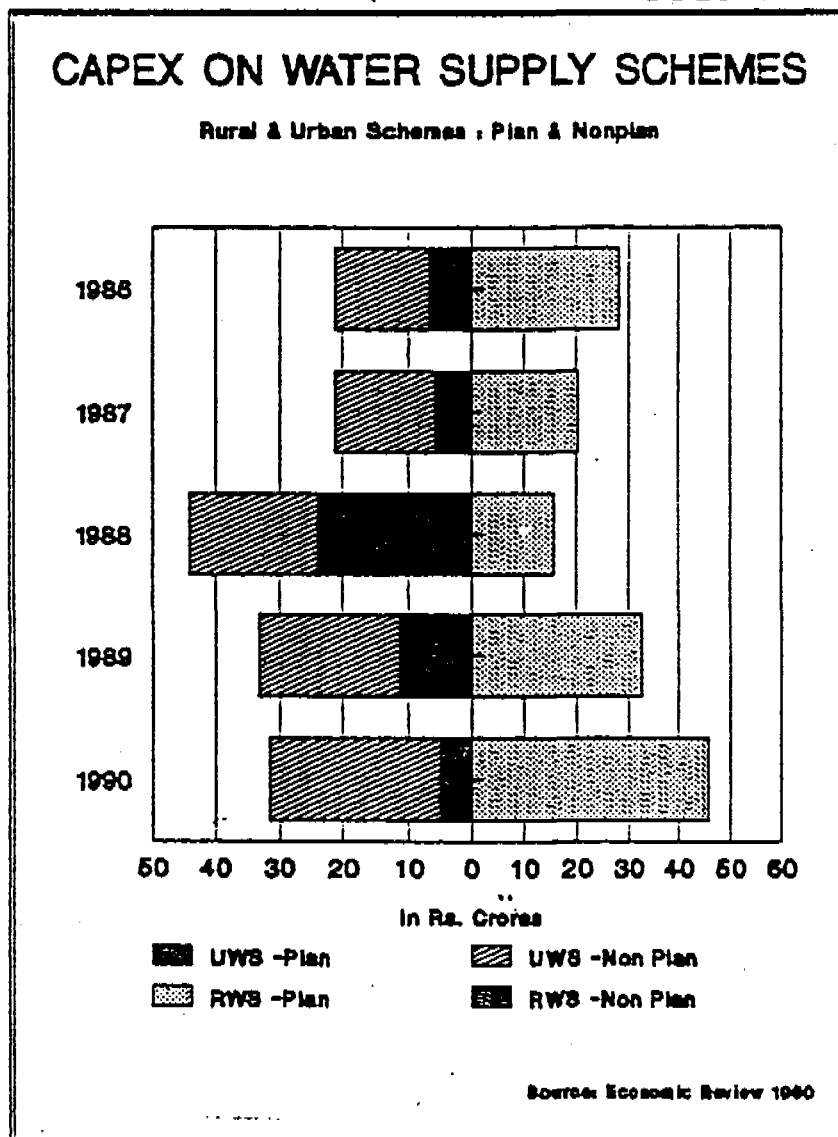
3.2.6 Capital Project Implementation

The Eighth five year plan for Water Supply and Sanitation has the following targets :

- 100% coverage of urban and rural population with basic minimum need of water supply
- 100% sewerage coverage of all class I towns and 80% coverage of remaining urban population
- 25% rural sanitation coverage

However, KWA would be provided utmost importance to the completion of spill-over schemes of seventh five year plan. it is imperative to note here that a significant amount of investments in urban water supply are through non-plan schemes. (Refer fig.3.5)

FIG. 3.5



KWA may also take up the implementation responsibilities of major urban (3 city corporations) augmentation water supply schemes and sewerage schemes being negotiated for a financial assistance from World Bank under Kerala Urban Development Project (KUDP).

A preliminary review of the report of consultants (Tata Consulting Engineers and Consulting Engineering Services) appointed by KUDP reveals that the suggested organisation structure for the above mentioned urban schemes would be bigger than the existing KWA regional arrangements. The basic assumption behind these reports are that KWA would continue to handle these projects as it is being done now. However, the possibility of shifting from usage of labour contracts to "turnkey contracts" needs to be explored as it would help containing the unreasonable growth of organisation. Similarly retention of consulting firm for monitoring the progress of large projects also can be explored.

At present large time and cost overruns are evidenced in most of the capital work projects at KWA. Spreading the available money thinly over a large shelf of projects is one of the major reasons for the present situation. Developing a realistic capital expenditure plan and a system of allocation of funds to ensure timely completion of projects assumes the highest priority.

3.2.7 Operations & Maintenance

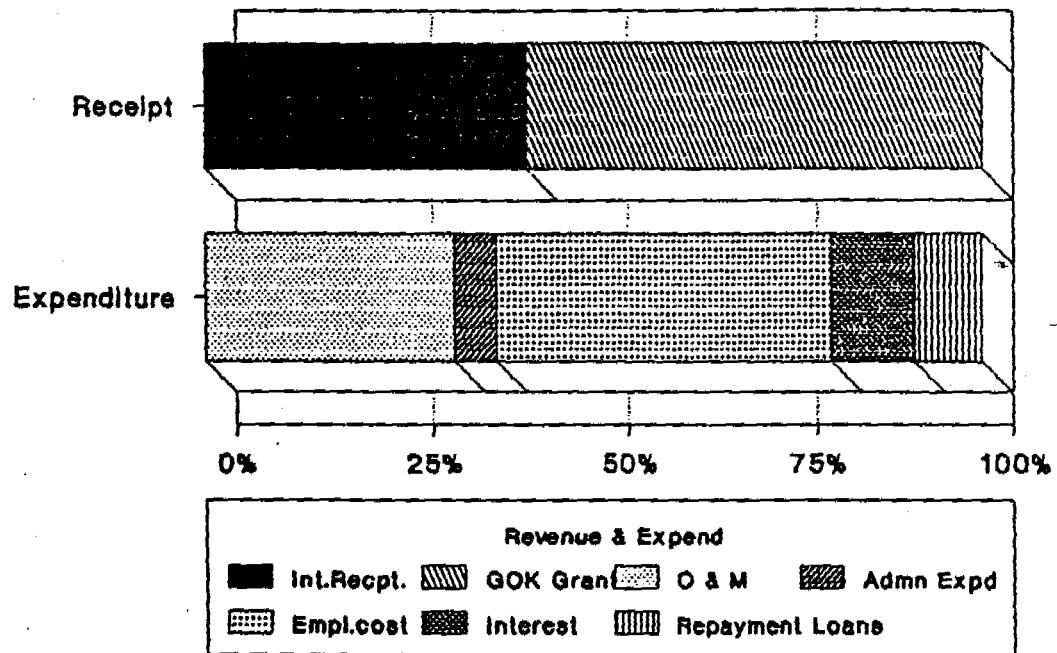
KWA at present is looking after the operation & maintenance of about 1550 fully/partially commissioned water supply schemes of which 1513 are in rural areas and 37 in urban areas. KWA operates and maintains all public water supply system except hand pumps. However sometimes the repair and maintenance of hand pumps are also undertaken as part of drought relief programme. The total operation and maintenance expenditure on both rural and urban schemes is estimated to be around Rs.400 million excluding interest & depreciation charges.

