പതിനാലാം കേരള നിയമസഭ

പതിനാലാം സമ്മേളനം

നക്ഷത്രചിഹ്നമിടാത്ത ചോദ്യം നമ്പർ: 2714 — 12/02/2019-ലെ മറുപടി

കേരള വാട്ടർ അതോറിറ്റിയിൽ കൂടുതൽ തസ്തികകൾ

ചോദ്യം

ശ്രീ. കെ.വി.അബ്ദുൾ ഖാദർ

മറുപടി

കെ.കൃഷ്ണൻകുട്ടി
(ജലവിഭവ വകുപ്പുമന്ത്രി)

(എ) കേരള വാട്ടർ അതോറിറ്റിയെ സംബന്ധിച്ച് ഇന്ത്യൻ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് മാനേജ്മെന്റ് തയ്യാറാക്കിയിട്ടുള്ള റിപ്പോർട്ടുകൾ ലഭ്യമാക്കാമോ; ഇത് നടപ്പാക്കുവാൻ എന്താണ് തടസ്സമെന്നത് അറിയിക്കാമോ;

(എ) കേരള വാട്ടർ അതോറിറ്റിയെ സംബന്ധിച്ച് ഇന്ത്യൻ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് മാനേജ്മെന്റ് തയ്യാറാക്കിയിട്ടുള്ള റിപ്പോർട്ട് അനുബന്ധം ആയി ചേർത്തിരിക്കുന്നു.
പ്രസ്തുത റിപ്പോർട്ട് സ്ഥാപനശാക്തീകരണത്തിനായി വാട്ടർ അതോറിറ്റിയിൽ രൂപീകരിച്ച ഹൈലെവൽ കമ്മിറ്റി വിലയിരുത്തുകയും ആയതിലെ ഏതാനും നിർദ്ദേശങ്ങൾ നടപ്പിലാക്കുകയും ചെയ്തിട്ടുണ്ട്. ശേഷിക്കുന്നവ ടി കമ്മിറ്റിയുടെയും വാട്ടർ അതോറിറ്റി ബോർഡിന്റെയും അനുമതി ലഭ്യമാക്കേണ്ടതുണ്ട്.

(ബി) കേരള വാട്ടർ അതോറിറ്റിയിൽ ടെക്നിക്കൽ സ്പെഷ്യൽ റൂൾ നിലവിലുണ്ടോ; വ്യക്തമാക്കാമോ;

(ബി) ഉണ്ട്.
1966-ലെ കേരള പബ്ലിക് ഹെൽത്ത് എഞ്ചിനീയറിംഗ് സബോർഡിനേറ്റ് സ്പെഷ്യൽ റൂൾസ് ആണ് കേരള വാട്ടർ അതോറിറ്റിയിലെ ടെക്നിക്കൽ ജീവനക്കാർക്കായി നിലവിലുള്ളത്. ഇത് കാലോചിതമായി പരിഷ്കരിക്കുന്നതിനുള്ള നടപടികൾ സ്വീകരിച്ചുവരുന്നു.

(സി) ഡാറ്റാ ബേസ് അഡ്മിനിസ്ട്രേറ്റർ തസ്തികയുടെ അടിസ്ഥാന യോഗ്യത എന്താണെന്ന് വെളിപ്പെടുത്താമോ;

(സി) 1966-ലെ കേരള പബ്ലിക് ഹെൽത്ത് എഞ്ചിനീയറിംഗ് സബോർഡിനേറ്റ് സ്പെഷ്യൽ റൂൾസിൽ ഡാറ്റാ ബേസ് അഡ്മിനിസ്ട്രേറ്ററുടെ തസ്തിക ഉൾപ്പെടുത്തിയിട്ടില്ല. 05/3/1993-ലെ സ.ഉ (എം.എസ്) നമ്പർ 47/93/എൽ.എ.ഡി പ്രകാരം കേരള വാട്ടർ അതോറിറ്റിയിൽ ഡാറ്റാ ബേസ്

അഡ്മിനിസ്ട്രേറ്ററുടെ തസ്തിക സൃഷ്ടിക്കുന്നതിന് അനുമതി നൽകി ഉത്തരവ് പുറപ്പെടുവിച്ചിരുന്നു. ടി ഉത്തരവിൽ യോഗ്യത നിഷ്കർഷിച്ചിട്ടില്ലാത്തതിനാൽ കേരള വാട്ടർ അതോറിറ്റിയുടെ 139-ാമത് ബോർഡ് യോഗത്തിന്റെ 3307 തീരുമാനപ്രകാരം ഡാറ്റാ ബേസ് അഡ്മിനിസ്ട്രേറ്റർ തസ്തികയ്ക്ക് താഴെപറയുന്ന യോഗ്യതകൾ നിശ്ചയിക്കുകയുണ്ടായി.

1. By promotion from the cadre of Assistant Data Base Administrator (ADBA) having minimum 8 years experience within the cadre, failing which

2. By direct recruitment from among the persons with Master Degree in Computer Applications (MCA with one year experience)

(ഡി) കേരള വാട്ടർ അതോറിറ്റിയിൽ കൂടുതൽ തസ്തികകൾ ആവശ്യമുണ്ടോ; അത് സൃഷ്ടിക്കാൻ ശ്രമമുണ്ടോ; വിശദമാക്കാമോ? (ഡി) പരിശോധിച്ചുവരുന്നു.

Renuka Sankar
സെക്ഷൻ ഓഫീസർ

IIM BANGALORE
STUDY REPORT

Final Report

for

Rearrangement of Kerala Water Authority

Submitted by:

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31 January, 2012

Table of Contents

Acknowledgements

This project has benefited from interactions with and guidance from a number of individuals and organizations. We would like to thank them all for the open and detailed discussions we have had with all of them.

We have had the pleasure of interacting with many executives and staff members of Kerala Water Authority. They have helped us at various stages of this project. Some of them have moved on to other positions and responsibilities during the course of the project. We would like to thank them all for their help and support. We are particularly thankful to the members of the Institutional Strengthening Working Committee at KWA. They were particularly helpful, both formally and informally, in providing us an appreciation of the challenges and opportunities faced by KWA that would not have been possible without their insights.

This project would not have been possible without inputs from and the support of a number of people outside KWA. They agreed to meet with us, kept the appointments, and not only did they spend the scheduled time with us, but also went over the allotted time, when required. They patiently put up with all our questions and our interruptions as we attempted to understand KWA and the context in which it will be operative. We are grateful to all of them for providing us with their views and insights. We have benefited from these insights in understanding the context of operations of KWA and reaching conclusions of what might and might not work in KWA.