The cost & revenue study indicates that the O & M expenditure for various schemes at KWA are at much higher levels and there is significant scope to reduce them. Evolving cost norms for various types/technology of schemes assumes importance. (Refer fig.3.6)

FIG. 3.6

REVENUE RECEIPT AND EXPENDITURE

KWA 1991-92



Data Source : Budget Estimates 1982-83

The objectives of O & M should be evolved in the following areas

- assurance on quality of water supplied and arrangements for quality testing & monitoring - both urban & rural.
- evolve systems for operation & maintenance and ensure adherence - preventive maintenance schedule, chemical usage, deviation reporting etc. Avoid "Management by Crisis".
- selection of appropriate technology from the operation & maintenance cost point of view - tubewell vs comprehensive rural water supply schemes. Feedback from the past O & M experiences to be used to improve design of small system.
- minimise the un-accounted water (leakage/distribution loss is estimated to be around 25%)

- well trained staff with clearly defined roles & responsibilities.
- assign higher priority for O & M, through appropriate organisational arrangements. (At present O & M related decisions are mostly taken at the level of sections/sub-divisions as divisions and above are busy with capital project work).

The possibilities for community & private sector participation in operation & maintenance activities need to be explored.

3.2.8 Demand & Supply : Future Tasks & Targets

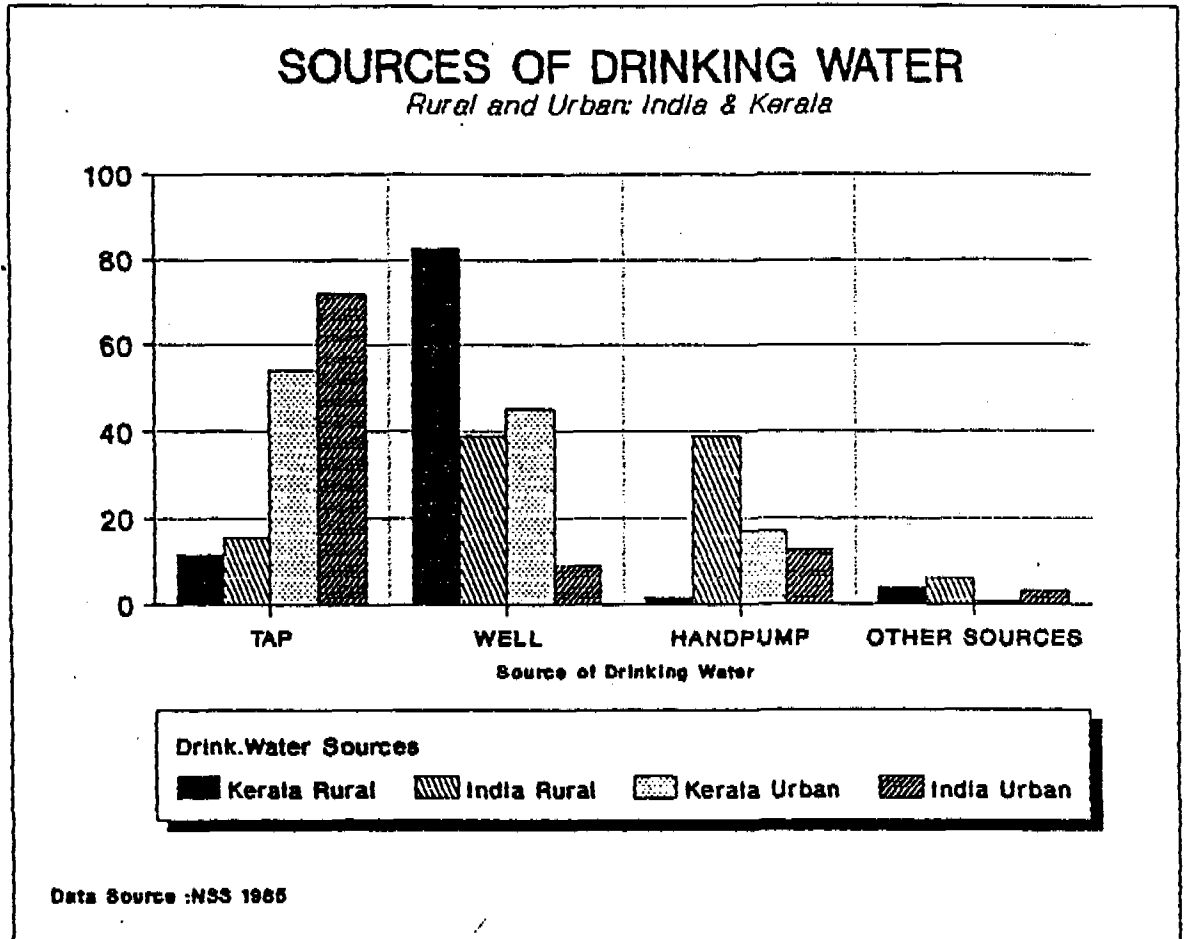
The state level plans and Five year plans are primarily based on the assumption that the basic needs are the 'demands' and supply efforts should be focused towards them. In a situation wherein a larger number of population in lower strata are not even covered with minimum needs requirements such an approach would help targeting the efforts. On the other hand a semi autonomous body, with an objective of recovering its costs and investments, should also approach this issue keeping in view the actual economic demand ie. willingness to pay for a specific service level.

The economic demand based approach should be adopted especially in the cases of industrial and commercial areas as well as high income/high consumption household segments. It is imperative to note here that among other things, lack of the above mentioned approach, is the reason for low industrial consumer base for KWA (as per Cost & Revenue Study among the largest water consuming 25 industries, the dependence on KWA is less than 10% of the total consumption by volume).

PW would develop a framework for forecasting the demand and indicate the demand trends from available secondary data. The demand for KWA services is not only influenced by the available alternative sources and supply but also the confidence on the capacity of KWA to provide services at required levels.

As per National Sample Survey data 76% of households in Kerala depends on well for drinking water. Only 19% of households depends on taps for drinking water. Moreover 68% households in Kerala have drinking water facilities within their premises as against the all India average of 32%. This situation would greatly influence the nature of demand for piped water supply in Kerala. (Refer fig.3.7 in the following page)

FIG. 3.7



3.2.9 Quality of Water & Treatment facilities

The huge investments in water supply projects would achieve the intended benefits - safe water for human consumption - only if water quality surveillance and control systems are installed. This system should assure the proper operation and the continuing delivery of safe drinking water long after the commencement of projects.

At present water samples are tested in 3 public health laboratories at Thiruvananthapuram, Ernakulam and Kozhikode under the control of the Health Service Department and also in the Always laboratory of KWA. It is highly desirable that surveillance responsibilities be assigned to an independent agency/cell distinct from the water supplier/regular operating divisions.

A review of the appropriateness of the existing arrangements for an independent check on water quality and adequacy of infrastructural facilities would be undertaken. This review would cover

- existing legislative power over all drinking water jurisdictions and rights of the agency to establish and enforce regulations governing the protection and distribution of water.
- adequacy of (i) sanitary survey (ii) water quality monitoring system
- protection of water sources through land use controls and control of pollution discharges.
- adequacy of treatment - filtration & disinfection.
- secure storage & safe distribution through a formal operation and maintenance programme.
- water quality monitoring parameters and frequency against the requirements of Indian Standard (revised 1991) adopted by the Bureau of Indian Standards.

KWA may not attain the financial capability to install sewerage treatment facilities in the near future. Hence the present strategy of decentralised low cost sanitation programme may be more effective than accumulation and discharge of untreated waste water into natural systems.

3.2.10 Role of NGOs, Community & Private Sector

The experience of various development programmes indicates that success is inevitable if NGOs and community participation complement the efforts of public utilities. The experience of 'PROWESS' (Promotion of the Role Of Women in Water and Environmental Sanitation Services) programme of UNDP in India would be reviewed to draw relevant lessons on community participation. Further, the specific experience of SEUs (Socio Economic Units of KWA) in their project areas would be evaluated and a programme for replication at the state level would be prepared.

At present KWA extensively utilises private contractors for the execution of capital projects and to carry out major O & M works. However the system that have been evolved during the controlled commodity regime (cement, steel) is in vogue. This would require KWA to supply all major materials and the contractors to provide primarily the labour. This system has not helped to avoid project time and cost overruns.

Recognising the limitations of the existing arrangements KWA has recently given "Turnkey" projects to private contractors for the execution of capital projects (eg. Changanacherry, Thiruvella). The consultants would review these efforts and develop appropriate schemes for greater involvement of private sector.

3.3 Methods, Procedures & Analysis

PW would be using the following methods to finalise the objectives and strategies of KWA.

- o Analysis of available data for the focus areas identified and develop alternate proposals on objectives and strategies. This would include :
 - Demographic changes in the existing service areas as well as uncovered areas.
 - past performance review - coverage, new schemes commissioned, proportion of "satisfactory" schemes, cost recovery etc.
 - Forecast of activities - capital and O & M for next 5-10 years.
- o Review of Five year plans/Annual plan targets.
- o Review of KWSS Act, Water policy statements of GOK and any other relevant GOK orders.
- o Review of studies conducted in the sector by SEUs and other agencies such as UNICEF and National Drinking Water Mission etc.
- o Analysis of Census and National Sample Survey data.

3.4 Information Requirements/gathered

PW has collected all required information for the above analysis except for recently issued GOK orders, if any.

3.5 KWA's Role

The focus areas that have been identified and detailed in para 3.2 would serve as the framework for evolving objectives and strategies for KWA. If any other areas required to be studied by consultants for the purpose of objectives and strategies, KWA's should indicate the same before the end of September 1992.

The consultants would evolve alternate objectives and strategies keeping in view various workable scenarios. The finalisation of objectives and strategies however is the responsibility of KWA top management/Board.

3.6 Work Plan

Tasks	Time Schedule			
	1992	1992	1992	1992
	Sept	Oct	Nov	Dec
Review of KWSS Act and other GOK requirements	****	****		
Analysis of data on demographic trends etc.	****	****		
Identification of Critical success factors and Development of alternate objectives and Strategies		****	*	
Report Writing - Interim Report 1			****	**
Finalisation by KWA			**	**

STUDY ON EXISTING STRUCTURE

4.1 Perspective

Recognising the fact that an autonomous institution would be able to deliver the required services efficiently, the GOK formed KWA through an ordinance in 1984. Based on the recommendations of an organisation study, certain changes have been introduced in the organisation structure of KWA, which has been essentially formed out of the erstwhile Public Health Engineering Department (PHED). Thus KWA retains even now certain aspects/features of the systems and structural arrangements of PHED.

The organisational requirements for an autonomous agency which is expected to manage its operation on a commercial basis is quite different from a government department. Moreover KWA is expected to implement major water supply and sewerage schemes, on a scale and size never handled before, (The expenditure total capital investment is around Rs.1250 million in the first phase ie. before 1996) in the near future funded by World Bank. The responsiveness of KWA to these changing environment and capable handling of these tasks crucially depends upon, among other things on the structure and staffing.

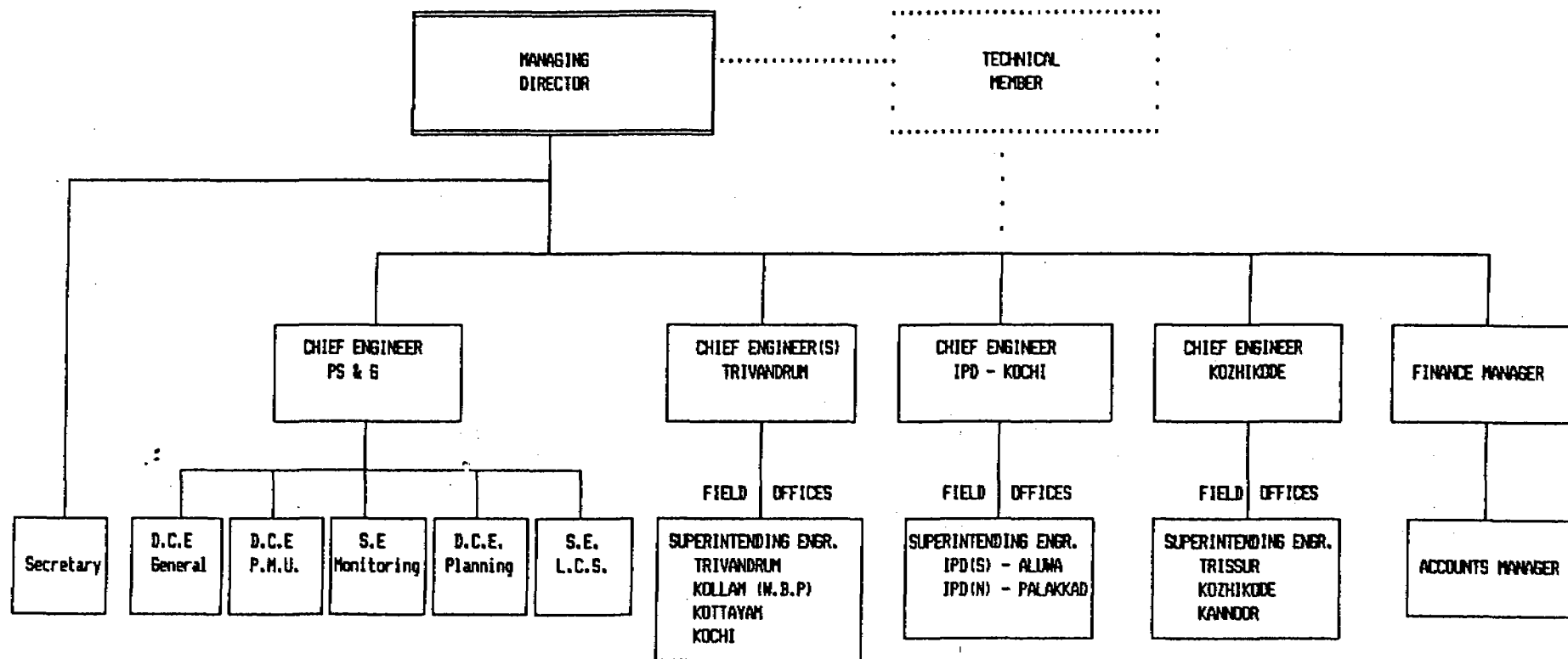
The experience of the consultants indicate that structure and staffing changes alone (the other aspect is the problem of introducing these changes in a comprehensive manner, because many a time the recommendations are selectively implemented) would not result in improvements of natural monopoly organisation like KWA. Much more goes on in the process of organising and achieving objectives than the charts, boxes, dotted lines and position descriptions can possibly depict. The boxes at higher levels are more than provisions for promotional opportunity. The effective organisational change is really the complex relationship between structure, staffing, systems, skills (managerial and technical) and work culture (work culture percolates downwards from the initiatives and commitments of top leadership). The checks and balances through other institutional arrangements and innovative participation of NGOs and community is required to ensure efficiency from natural monopolies.