A partial list of the interviewees within KWA and outside is given in the Appendix 1.

Last but not least, we would like to thank Mr. P. Sudarsanan, a former employee of KWA, who worked with us to acquire data which would probably not be available to us without his assistance and also provide us a nuanced view of the working of KWA which only an insider can provide.

Our suggestions and report are based on all the data that we collected /provided to us, and on our understanding of how organizations need to function in the future. We received diverse views on issues of importance, and we have tried to synthesize the conflicting perspectives using our own understanding of how such an organization should function to make our recommendations. We have made suggestions that might seem contrary to what some of our interviewees would have said or suggested, but we hope they appreciate that we have made these suggestions with the best interest of KWA in mind.

We, as a team, benefited professionally, by gaining a better appreciation of the constraints, stresses and strains of the environment within which the KWA functions. We hope that our recommendations will help in creating a vibrant, evolving and adaptable KWA that will be able to meet the challenges and the enormous responsibilities ahead of it of in providing water and sewerage facilities in Kerala that meet global standards.

Chapter 1

Preliminary

1.1 Introduction

The Indian Institute of Management Bangalore (IIMB) was request to undertake a project to address the need for re-organization of Kerala Water Authority (KWA) in order to make it more competitive and responsive to future demands. The Terms of Reference for the project were provided vide Letter No KWA/JBIC/HQ/6057/ISWC/08 dated March 2, 2009 from the Chief Engineer (JBIC Project), Kerala Water Authority. IIMB provided a proposal for the project vide letter dated March 23, 2009. The proposal was evaluated by KWA. A meeting between members of IIMB and the members of the KWA IS Working Committee was held in the office of the MD, KWA on January 12, 2010 to clarify some of the points in the IIMB proposal. Subsequent to the meeting, IIMB provided a revised proposal vide letter dated January 26, 2010. Finally, the project was awarded to IIMB vide Letter No. KWA/JBIC/HQ/6057/ISWC/08 dated May 26, 2010. The two parties signed an Agreement No 22/2010-11/CE-JICA dated 17 July 2010 to execute the project.

1.2 Objectives of the Project

The broad objectives of this project were as follows:

(1) to help conceptualize and prepare a rearrangement plan for Kerala Water Authority and (2) to provide assistance during the implementation of the plan for 6 months after the submission of the final report.

It was noted that the role of IIMB Core Project Team will be to study the current structure and processes of KWA with support from an internal KWA team and provide recommendations for the rearrangement of KWA. The assistance of the internal KWA team was to be critical for the accurate understanding of the situation and proper recommendations to meet the objectives of the project.

It was further noted that the role of the IIMB Core Project Team during the implementation phase was to be of advisory and supervisory in nature. The IIMB Core Project Team was to take the assistance of local resources for the detailing of some of the activity, who will work under the guidance of the IIMB Core Project Team to complete requirements as specified in the TOR. The IIMB Core Project Team was to advise KWA during the actual implementation of the recommendations, which will be conducted by the management at KWA.

Finally, it was clarified that all technical issues related to actual operations of Kerala Water Authority are beyond the scope of this project. KWA was expected to provide inputs on technical matters that may have bearing on the objectives and scope of the present project.

1.3. Scope of the Project

(i) Preparation of Strategic Development Plan

Understand the position and structure of WATSAN sector in Kerala and draw strategies to address the key issues

- Review the present position of water and sewerage sector in Kerala in terms of performance on various metrics and structure of the sector. Based on information obtained during the study and publicly available data, the position of WATSAN sector in Kerala was to be benchmarked with those of other states against accepted norms and standards to identify gaps.

Review the structure of the WATSAN sector and redefine the role of KWA in the current context

- Considering the changes in the sector with emphasis on ULB's, the current position of KWA and its resource base, the study team was to propose an appropriate role for a viable and vibrant KWA in the changed context keeping in mind its current and future commitments and viability of the organization.

- Discussions were to be held with stakeholders covering government, ULB's, Panchayats, citizens, KWA management and employees and other WATSAN sector agencies in Kerala. Based on this and publicly available data on other water authorities, the structure and position of KWA was to be recommended.

Review of the vision, mission and strategic intent of KWA in the context of overall WATSAN Sector Management strategy and futuristic role of KWA

- Review the vision, mission and strategic intent of KWA and in discussion with the senior management at KWA recommend any changes in the existing role in order to enable KWA to achieve its objectives.

Strategies for improved coordination with other agencies and projects

- Suggest strategies for improved coordination with other agencies and projects in order to ensure an effective and efficient working mechanism and reduction of duplication of efforts.

Strategies for improved community linkages and focus on poor

- Suggest methods for improving community linkages and in preparing projects with focus on the poor. This will cover issues like strategies to provide individual house connections to slums / BPL families with an aim to provide housing connections to all reducing dependability on street taps.

(ii) **Preparation of Organization Rearrangement Plan**

Autonomy for KWA

- Review the powers, including the financial authority, and suggest measures to ensure autonomy of KWA.

Setting Up Governance, Organization Structure and Office Structure

- Recommend organizational rearrangement of KWA with a view to make it a more efficient vehicle of service delivery. This will cover:

- Review of the board structure / governance process

- Recommendation on the roadmap to migrate to the new organizational structure and processes.

Setting up the Goals for KWA and Each Function and Geography

- Define the long-term goals to be achieved by KWA based on consultation with all stakeholders, particularly the senior management of KWA. The goals were to be broken down by function and geography.

Manpower Planning to Address the Role Agreed for KWA and Strategies for Redeployment

- Macro (high level) review of:
  - Review the existing manpower planning & deployment policy
  - Review the work allocation mechanism, current workload and average workload of managerial and supervisory staff, considering the existing infrastructure & support facilities in departments, plans for modernization and inter-linkages with service delivery and manpower needs and consequent cost implications
  - Examine the current manpower related issues
  - Recommend a manpower planning structure

Strategy to Handle Ramifications of Manpower Plan

- Prepare strategies that may be required to handle the ramifications that may arise out of the proposed manpower plan in the assignment.