4.2 Focus Areas

4.2.1 Head Office : A unit of strategic importance

KWA with a large number of field units spread all over Kerala requires a comprehensive head office structure for planning, controlling and monitoring the field activities. A review of the existing HO structure indicates (Refer chart 4.1)

KERALA WATER AUTHORITY - ORGANISATION STRUCTURE



Note : Division, Sub-Division and Section offices details have not been included in this chart.

- o Unequal distribution of responsibilities as well as the lack of comprehensiveness in the top positions. For example functional responsibilities of the CE (PSG) include the areas of planning and monitoring of projects, administration/personnel related matters and materials planning and procurement.
- o Chief Engineer's office of Investigation, Planning and Design (IPD) located at Kochi is delinked from planning and monitoring units at HO. While the HO unit headed by Dy. CE is responsible for five year plans/annual plans, the IPD primarily prepares project reports based on investigation studies. The linkage between these activities are essential to fix priorities for project identification, execution and completion.
- o Scope for improvements in project monitoring and cost controls : The linkage between planning and monitoring also needs improvement either structurally or through adequate information flow.
- o Inadequate inputs from finance on all major decision on investments and cost control.
- o Need to increase top management focus on
 - Operation and Maintenance
 - Human Resource Development
 - Labour/Employee, Management relations
 - Cost controls - Operation & Maintenance
 - Computer applications
 - Technical audit for cost effective project execution
 - Public education & consumer relations
- o Need to relieve top management from routine/operational matters to concentrate on policies, controls and monitoring.
- o Clarify the role of full time members (in addition to a technical member, efforts are initiated by KWA to create a full time member for finance) in policy making and day-to-day functioning.

4.2.2 Organising for Capital project works and Operation & Maintenance

Unlike similar organisations in other Indian states, KWA has state wide responsibility of not only planning, design and construction of all water supply and sewerage works but also operations, maintenance, distribution and revenue collection activities of these schemes. At present the organisational units at field levels do not have functional focus and most of the units handle all 3 major functions ie. project execution, operation & maintenance and revenue collection.

The study would work out the cost benefits of the segregation of these functional responsibilities keeping in view the following:

- Increasing workloads in both capital and O&M activities
- Benefits arising out of exclusive attention in terms of improved service, reduction in project lead time, cost control as against the cost of establishing exclusive organisational units.
- Execution of Minor Projects and Extensions.
- Implication of segregation on support functions like materials, accounts, finance etc.
- Generally engineers are more interested in project divisional placement. A system for ensuring capable and qualified engineering staff for O & M is required.

4.2.3 Evolving norms for office formation

A review of the workloads as reflected in the capital funds allocation, consumer strengths, number of schemes for O & M etc indicates its unequal distribution across various field divisions. Evolving appropriate norms for formation of offices - sections, subdivisions, divisions etc - would help in :

- manpower planning based on the projected capital and O&M activities
- effective utilisation of existing manpower
- cost controls
- establishing uniform service levels

4.2.4 Kerala Urban Development Projects : Implementation Responsibilities

The World Bank funded KUDF schemes on water supply improvement for Trivandrum, Cochin & Calicut and sewerage improvement for Trivandrum would be executed by KWA. The proposed investments on these projects are substantial and the projects will be among the largest of the projects undertaken by KWA.

PW studied the recommendations on organisation required for these projects of the consultants retained by KUDF. These recommendation would be reviewed based on the following:

- Critically study the basic assumptions behind the recommendations - especially the project execution strategy i.e. Turnkey projects vs conventional system of implementation (as indicated in para 3.2.6)
- The overall objective of this organisation study is to suggest measures for cost effective operation of KWA. Thus the impact of the recommendation would be evaluated keeping in view the long term requirements as against the immediate project execution requirements.

4.2.5 Priority for Operation and Maintenance

The structural changes required to achieve the objectives of O&M referred to in para 3.2.7 would be addressed in the study. The study interalia would focus on

- the work loads at the section office for various types of schemes (UWSS, RWSS, TWSS, CRWSS etc.)
- Arrangements for meter repair & maintenance
- Arrangements for leak detection
- The need for exclusive O & M offices at higher levels. (for example the need for an exclusive CE for O & M).

4.2.6 Human Resource Development

At present there is no personnel department to look after the human resource development related activities. The personnel related activities are shared by the Secretary (with the assistance of administrative officer) and the CE(PSG) (with the assistance of Dy.CE-Training). There is a felt need to create an independent personnel department. The structural requirements for the following would be studied :

- Industrial Relations
- Personnel Administration
 - Placement & Transfers
 - Personnel Information System
- Training and Skill Development

4.3 Methods, Procedures & Analysis

- o Review of organisational structure and decision making process at HO through detailed discussions with senior KWA officials.
- o Review of organisational units such as Circles, Division, Sub-divisions & Sections based on select sample of field units. The sample selection would cover various types of units, viz.,
 - Urban / Rural
 - Project/O&M/Revenue Collection
 - Investigation, Planning & Design
 - Major projects
 - Comprehensive rural water supply schemes
 - Cities/Municipalities/Panchayats
 - Major revenue collection centres
- o Review of roles & responsibilities, delegation of power, reporting relationships at each hierarchical levels.