HR Management Aspects like Job Clarity, Performance Improvement, Authority, Delegation of Powers and Employee Handbook

- Address HR issues such as

- Study the existing job descriptions and redefine the same wherever required so that there is suitable allocation of work to enable achieving the objectives
- Review the HR / performance appraisal systems and suggest methods of improving performance of employees
- Examine delegation of authority within the organization so as to increase the effectiveness of the employees
- Recommend job roles and descriptions, delegation of authority, performance evaluation and appraisal system.
- Recommend a Recruitment Policy

Strategy for Improved Motivation of Employees at All Levels

- Recommend strategies for motivation:
  - Develop strategies for improving motivation of employees at all levels of KWA
  - The strategy shall take into consideration the performance appraisal mechanisms to be implemented

Profiling of Top Management to Suit Unique Positions and Training Needs Assessment for All Unique Positions in the Revamped Organization

- Examine the adequacy of skill sets and capacity building initiatives required.
- Set a framework for building staff capacity / managerial competence to ensure that all staffs have the appropriate 'tools' to do the job. This includes the need for leadership, financial acumen, systems / IT, customer services skills as well as technical skills such as project management, O&M management, engineering skills etc.
- Recommend assessment and training requirement to prepare the manpower for future roles and positions.

Identification of All Major Processes to Enable Achievement of Objectives and Goals

- Identify the various processes that work together in the achievement of objectives and goals of KWA.
- Identify the processes and process owners and assess the extent to which it contributes to the overall achievement of KWA's objectives
- Recommend changes where necessary.

Process Review and Recommendations

- Recommend methodologies to carry out the work of process reviews and improvements in key processes. The IIMB Core Project Team will supervise the internal "process owners" of key work streams, who shall do the actual process documentation and come up with cost reduction.
- Suggest measures for improvements in key processes and cost reduction.

- Review all work on process improvements done by the internal KWA teams during the 6 months after the report is submitted.

Strategies for Improved Controls

- Suggest strategies to ensure improved control in various processes and implementation of 'management by exception' principle in KWA. The controls shall be instituted so as to bring out any deficiencies at the earliest so that remedial measures may be taken.

Recommendations on MIS at different levels for improved monitoring and action

- Review the IT road map prepared by KWA and suggest improvements to the same.

(iii) Policy and Procedural reforms

Changes to Regulations and Policies to Enable Achievement of Objectives Set Out in Strategic Development Plan

- Suggest changes required in policies and also the changes required in the KWSS Act[1] and the bye laws based on the institutional development plan after discussion with all stake holders. The verification of the legal validity of the suggestions is beyond the scope of this assignment.

Regulatory and Procedural Changes Needed to Enable Organization Rearrangement

- Review policies, procedures and KWSS Act / service rules / the bye laws based on the organizational rearrangement plan and suggest changes required in the same. The verification of the legal validity of the suggestions is beyond the scope of this assignment.

Documentation of Major Organizational Procedures

- Document the current processes for review with the help of an internal team of KWA.
- Review the documentation of major organization procedures to suggest changes to the documentation of various processes.

Phase II

Communication plan

- Review existing communication plan for communicating the strategic plan and recommendations and suggest strategies for improvement with a view to bring consensus and implementation.

[1] Kerala Water Supply & Sewerage Act

Implementation plan

- Recommend a road map to implement the various suggestions and recommendations made under each of the areas in the assignment with assigned time line for the same.
- Provide a priority ranking of the suggestions.
- Provide a monitoring plan covering key milestones, metrics and monitoring requirements.

Implementation assistance

The implementation assistance shall be provided for a period of six months which can be extended further based on mutual agreement. This assistance will be limited to advise and supervisory role on the way to implement the recommendation.

1. 4. Methodology

Various methods were to be used to collect information that will serve as input for the project:

1. The first source of information were interviews with senior managers and executives in KWA. The concerned minister and relevant officials in the state government were also interviewed. The purpose of these interviews were to gain an understanding of the external and internal challenges for KWA in the future, and to get a preliminary understanding of the possible alternatives that may address the anticipated issues.

2. The second source of information were internal documents of KWA that describe the current organizational structure and processes. These provided additional information on the issues faced by KWA and possible strategies to address them.

3. Further, information was acquired through interviews with relevant stakeholder groups and experts who have expertise in the water supply and sewerage sector. These included interaction with experts in various government ministries and departments and also Urban and Local bodies, and other relevant stakeholders identified with the help of KWA. The objective of these interviews was to gain an idea of the complexity of the environment in which KWA will function and hence the complexity of functioning and structuring of KWA.

4. Another source of information were similar bodies in India. Information available in the public domain, particularly on the Internet/Websites were the main source of information.

5. A questionnaire based employee survey was used to collect information to get necessary information to understand the preparedness of KWA for the proposed change. The survey was intended to assess the feasibility of some of the proposed changes in human resource practices that were being considered.

6. The information acquired in the various methods was processed to recommend the changes required in the organization structure and organizational processes in order to prepare KWA for the future.

7. The IIMB Core Team was to hire qualified personnel from Thiruvananthapuram to conduct detailed work on the project. Mr. Sudarsanan P. , formerly of KWA, was hired to this project and was tremendous help in acquiring data and well as providing insights for improvement of KWA.

1. 5. Support to be provided by KWA

1. KWA was to identify a single point of contact and communication for all issues relevant to the project. It was to establish an internal team to facilitate the working of the IIMB Core Project Team. Members of the Institutional Strengthening Working Committee worked as the internal team and they as a team rather than one individual were in touch with us during the project.

2. The KWA internal team was to assist in the identification of the relevant internal and external stakeholders and facilitate appointments and interviews for the smooth progress of the project. Members of the Institutional Strengthening Working Committee did an excellent of facilitating our interaction with various internal and external stakeholders.

3. The KWA internal team was to provide the data and documents that might be considered relevant and essential for the completion of the project. Again, members of the Institutional Strengthening Working Committee did an excellent of facilitating access to data. However, due to lack of availability of some data at KWA and lack of adequate documentation process some data was not accessible to us or was based on estimates that may not be accurate. However, the IIMB team has proceeded with the available data as the best data feasible in the context.

4. The KWA internal team was to provide any other assistance that might help in the timely completion of the project. As mentioned earlier, there was excellent support from members of the Institutional Strengthening Working Committee. However, due to events beyond their control, the appointments and meetings were quite frequently cancelled/ re-scheduled which has affected the timeliness of the project. We hope that the delays do not affect the implementation of the recommendations.