- o Study the adequacy of existing organisational structure in relation to the accepted objectives and strategies.
- o Study similar organisations in other states to draw relevant conclusions.

4.4 Data Requirements/gathered

List of all organisational units : Until now the consultants have collected details only upto the divisional level. The reporting relationships of subdivisions and section are not available at HO. Efforts are initiated to collect these information from various divisions of KWA. The roles & responsibilities and reporting relationships are similar across various field units. Hence based on discussions with field offices from the sample units identified, an understanding would be developed. The checklist enclosed in Annexure-1 would be used for collecting relevant information from various organisational units.

4.5 KWA's Role

Provide feedback and finalise

- the draft proposals on roles and responsibilities of key positions
- the draft proposals on organisation structure for HO and field offices.

4.6 Work Plan

Tasks	Time Schedule				
	1 9 9 2			1 9 9 3	
	Oct	Nov	Dec	Jan	Feb
Collection of data on organisational units roles & responsibilities	****	****	****		
Development of draft proposals on Organisation structure		**	****		
Report Writing - Interim Report 2				**	
Finalisation by KWA				**	**

5 ANALYSIS OF EXISTING STAFFING ARRANGEMENTS

5.1 Perspective

For a public utility, such as KWA, which provides basic and essential services to a large population, adequate skilled manpower is essential for its operation. The existing financial constraints of KWA, has resulted in a virtual ban on new recruitment. In this context PW's approach would be to prepare a plan for effective utilisation of existing staff through emphasis on training and skill development. However the consultant would suggest additional recruitment/skill supplements where it is absolutely essential due to requirements of technology or work. The staffing and manpower plan would be developed keeping in view the objectives detailed in Chapter 3.

5.2 Focus Areas

5.2.1 Adequacy of staff

The preliminary discussion with KWA officials from various offices indicates a widespread perception of inadequacy of staff at various categories and offices. A review of the existing norms for staff deployment indicate that many of them are based on the old systems and practices and hence may not be applicable in the present context. Hence the study would focus on

- o review of existing systems and practices and suggest improvement to reduce work loads of KWA staff.
- o study activity/work related parameters for various categories/offices and provide inputs for evolving worknorms.
- o evolve appropriate profile (ratio) of technical/support and managerial/non-managerial manpower keeping in view the cost implications. (Refer fig.5.1 & 5.2 in the following page)

FIG. 5.1

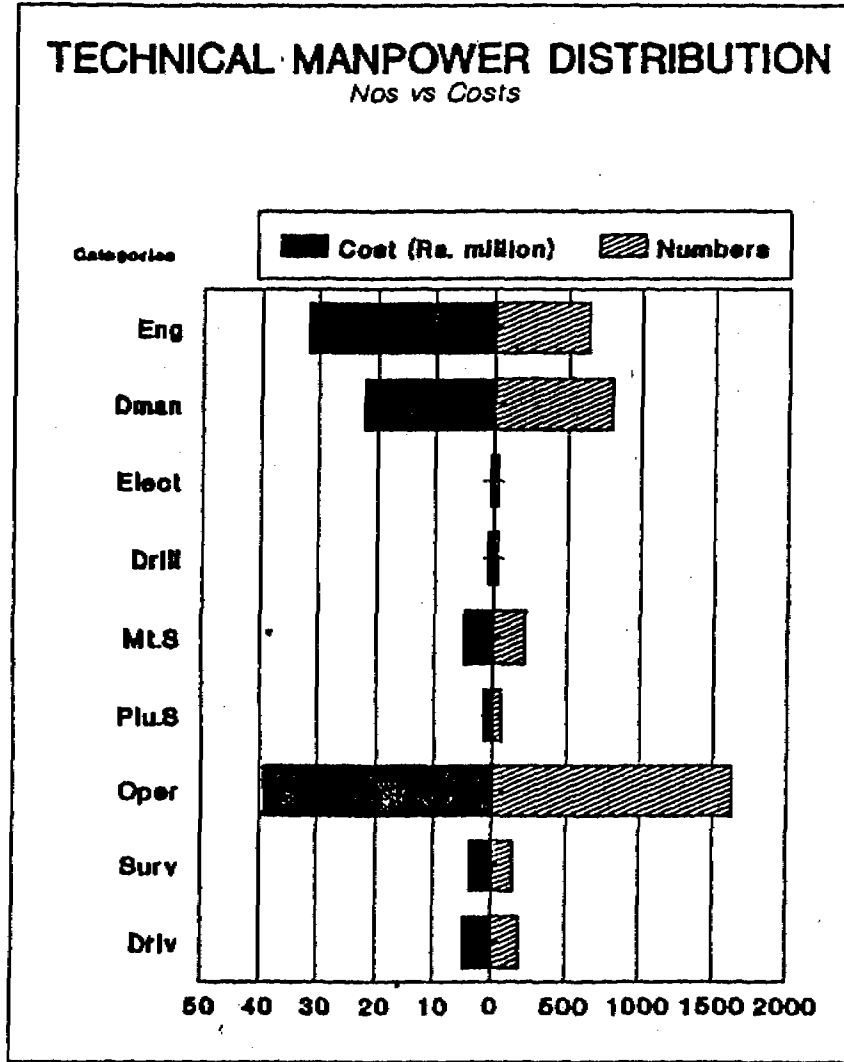
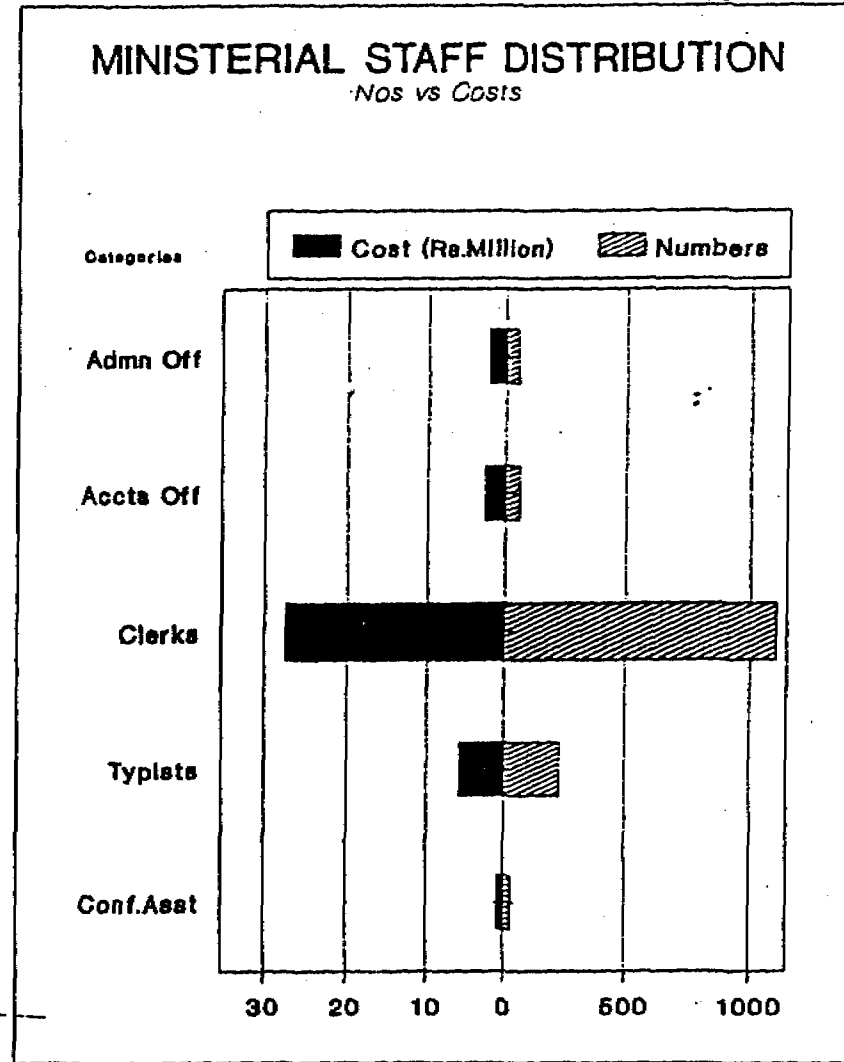