5. The KWA was to provide assistance in sourcing reliable personnel to be hired as subcontractors to work with the IIMB Core Project Team. As mentioned above, based on the recommendation of KWA, Mr. Sudarshan P. was hired for the project.

1. 6. Time Frame for the Project

As required by the Terms of Reference the following deliverables as per the schedule were to be provided:

S. No.	Activity	Time from Project Start
1.	Inception Report	3 months
2.	Draft Report	4 months
3.	Final Report	6 months
4.	Assistance during Implementation	12 months

We had indicated that the project of this complexity will be heavily contingent on the availability and cooperation of people, and availability of various documents requested from KWA. As mentioned above, due to events beyond the control of the IS team the project has been delayed. Further, due to other commitments of the members of the IIMB team the re-scheduled project completion date was revised to July 2011.

As per the Terms of Reference, assistance for a further period of 6 months after submission of the final report will be provided. The project will be deemed to be complete after the period of 6 months from submission of the final report or 12 months from the start of the project, whichever is later.

1.7 Organization of this Report

The next chapter examines the performance on KWA based on earlier studies and various benchmarking reports available. Chapter 3 examines the evolving role of KWA as the national and state governments delegate power to local bodies and consumers become more demanding in terms of the quality of services. Chapter 4 suggests a possible reorganization of KWA and Chapter 5 suggests improvements to processes to support the new organization. Chapter 6 examines the readiness of KWA employees to change the organization in light of the role and emerging environment for KWA. Chapter 7 captures the recommendations and implementation plan.

Chapter 2

Assessment based on earlier studies

The purpose of this chapter is to benchmark KWA's performance indicators with other comparable water and wastewater utilities, in order to identify priority areas for closer examination. This chapter is based on various published reports on water and wastewater utilities. Specifically, we referred to the following reports:

1. *2007 Benchmarking and Data Book of Water Utilities in India,* Ministry of Urban Development, Government of India, and Asia Development Bank
2. *Phase II Benchmarking Urban Water Utilities in India,* Water and Sanitation Program, World Bank, September 2008
3. *Benchmarking for Performance Improvement in Urban Utilities:* A Review in Bangladesh, India, and Pakistan, Water and Sanitation Program, World Bank, February 2010
4. *Strategies for Reform: A Manual for Water Utilities in South Eastern Europe,* The Priority Environmental Investment Programme for South Eastern Europe (PEIP), Regional Environmental Center for Central and Eastern Europe (REC), Szentendre, Hungary, April 2009
5. *Effective Utility Management: A Primer for Water and Wastewater Utilities,* Six major U.S. water and wastewater associations and the U.S. Environmental Protection Agency (EPA), June 2008
6. *India's Water Economy: Bracing for a Turbulent Future,* John Briscoe and R.P.S. Malik, The World Bank Agriculture and Rural Development Unit, South Asia Region, Oxford University Press, 2006

In this chapter we use the data of the first two reports for the benchmarking exercise because both of them cover benchmarking data of Indian water and wastewater utilities. The 2007 Benchmarking and Data Book of Water Utilities in India cover data provided by 20 Indian JNNURM affiliated water utilities, with service areas ranging from one city to several towns and cities: 15 municipal corporations, two city boards, a municipal council, a local autonomous body, and a private operator. The Phase II Benchmarking Urban Water Utilities in India cover 10 Indian water and wastewater utilities, chosen based on the following criteria: representation of all four geographical zones of the country, representation of different institutional structures prevalent within the country, and representation of different size of operations. Both the reports provide benchmarking data of the year 2005-2006. The data on various performance indicators of KWA were collected for the period of 2001-2011. Most of the comparisons are discussed for the KWA data of 2010-2011. Refer to **Exhibits 2.1A-2.19** for the data.

All the six reports emphasize on sustainability of water and wastewater utilities. In order to achieve sustainability, KWA needs to monitor following type of performance indicators: customer satisfaction, water and wastewater resource management, and financial and human resource management. We discuss comparison of the performance of KWA on these indicators with other Indian water and wastewater utilities below.

2.1 Customer Satisfaction Indicators

Customer satisfaction is a key dimension for KWA in the evolving environment in which consumers are being empowered to demand services. If customer satisfaction can be improved, customers are likely to be willing to pay more for KWA services. This in turn would improve sustainability of KWA, and allow it to better attain its social objectives. KWA customers would be satisfied if good quality water and wastewater services are available to them; and their grievances are handled in a timely manner.

An important measure of a customer service that has a positive impact on customer satisfaction for water and wastewater utilities is ***supply coverage***, i.e., the percentage of population to whom the water and wastewater service is available. From the view point of public policy, 100% supply coverage is desirable. As per Exhibits 2.1A and 2.1B, the average supply coverage for 20 Indian water utilities was 81.2%, with the highest score of 100% for two water utilities. Compared to this, for KWA, water supply coverage is 75.26%. Since KWA provides water to the entire state and not just to the urban areas, this lower coverage is not alarming. For year-wise break up and other details refer to Exhibit-2.15A. KWA provides the water services to the entire state of Kerala. On the other hand, regarding the sewerage service, KWA has implemented sewerage system in only Trivandrum (50% area covered) and Ernakulam (3% area covered). Therefore, as per Exhibit-2.5, the supply coverage for KWA sewerage system is 1.19%, which is much lower than average of 10 other utilities, i.e., 59.13%. KWA definitely needs to expand into sewerage systems in the future. For finer details on sewerage, refer to Exhibit-2.13.

Another important measure that influences consumer satisfaction is ***water availability***, measured in terms of numbers of hours per day. When water is supplied for less than 24 hours a day, it may enable contamination of water distribution of pipes when water is absent and vacuum conditions are created. Further, it adversely affects the poor who may not afford to have in-house facilities for storing and pumping water. Therefore, from the view point of public policy, it is desirable to have 24 hours of water availability per day. As per Exhibits 2.1A and 2.1B, average water availability of 20 Indian water utilities was 4.3 hours per day, with the highest score of 12 hours per day. Compared to this, KWA has the average water availability score of 12.54 hours per day. If we look at district-wise data (see Exhibit-8), KWA provides water 24 hours per day in two districts, 16 hours per day in two other districts, and has plans to provide water 24 hours per day in four more districts. KWA seems to do better than most others on this dimension.

The third important measure is ***per capita water consumption***, measured in liters per capita per day (lpcd). According to the 2007 Benchmarking and Data Book of Water Utilities in India, consumption of 100-120 lpcd may be reasonable, as it is high enough for providing health and hygiene requirements, and low enough to help preserve water resources. As per Exhibits 2.1A and 2.1B, average water consumption of 20 Indian water utilities was 123.3 lpcd, with the highest score of 203 lpcd, and lowest score of 72. Compared to this, in Kerala, average per capita daily water consumption is 57.10 lpcd. This suggests that in Kerala many

consumers rely on other sources of water for their daily needs. Either KWA water is not available when required or consumers, particularly in rural areas, prefer other sources of water. For year-wise break up and other details refer to Exhibits 2.15A and 2.16B. It should be noted that according to the 2007 Benchmarking and Data Book of Water Utilities in India, per capita water consumption figures of water utilities are often unreliable as 100% of the water connections are not metered, and average number of persons each connection serves is not known.

Exhibit-7 compares KWA' performance on various indicators related to network performance and quality of service with those of other water and waste water utilities. For more details refer to Exhibits 2.3 and 2.4. For finer details on sewerage system indicators refer to Exhibit-2.13. These indicators are likely to affect consumer satisfaction. We discuss these comparisons below.

Pipe breakage for KWA is 7.88 per km of network, as compared to the average breakage of 2.66 per km of network for 10 other utilities. For district-wise data on pipe breakage for KWA refer to Exhibit-2.11. ***Sewer blockage*** for KWA is 42.59 per km of network, as compared to the average blockage of 26.84 per km of network for 10 other utilities. KWA receives 23.63% of ***customer complaints*** per water connections in a year as compared to the average complaints of 21.42% per water connections in a year for 10 other utilities. Exhibit-2.19 summarizes intent of KWA in resolving customer complaints. However, we do not have data on how many of them are actually resolved satisfactorily and how fast they are resolved.

An important indicator for the quality of water utility service is ***Residual Chlorine content*** in the water. Chlorine is used as a disinfectant for purification of water before distribution. As per Indian Standards, all samples tested must have a minimum of 0.2 ppm Residual Chlorine to keep water potable biologically in the distribution system. Out of the total samples tested for Residual Chlorine, 91.59% passed (i.e., showed the desired level of Residual Chlorine) for KWA as compared to the average of 95.57% for 10 other utilities. Refer to Exhibit-2.10 for more details on Chlorine testing.

For wastewater utilities, an important indicator for measuring quality of service is percentage of collected wastewater undergoing ***primary treatment*** only versus ***secondary treatment***. Ideally all the collected wastewater should undergo both the treatment (and also tertiary treatment if possible). 31% of wastewater collected at KWA undergoes primary treatment, and 7.69% of it undergoes for secondary treatment. Compared to this, for the 10 other an average of 20.12% of collected wastewater undergoes for primary treatment, while 45.99% of it undergoes for secondary treatment.

2.2 Resources Management Indicators

These indicators measure how efficiently utilities utilize available resources. An important indicator for water utilities is ***per capita production*** of water, measured in cubic meters per day per person. As per Exhibit 2.1A and 2.1B, 20 utilities on an average produce 0.244 cubic meters per day per person of water. Compared to this, KWA produces 0.083 cubic meters per day per person of water. Exhibit-2.16A provides year-wise details of per capita

production of water by KWA. In a period of 10 years, it has increased from 0.052 cubic meters per day per person to the present level. KWA's performance looks relatively low and this needs to be examined closely as either the problem is grave or the data is wrong.

According to the 2007 Benchmarking and Data Book of Water Utilities in India, the most important resource management indicator for a water utility is ***unaccounted for water (UFW)***, measured as a percentage of total water produced in a year. According to the report, this indicator allows a water utility to determine losses in the entire system, and take various actions for improving resource management such as "leak detection and control, flushing out illegal connections, meter calibration and replacement, meter protection, training on, meter reading to minimize human error, proper supervision during construction, etc." (source: the report). As per Exhibits 2.1A and 2.1B, average unaccounted for water for 20 utilities was 31.8%, with the lowest UFW figure of 13-14% for four utilities. Compared to this, UFW figure for KWA is 30%. While KWA's unaccounted water is near the average it is almost double of the lowest and hence there is room for improvement.

According to the 2007 Benchmarking and Data Book of Water Utilities in India, often the UFW figures for utilities are unreliable because of low percentage of ***metered connections***. Metering is not only important in accurately measuring UFW or revenue water, but it also encourages more prudent usage of water at the consumer end because metering requires consumers to pay for the water they are consuming. As per Exhibits 2.1A and 2.1B, average metered connections for 20 utilities were 24.5% of the total connections. Compared to this, KWA has 89.03% of connections metered, 81.8% of total connections are functioning meters. Exhibit 2.16A provides year-wise details of metered connection for KWA, which were fairly high (82.76%) since 2001-2002.

2.3 Financial Management Indicators

These indicators demonstrate the financial health and sustainability of utilities. One of the most important financial management indicators for a utility is ***operating ratio***, defined as the ratio of operating expenses (excluding debt service and depreciation) and operating revenues. According to the 2007 Benchmarking and Data Book of Water Utilities in India, a healthy utility should have the operating ratio of 0.75. A low operating ratio indicates the utility is able to cover its operational expenses from operating revenues. A ratio above 1 indicates that the utility is not able to cover its operating expenses through operating revenues. If debt service and depreciation are included, then the modified operating ratio indicates the ability of the utility to maintain its equipments and expand its coverage without external financial aid. As per Exhibits 2.1A and 2.1B, average operating ratio for 20 utilities was 1.64, with the lowest ratio of 0.44 and highest ratio of 5.33. Compared to this, KWA has the operating ratio of 1.67, which means that KWA is not able to cover its operating expenses through operating revenues. KWA is similar to many other utilities on this dimension but it cannot be sustained for long.

Another important financial management indicator is ***accounts receivable***, expressed in equivalent of a utility's average monthly billing. IT measures average time it takes for a utility to collect bills from customers. Very high accounts receivable figures increases working capital requirement for utilities, and also increases probability of default in

payment from customers. According to the 2007 Benchmarking and Data Book of Water Utilities in India, accounts receivable should not be more than 6 months. As per Exhibits 2.1A and 2.1B, average accounts receivables figure for 20 utilities was 4.9 months, with the lowest figure of 0.03 months, and highest figure of 12.3 months. Compared to this, KWA has the accounts receivable figure of 21.6 months. As per Exhibit 2.16A, this figure has never gone down below 19.04 months, and in 2005-2006 it was as high as 70.82 months. These figures are much higher than the prescribed accounts receivable figure. KWA's performance on this dimension is alarming and something needs to be done to improve this.