FIG. 5.2



5.2.2 Skill Development

A review of the report of the North West Water International Limited for KWA and earlier studies of PW indicates that the inadequacy of staff is more in terms of skills than numbers. Training and skill development is likely to be a high priority area for KWA. In this regard the study would focus on :

- o Study of skill profile of KWA employees in various categories based on their educational qualification & experience.
- o Development of qualification and skill requirement specifications for various categories (KWA's draft proposals on job specification would be reviewed against the desirable skill requirements at various levels and suggestions would be made wherever necessary).

5.2.3 Forecasting Manpower Requirements

A manpower plan based on a detailed analysis of existing staff in various categories and forecast of activity levels is essential to ensure effective utilisation of employees. This would also help plan inception training for new recruits as well as for preparatory training before promotions. PW is planning to computerise the staffing analysis and the outputs expected of this analysis are as follows :

- o Category-wise/Agewise skill profile
- o Employee age distribution categorywise with skill depletion pattern.
- o Year-wise number of employees to be promoted to the next higher grade (given the qualification & experience requirements)
- o Report on surplus/vacant positions based on budget/norms for various divisions.
- o Recruitment requirements for next 5-10 years given the existing employee demography.
- o Recruitment plan for next 5-10 years based on the projected Capital and O&M activities growth.

PW will be in a position to carry out the above analysis to all categories of staff only if KWA provides the required data indicated in para 5.4.

5.3 Methods, Procedures & Analysis

- o Collection and analysis of data on organisational unit-wise existing staff deployment ..
- o Review existing work norms and suggest changes wherever necessary. The norms would be reviewed by either comparing with other similar organisations or assessing the time, required at unit activity level and workloads.

- o Analyse the workload - capital and O & M - at individual field unit level.
- o Forecast of manpower category-wise for existing and future activity levels. Staff requirements based on existing as well as proposed work norms would be provided.
- o Relate system changes and project implementation strategies (Turnkey projects) to staffing requirements.
- o Skill profile of KWA staff and assessment of skill requirements.

5.4 Data Requirements/gathered

The available data at HO are insufficient for the above mentioned analysis. The data related problems can be summarised as follows :

- o No reliable data on unit-wise existing staff deployment.
- o The available data (mostly budget than actual) is only upto the division level. However any systematic manpower planning requires sub-divisional and sectional data, as most of the employees are concentrated in these offices. Any workload based manpower plan system also requires data from that level.
- o Similarly the data required for developing employee profile is also not readily available. The seniority list of various categories from which certain information on individual employee can be obtained is also not up-to-date.

In order to overcome the above problems, the consultants have developed a detailed structured questionnaire to collect the information from field offices and have initiated efforts to collect these information from various divisional offices. The questionnaire to be used for data collection is provided in Annexure-1.

5.5 Role of KWA

KWA should inform all its field offices to provide the required data in the specified format developed by PW (Annexure 1). To facilitate this process PW has already sent these formats to KWA through its letter dated August 4, 1992.

Revisions of work norms for various categories require detailed discussions and finalisation with recognised trade unions. KWA's top management should initiate this process based on the inputs provided by this study findings.

5.6 Work plan

Tasks	Time Schedule					
	Sep	1992 Oct	1992 Nov	Dec	1993 Jan	1993 Feb
Collection of data from field offices	****	****	**			
Analysing of data collection and preparation of staff plan				**	****	
Report Writing - Interim Report 2						**
Finalisation by KWA					**	**

6 REVIEW OF EXISTING SYSTEMS AND OPERATIONAL REQUIREMENTS

6.1 Perspective

The systems and procedures of an organisation helps in assuring the service quality with efficient utilisation of resources. KWA has appointed consultants to design systems in the areas of accounting, project management, cost data collection and information processing. The structure and staffing requirements (especially responsibility fixation) for generating various reports would be reviewed. Simultaneously efforts would also be made to review the suggested systems and procedures from the point of view of increasing efficiency and reducing workloads. The study would also concentrate on developing system in the areas that have not been covered by earlier consulting studies, as indicated below in the focus areas.

6.2 Focus Areas

6.2.1 Plan & Budget Preparation

Realistic plan based on the available resources is a prime necessity for a budgeting control system to work. A plan de-linked from financial resources available is an ineffective document to carry out the stated objectives. Due to various reasons at present the accounting information base and budgetary process as well as physical project planning and financial resources allocation are not linked. The preliminary review indicates that there are system/structure related issues for the present situation. The study would focus :

- o Heads of Receipt & Expenditure : KWA receive money from GOK on 3 broad account heads i.e. Revenue grant, Capital grant & loans. However the expenditure of KWA has to be accounted not only in terms of capital and revenue expenditure but also in terms of source of receipt ie. World Bank, Bilateral agencies, centrally sponsored schemes & counter part contribution of GOK etc. A clear cut allocation of funds under the heads mentioned (World Bank, Bilateral agencies etc) would facilitates the accounts processes. If there is an allocation on these heads at the time of monthly receipt it would avoid lot of confusion.

Disbursement procedures : FM & CAO allocates the money every month to various ARUs either on revenue account or capital account - specifically for each works. However a review of the KWA budget document reveals that in many cases the cumulative amount allocated for a project exceeded the sanctioned amount. It has also been understood from the review of funds requisition statements/accounts of the divisions that divisions divert the money allocated between various projects under their jurisdiction. In a situation wherein due to political and other reasons the selected

projects for implementation are much higher than the availability of funds, such diversions further hamper the project completion within the estimated time.