It is important for utilities to maintain ***revenue collection efficiency***, i.e., ratio of revenue collection and sales, high. According to the 2007 Benchmarking and Data Book of Water Utilities in India, this ratio should be at least 95% for utilities in order to ensure good financial health. When collection efficiencies are more than 100%, they indicate past years' arrears are being collected. As per Exhibits 2.1A and 2.1B, average revenue collection efficiency for 20 utilities was 99.5%, with the highest figure of 189, and the lowest figure of 64. Compared to this, for KWA, the revenue collection efficiency figure is 43% after removing the effect of arrears. As per Exhibits 2.14 and 2.16A, this has been the highest figure in last 10 years. This is much lower compared to the prescribed figure. Again, KWA needs to make drastic changes to correct this problem.

Another important financial management indicator for water utilities is ***average tariff***, expressed in terms of rupees per cubic meter of water. Sufficiently high average tariff may allow a utility to cover operating expenses with operating revenues. However, this may not be true if unaccounted for water percentage is high. As per Exhibits 2.1A and 2.1B, average tariff for 20 utilities was Rs. 4.91 per cubic meter of water. Compared to this, KWA has average tariff of Rs. 4.55 per cubic meter of water. Exhibits 2.15A and 2.16A provide year-wise details of average tariff for KWA.

Apart from tariff, another source of revenue for a water utility is ***new connection fee***. Often utilities charge new connection fee based on type of customers (e.g., domestic versus industrial) or economic status of the customer (e.g., below poverty line versus above poverty line). According to the 2007 Benchmarking and Data Book of Water Utilities in India, in 2007, Rs. 2500 was considered to be a reasonable average new connection fee. As per Exhibits 2.1A and 2.1B, average new connection fee for the 20 utilities was Rs. 1584, with the lowest figure of Rs. 500 and the highest figure of Rs. 5500. KWA charges Rs. 500 from domestic consumers, and Rs. 1000 from non-domestic and industrial customers. It charges additional Rs. 500 in cases were the pipe length is more than 30 meters. As per Exhibit 2.16A, this new connection fee has remained constant over the last decade for KWA.

Another important financial management indicator for utilities is ***average capital expenditure per connection***. Increase in coverage, particularly in difficult terrains; and long distance between a beneficiary group and a water resource, may increase average capital expenditure per connection. As per Exhibits 2.1A, 2.1B, and 2.17, average capital expenditure per connection for the 20 utilities was Rs. 1591, with the lowest figure of Rs. 39 and the highest figure of Rs. 10080. Compared to this, average capital expenditure per connection for KWA is Rs. 30537 (JICA projects) and Rs. 11641 (average of various other projects). These figures are much higher compared to the average figure of the 20 utilities.

While some of the additional cost can be attributed to the fact that KWA provides water to the whole state and not just the urban areas, the capital expenditure is too high to be explained by any rational basis. Exhibit 2.17 covers finer details of KWA average capital expenditure per connection.

2.4 Human Resources Management Indicators

One important efficiency parameter for utilities is the human resource indicator of ***staff per 1000 connection ratio***. According to the 2007 Benchmarking and Data Book of Water Utilities in India, this ratio is often not a reliable figure for measuring efficient utilization of human resources as many utilities have outsourced many of their activities. As per Exhibits 2.1A and 2.1B, average staff per 1000 connections ration for the 20 utilities was 7.4, with the highest figure of 20.70 and the lowest figure of 0.4. Compared to this, KWA has the figure of 7.07.

Exhibit 2.5 shows the ***break up of staff*** working for water utility services versus wastewater utility services. The Average breakup for 10 other utilities is roughly 75% (water services) and 25% (wastewater services). Compared to this, at KWA, only 2.45% of employees are associated with wastewater services, and 97.55% of employees are associated with the water services.

Exhibit 2.6 shows another important human resource management indicator, i.e., ***labour cost as a percentage of total operating cost***. The average figure for the 10 other utilities is 19.12%, with the lowest figure of 9.68% and the highest figure of 30.63%. Compared to this, KWA's figure is much higher, i.e., 45.10%. The same exhibit shows non-availability of data on contracted-out labour. This reduces the reliability of the other human resource management indicators. It is worth noting that if the recommendations for the new pay-scales is accepted the labour costs will increase even further.

2.5 Recommendations

Improving accuracy in estimation:

The benchmarking exercise shows that KWA has a scope for improvement on many performance indicators. Often many indicators are unreliable due to poor data collection processes adopted by utilities, and absence of good management practices such as metering. According to the 2007 Benchmarking and Data Book of Water Utilities in India, "Any performance improvement program will have to improve measurement and recording of operational information as a first step in getting a complete assessment of any water utility's overall performance. Benchmarking as a management tool to attain operational efficiency will work only with reliable and accurate information" (source: the report).

Therefore, we recommend that KWA needs to improve data collection process on all the performance indicators. Further, it needs to sustain the high level of working metered connections and attempt to increase it to 100%.

Improving customer satisfaction indicators:

While 100% supply coverage is desirable, we need to take into consideration that the scope of KWA is the entire state of Kerala, while the other utilities cater to a much more limited geographical scope.

We recommend that KWA should have two separate plans for expanding supply coverage. In the cases where funding is available for capital expenditure and operations & maintenance activities from external entities such as the Kerala Government, the Central Government, or international agencies such as JICA or World Bank, the supply coverage should be increased as per the social objectives of KWA or specific requirement of the funding entities. On the other hand, in the cases where KWA has to rely on internal funds, it should increase the supply coverage to those areas where the willingness and capacity to pay for the customers is higher than the cost of providing services. This will ensure that the operating costs are covered through operating revenues. This in turn would improve sustainability of KWA, and allow it to better attain its social objectives.

We also recommend KWA to maintain a separate account for those projects in which it is not possible to cover the operating costs, but they are to be implemented for public policy level considerations. (potential benefits: ability to create performance oriented culture for the first type of projects, while maintaining better impression to outsiders by separating the low economic performance in the second type of projects)

The benchmarking show low per capita consumption of water: considering ample of ground and open water resources available in Kerala, this may not necessarily be an issue.