Information system & control : For effective budgetary control the feedback on expenditure should be as detailed as it has been planned. At present the expenditure details are monitored at consolidated overall levels rather than in terms of materials, labour, contract charges etc. PW would study the project management system developed by TCS for World Bank projects and suggest methods for enhancing the coverage for other projects.

6.2.2 Material Management System

For a state-wide organisation such as KWA, with the extensive project and revenue works, the activities of purchasing, storage and distribution of materials play a crucial role. The existing systems and procedures mostly being followed from PHED days focus primarily on control aspects. The other areas that require attention are :

- o Inventory control
- o Material Requirement Planning : (At present annualised and delinked from project implementation & progress)
- o Extent of purchase, centralisation & decentralisation required for various classes of items. (At present all purchase order placements have been centralised while payments are decentralised resulting in coordination problem and payment delays. Any changes in this regard should also be assessed from the point of view budgeting controls on projects).
- o The need of regional stores/other stores locations
- o Effective stock verification system.

6.2.3 Personnel Information System (PIS)

The salary cost constitute 67% (revenue accounts 1990 - 91) of total operating & running cost. Such a highly manpower intensive service utility should have a comprehensive PIS to ensure effective utilisation and skill development. A system to continue the staff analysis reports detailed in para 5.2.3 would be designed.

6.3 Methods, Procedures & Analysis

- o Review of systems and procedures in the focus areas identified.
- o Study the implication of system changes in terms of work efficiency, reduction in lead time & workloads, internal controls etc.

- o Study the information needs of top management for decision making and assess the adequacy of existing/proposed systems

6.4 Information Requirements/gathered

PW has collected the final reports submitted by A.F.Ferguson & Co., and draft report of Tata Consultancy Services. The primary information collection on existing system would be started in the first week of October.

6.5 KWA Role

Provide feedback on cost data collection system and project management system developed by AFF and TCS respectively.

Finalise the PW draft proposals on systems improvements.

Develop appropriate training schedule to introduce the new system.

6.6 Work Plan

Tasks	Time Schedule				
	Oct	1 9 9 2 Nov	Dec	1 9 9 3 Jan	Feb
Collection of information on existing system	****	****			
Develop alternate proposals on systems		****	***		
Obtain feedbacks on new proposals			*	*	
Report Writing - Interim Report 2				**	
Finalisation by KWA				**	**

7 DEVELOPMENT OF DETAILED RECOMMENDATIONS

7.1 Perspective

PW conceives the Organisation Review Study in the larger context of identifying all problem areas and diagnosing the root causes for such problems that affect KWA's performance in achieving its objectives. In this context PW recognises the fact that KWA's functioning is characterised by numerous interfaces with the State Government, Central Government and its agencies, Financial Institutions etc. The heavy dependence of KWA on GOK for its every day sustenance is a known fact. Hence the detailed recommendation for KWA's performance improvement would be in consonance with the overall objectives and interests of the above mentioned institutions.

7.2 Focus Areas

The detailed recommendations with underlying analysis, logic and rationale would cover all the focus areas indicated in the four major modules of the study. (Chapter 3-6) ie.

- o Objectives & Policies
- o Organisation Structure
- o Staffing arrangements
- o Systems & Operational Requirements

7.3 Methods, Procedures & Analysis

- o Recommendations to be based on diagnosis of root causes of problems that constrains achievement of objectives.
- o Development of comprehensive solutions detailing structure, staffing and system requirements.
- o Provision of logic & rationale behind recommendation through systematic analysis of data/information.
- o Cost and benefits of the proposed changes.
- o Presentation of recommendation & rationale to the Board, Top management and other interest groups.

7.4 Information Requirements/gathered

Essentially the data/information collected for the four modules i.e. objectives & strategies, structure, staffing and system would be sufficient. In this module a synthesis of analysis carried out in various modules would be attempted.

7.5 KWA Role

KWA's prompt feedback on interim study outputs at various milestones plays a crucial role. In this regard constitution of a Steering Committee with various functional heads as members would help in providing feedbacks as well as approval of consultants outputs.

7.6 Work Plan

Tasks	Time Schedule		
	1993	1993	1993
	Feb	Mar	Apr
Finalisation of recommendation on structure, staffing & system	**		
Development of detailed recommendation with logic & rationale	**	**	
Report preparation Interim Report 3			**
Finalisation by KWA		*	****

8 IMPLEMENTATION STRATEGIES

8.1 Perspective

The beneficial impact of any organisation review study crucially depends on the top management commitment and disposition of various interest groups to the recommended action plans. Active involvement of KWA personnel at all the stages of the consulting assignment, is one way to ensure the understanding of the rationale and logic behind the ultimate recommendations. It should also be kept in view that organisational reforms/improvements are processes which require constant monitoring and careful handling since they affect various interest groups differently. Organisation changes and improvements are more an internal process which are to be initiated by a committed managerial staff and any external assistance are limited to identifying problem issues, visualise alternate solutions and play a catalyst role. Further timing, speed and sequencing of organisational reforms are as much significant as the content & scope of the reforms.

8.2 Focus Areas

- o Fixation of priorities :- Based on contribution to performance, lesser resistance & easier to implement
- o Time Frame for implementation
- o Cost & Benefits

8.3 Methods, Procedures & Analysis

- o Meetings with the Steering Committee on major findings/suggested solutions.
- o Top management/Board seminar at periodical intervals - to discuss & finalise.

8.4 Work Plan

Tasks	Time Schedule				
	1 9 9 3				
	May	Jun	Jul	Aug	Sept
Presentation of recommendation & rationale to the Board, Top Management & other interest group	****				
Review of feedback from KWA Board		****	*		
Preparation of Draft final Report			***		
Receipt of final comments from KWA				****	
Preparation of Final Report					****

KERALA WATER AUTHORITY

ORGANISATION REVIEW STUDY

DATA COLLECTION - SCHEME & STAFF DETAILS

AUGUST 1992

PRICE WATERHOUSE
610, ANNA SALAI
MADRAS - 600 006

Part A:

I Division Code : Name : _____
 (as per accounts manual)

II Name Of The Circle Reporting To : _____

III District : _____

IV Taluks under jurisdiction :

SNO	TALUK	SNO	TALUK	SNO	TALUK

V. Sub-Divisions / Sections Under The Division's Jurisdiction
 (Enter codes as per accounts manual)

SUB DIVISION			REPORTING SECTIONS	
SNO	CODE	NAME	SNO	NAME
1			1 2 3 4 5 6	
2			1 2 3 4 5 6	
3			1 2 3 4 5 6	
4			1 2 3 4 5 6	

(use separate sheets if necessary)

Part A:

I Division Code : Name : _____
 (as per accounts manual)

II Name Of The Circle Reporting To : _____

III District : _____

IV Taluks under jurisdiction :

SNO	TALUK	SNO	TALUK	SNO	TALUK

V. Sub-Divisions / Sections Under The Division's Jurisdiction
 (Enter codes as per accounts manual)

SUB DIVISION			REPORTING SECTIONS	
SNO	CODE	NAME	SNO	NAME
1			1 2 3 4 5 6	
2			1 2 3 4 5 6	
3			1 2 3 4 5 6	
4			1 2 3 4 5 6	

(use separate sheets if necessary)

PART A : (to be filled for all schemes under the section separately and kindly use photostat copies of this format)

- i. Section Name: _____ District : _____
- ii. Scheme Name : _____ Taluk : _____
- iii. Scheme Code (used by technical wing) : _____

iv. Scheme Status

Date of Commencement : _____ Date Of Completion : _____

Programme under which : _____ Programme under which : _____
 scheme was taken up scheme was completed
 (eg. ARWSS, LIC, WB, Etc.)

CAPITAL	ESTIMATED	ACTUAL
	Rs.	Rs.

Fully Commissioned Partially Commissioned

If not fully commissioned,

a. When it is expected to be fully commissioned? _____

b. What is the financial requirement ? Rs. _____

Does the scheme get yearly budget allocation ? Yes / No

If yes what is the yearly budget estimate? Rs. _____

What is the actual amount received? Rs. _____

v. Scheme design/actual details:

Particulars	Population coverage	Capacity	Project Time Lag
As per design		KLD/MLD	Years
Actual		KLD/MLD	Years

vi. Villages covered:

SL No	Name of the village covered	Popula-tion covered -Actual	Problem village as per National Drinking Water Mission		REMARKS
			YES	NO	

Part B: (J wherever applicable)

i. Source of water supply :

River	Pond	Bore	Tube	Open well	Lake
Spring	Extension from other scheme		Infiltration gallery	Others (specify) :	

ii. Quality of water source :

Bacterial contamination	Excess Iron	Salinity	Fluorosis	Colour
Brakishness	Odour	Turbidity	Others (specify) :	

iii. Methods of water treatment :

Chlorination	Plain Sedimentation	No treatment
Cogulation	Iron removal	Others (specify):
Slow sand filtration	clariflocculation	
Rapid Sand filtration	pressure filter	

iv. Nature and frequency of water analysis done :

Analysis	Before treatment	After treatment	None
Frequency (specify)			

v. Sufficiency of Water Source :

Adequate for future demand	Adequate but need to be augmented for future demand	Not adequate needs additional source	Not adequate, may have to be abandoned

vi. Period of scarcity _____ Months.

vii. Quantity of water distributed (% of design capacity)

PERIOD	100% & above	99 - 80%	79 - 60%	59 - 40%	39 - 20%	20 - 1%	Nil
SUMMER							
OTHERS							

viii. Number of hours water distributed per day

PERIOD	24 - 20	19 - 16	15 - 8	7 - 4	3 - 2	LESS THAN 2 Hrs	Nil
SUMMER							
OTHERS							

ix. Reasons for shortage

Source inadequacy	Manpower problem	Machinery	Others
Specify reason -			

Part D :

i. Have you under taken any survey on Distribution Sytem to identify working installations / standposts?

YES	NO
-----	----

If yes give actual or kindly estimate from your field experience

INSTALLATION	METERED	NON-METERED	TOTAL	NON-WORKING	DISCONNECTED
STAND POSTS					
HANDPUMPS					
HOUSHOLD CONNECTION					
COMMERCIAL					
INDUSTRIAL					

ii. Number of pumping stations : _____

iii. Length of raw water transmission mains : _____ Kms.
(lines supplying water upto service reservoir)

iv. Length of clear water transmission mains : _____ Kms.

v. Length of distribution system other than mains : _____ Kms.

vi. Capacity of the service reservoir : _____ Kilo Litres.

vii. Pending connections :

Particular	Household	Commercial	Industrial	Others (specify)
No. of pending connections				

viii. Is there a demand for new connections ?

YES	NO
-----	----

If yes what needs to be done to satisfy the demand?

Finance : _____

Manpower : _____

Others : _____

ix. Willingness by consumer to pay for initial investment for the new connection -

YES	NO
-----	----

Willingness by consumer for the recovery of investment cost through tariff bills (initial investment to be made by KWA)

YES	NO
-----	----

Part E : (to be filled for all schemes under the section)

I. Section Name : _____ Sub-Division Code : _____

II. Scheme Name : _____

III. Man power details of the scheme :

CATEGORY	NO OF POSITIONS (full time)			PART TIME	TEMPO RARY / CASUAL	OTHER SCHEMES RESPONSIBLE (part time employees)	JOB TYPE (Pump opr. Plant maintena -nce, meter reader, etc.)
	SANCT -IONED	ACTUAL	ON WORKING ARRANGMT				

(Use separate sheets if necessary)

Part E : (to be filled for sewage schemes)

I. Low cost sanitation :

II. Urban sewage system

PART G:

Details of staff working in Sub-Divisions :
 (Do not include section staff attached to this sub-division)

1. Sub-Division Code : _____ Name : _____

CATEGORY	SANC TIONED	ACTUAL	ON WORKING ARRANGEMT	ON WORKNIG ARANGMT FROM WHICH OFFICE -sub-division code	CASUAL TEMPRARY	TOTAL
Technical -----						
Ministerial -----						

2. Sub-Division Code : _____ Name : _____

CATEGORY	SANC TIONED	ACTUAL	ON WORKING ARRANGEMT	ON WORKNIG ARANGMT FROM WHICH OFFICE -sub-division code	CASUAL TEMPRARY	TOTAL
Technical -----						
Ministerial -----						

(Use separate sheets if necessary)

PART H:

Details of staff working in the Division Office :

Division Code : _____ Name : _____

CATEGORY	SANC TIONED	ACTUAL	ON WORKING ARRANGEMT	ON WORKING ARANGMT FROM WHICH OFFICE -sub-division code	CASUAL TEMPRARY	TOTAL
<u>Technical</u>						
<u>Ministerial</u>						

(Use separate sheets if necessary)

PART 1:

Details of staff working in the Circle Office :

Circle Code : _____ Name : _____

CATEGORY	SANCTIONED	ACTUAL	ON WORKING ARRANGEMENT	ON WORKING ARRANGEMENT FROM WHICH OFFICE <small>-sub-division code-</small>	CASUAL TEMPORARY	TOTAL
Technical -----						
Ministerial -----						

(Use separate sheets if necessary)

PART J:

Details of staff working in the Regional Office :

Region Code : _____ Name : _____

CATEGORY	SANCTIONED	ACTUAL	ON WORKING ARRANGEMENT	ON WORKING ARRANGEMENT FROM WHICH OFFICE -sub-division code	CASUAL TEMPORARY	TOTAL
<u>Technical</u>						
<u>Ministerial</u>						

(Use separate sheets if necessary)

LP