Improving resource management and financial indicators

Higher amount of working meter percentage combined with tackling of corruption and reallocation of more staff to field should reduce UFW (unaccounted for water) and improve collection efficiency

Substitute water resources may suppress WTP (willingness to pay) / ability for KWA to charge more for their services. Apart from policy level constraints, this may be an important barrier for KWA to increase tariffs in certain regions. However, KWA needs to negotiate with Kerala government (and now the newly formed regulator) for increase of tariff and new connection fee.

Corruption and poor management of contractors may be the main reasons why average capital expenditure per connection is high. These two aspects need to be tackled.

It is absolutely critical to reduce average collection period and improve collection efficiency.

Improving human Resource management indicators

Improve data collection for contracting / outsourced work in order to make indicators more reliable

Training and reassigning of roles, use of Information technology not to reduce staff but increase their effectiveness and reduce their burden, improve data collection processes

Expansion of scope of activities

Currently very limited operations in sewerage. Can be expanded provided WTP-cost difference is sufficiently high to cover operating costs through operating revenues.

Exhibit 2.1A: Summary of Results-A

	Ahmad-abad	Amrits-ar	Bangal-ore	Bhopal	Chand-igarh	Chenn-ai	Colmb-atore	Indore	Jabalp-ur	Jamsh-edpur	Avera-ge (20)	Kerala	Remarks
Water coverage (%)	74.50	75.70	92.90	83.40	100.00	89.30	7€ 10	77.30	75.20	74.40	81.24	75.26	as on 31-3-2011
Water Availability (hours)	2.00	11.00	4.50	1.50	12.00	5.00	3 00	0.75	4.00	6.00	4.32	12.54	For district-wise data see Exhibit-8
Consumption/Capita (lpcd)	171	86	74	72	147	87	109	87	139	203	123.28	57.10	
Production/Population (m3/day/c)	0.168	0.213	0.185	0.182	0.332	0.131	0.286	0.108	0.222	0.808	0.244	0.083	82.7 l/d/c
Unaccounted for water (%)	nd	57.00	45.00	nd	39.00	17.00	41.00	nd	14.00	13.00	31.80	30.00	
Connections Metered (%)	3.00	4.00	95.50	0.00	79.00	3.50	100.00	0.10	0.00	0.90	24.54	86.03	
Operating ratio	1.43	1.36	0.80	2.82	1.36	0.44	0.82	5.33	1.68	0.62	1.64	1.67	Operating ratio= Operating expense/Net sale
Accounts receivable (months)	8.0	5.6	7.1	3.6	nd	1.1	3.0	5.2	3.0	0.3	4.87	21.60	
Revenue collection Efficiency (%)	67.00	69.00	112.00	178.00	94.00	152.00	75.00	89.00	75.00	100.00	99.35	43.55	
Average Tariff (Rate/m3)	1.39	9.34	20.55	0.60	5.04	10.87	3.56	2.79	1.50	4.51	4.91	4.55	
New Connection Fee (Rs.)	100	950	1740	1500	530	1930	3000	2500	1984	300	1584	500.00	Above 30m Addl.500, Non Domestic and Industrial 1000
Capital expenditure/ Connection (Rs.)	427	331	787	39	754	10080	954	353	864	971	1590	30537.00	Based on JBIC Projects. For other projects Rs. 11641. Refer to Exhibit 2.17.
Staff/1000 Connections (ratio)	2.20	4.80	5.20	20.70	8.60	13.30	4.00	18.70	0.40	5.60	7.42	7.07	

Source: (Except Kerala data) 2007 Benchmarking and Data Book of Water Utilities in India, Ministry of Urban Development, Government of India, and Asia Development Bank, data of 2005-06; Kerala data collected from KWA

Exhibit 2.1B: Summary of Results-B

	Kolkat-a	Mathu-ra	Mumb-ai	Nagpur	Nashik	Rajkot	Surat	Varan-asi	Vijay-awada	Visakh-apat-anam	Avera-ge (20)	Kerala	Remarks
Water coverage (%)	79.00	70.00	100.00	91.50	92.60	98.10	77.40	77.70	70.50	49.20	81.24	75.26	as on 31-3-2011
Water Availability (hours)	8.30	2.00	4.00	5.00	3.50	0.30	2.50	7.00	3.00	1.00	4.32	12.54	For district-wise data see Exhibit-8
Consumption/Capita (lpcd)	130	nd	191	100	93	101	nd	147	158	124	123.28	57.10	
Production/Population (m3/day/c)	0.246	0.160	0.246	0.267	0.248	0.146	0.188	0.217	0.220	0.305	0.244	0.083	82.7 l/d/c
Unaccounted for water (%)	35.00	nd	13.00	52.00	60.00	23.00	nd	30.00	24.00	14.00	31.80	30.00	
Connections Metered (%)	0.10	0.00	75.00	40.00	80.00	0.40	1.90	0.00	6.00	1.30	24.54	86.03	
Operating ratio	4.73	3.05	0.49	0.76	1.18	1.61	1.01	1.30	1.14	0.78	1.64	1.67	Operating ratio= Operating expense/Net sale
Accounts receivable (months)	2.4	12.3	11.8	9.6	0.03	6.6	3.1	4.9	1.6	3.3	4.87	21.60	
Revenue collection Efficiency (%)	100.00	106.00	189.00	80.00	92.00	45.00	100.00	64.00	114.00	86.00	99.35	43.55	
Average Tariff (Rate/m3)	1.13	0.62	4.60	6.60	4.32	5.07	1.66	3.17	2.18	8.55	4.91	4.55	
New Connection Fee (Rs.)	1000	500	660	1675	1250	1850	345	2375	5500	2000	1584	500.00	Above 30m Addl 500, Non Domestic and Industrial 1000
Capital expenditure/ Connection (Rs.)	2247	712	3790	719	1268	817	1102	112	nd	3891	1590	30537.00	Based on JBIC Projects. For other projects Rs. 11641. Refer to Exhibit 2.17.
Staff/1000 Connections (ratio)	14.70	6.50	17.20	3.20	3.40	1.10	1.70	5.90	5.70	5.40	7.42	7.07	

Source: (Except Kerala data) 2007 Benchmarking and Data Book of Water Utilities in India, Ministry of Urban Development, Government of India, and Asia Development Bank, data of 2005-06; Kerala data collected from KWA

Exhibit 2.2: Data Summary Sheet of Water Utilities

	Unit	Banga-lore	Bhuba-neswar	Chandi-garh	Chennai	Dehra-dun	Hydera-bad	Indore	Jamshed-pur	Pune	Rajkot	Kerala	Remarks
Population (to be serviced)	in million	6.46	0.77	1.15	5.32	0.79	5.35	1.80	0.62	3.19	1.20	10.54	(33.39 - 22.85) as per 2011 census
Metering													
Water connections	in nos	479720	52210	137409	365680	62370	526870	158920	42000	106500	192000	1488304	
No. of metered connections	in nos	479720	740	108862	-	NA	492000	0	222	16530	715	1326822	
No. of functional metered connections	in nos	431740	356	97976	12800	5000	492000	0	217	16530	715	1217542	
Water Production													
Total water production	in mn m3 per year	336.93	75.19	121.91	210.42	42.71	354.12	66.79	136.51	319.01	54.75	689.85	
Daily supply	in hours per day	5.00	4.00	12.00	3.00	4.00	2.00	0.75	6.00	7.00	0.33	12.54	For district-wise data see Exhibit-8
Water Consumption													
Metered consumption (billed metered)	in mn m3 per year	157.34	0.67	75.19	38.51	3.65	160 83	0.00	87.60	106.82	9.13	278.89	
Billed un-metered consumption	in mn m3 per year	15.75	29.57	16.43	138.65	27.63	17.34	33.40	36.14	84.59	39.06	197.39	
Total billed consumption	in mn m3 per year	173.09	30.24	91.62	177.16	31.28	178 67	33.40	123.74	191.41	48.18	476.28	
Unbilled consumption	in mn m3 per year	27.53	0.00	8.76	8.37	1.10	0.00	20.04	0.73	4.30	0.55	213.57	
Total consumption	in mn m3 per year	200.62	30.24	100.38	185.53	32.38	178.67	53.44	124.47	195.71	48.73	689.85	

Source: (Except Kerala data) Phase II Benchmarking Urban Water Utilities in India, Water and Sanitation Program, World Bank, September 2008, data of 2005-06; Kerala data collected from KWA

Exhibit 2.3: Water and Sewerage Quality Details

	Unit	Banga-lore	Bhuba-neswar	Chandi-garh	Chennai	Dehra-dun	Hydera-bad	Indore	Jamshed-pur	Pune	Rajkot	Kerala	Remarks
Water Coverage													
Population covered	in nos	5875000	345800	1150000	5213600	628000	4797500	974580	488000	2808760	1175000	25127566	as on 31-3-2011
Sewerage Coverage													
No. of people covered by direct serviced connections	in nos	5104410	197000	1150000	5213600	235500	2595450	600000	380500	1809420	660000	398277*	Trivandrum-367508 nos. and Cochin-30679
Sewage collected	in mn m3 per year	288.00	21.90	79.50	140.00	20.00	48.60	32.90	20.80	164.50	21.90	18.98	Trivandrum-48MLD and Cochin-4MLD
Water quality and customer service													
Tests conducted for chlorine	in nos	20000	4500	3650	28080	1600	7846	7846	11000	23659	16100	1576	Data received from Corporation areas only (For details see Exhibit 10))
Tests passed	in nos	18000	4500	3650	27756	1536	6831	6831	10714	23512	16085	1481	
Waste water under- going primary treatment only	in mn m3 per year		0.00	24.85	0.00	0.00	33.95	32.85	0.00	0.00	0.00	17.52	In Trivandrum only primary treatment is done. Now 107 Mld treatment Plant under construction (under JNNURM Project)
Waste water under- going secondary treatment	in mn m3 per year	105.12	13.84	28.17	105.85	0.00	7.30	0.00	13.84	111.30	21.90	1.46	In Cochin sewerage facility covered only a small area
Complaints	in nos	NA	4085	3100	161216	2500	208059	576	18000	NA	58441	11458	
Staffing													
Staff deployed for water	in nos	1625	426	1336	2875	345	4165	1285	209	1223	211	8835	
Total staff	in nos	2600	610	1466	4594	396	5241	1405	289	1773	311	9057	

* Sewerage system has been implemented at Trivandrum and Cochin only. **Source:** (Except Kerala data) Phase II Benchmarking Urban Water Utilities in India, Water and Sanitation Program, World Bank, September 2008, data of 2005-06; Kerala data collected from KWA

Exhibit 2.4: Network Performance

	Unit	Bangalore	Bhuba-neswar	Chandi-garh	Chennai	Dehra-dun	Hydera-bad	Indore	Jamshed-pur	Pune	Rajkot	Kerala	Remarks
Network performance													
Pipe breaks	In nos	25500	1825	1500	500	NA	5780	NA	3200	NA	15	351734	2010-2011 For Details see Exhibits 11 and 12
Sewer blockages	In nos	30480	2198	1600	52512	NA	43203	NA	210	4634	58441	11458	2010-2011 For Details see Exhibit 13
Financial performance													
Operating cost	Rs. Mn.	3740.50	276.17	561.53	3361.46	218.45	555.75	852.65	470.00	932.70	558.85	520.00	(2009-2010)
water	Rs. Mn.	_	_	_	_	215.67	2109.25	772.65	_	772.00	545.65	499.57	do
Sewerage	Rs. Mn.	_	_	_	_	2.78	1135.75	80.00	_	160.70	13.20	20.43	do
Labour cost	Rs. Mn.	_	42.36	172.00	723.46	40.94	850.00	141.87	72.50	166.93	54.10	2807.90	do
Electricity cost	Rs. Mn.	_	139.92	353.50	265.77	162.87	1101.00	630.77	190.00	317.91	150.00	1440.00	do
Contracting cost	Rs. Mn.	_	_	_	_	_	_	_	_	_	_	_	
Operating revenues													
Operating revenues (total billing)	Rs. Mn.	3800.41	84.01	428.94	2484.69	152.15	2878.00	156.48	550.00	1139.55	84.25	720.38	263.71+456.67 dues (2009-2010)
Operating revenues (Water)	Rs. Mn.	_	55.55	_	1877.14	148.15	2447.00	156.48	550.00	802.73	79.25	720.38	2009-2010
Operating revenues (Sewerage)	Rs. Mn.	_	_	_	607.55	4.00	432.00	NA	_	336.82	5.00	_	do
Collections	Rs. Mn.	2166.70	69.17	428.94	928.69	98.16	2784.00	154.00	536.00	780.00	_	313.71	do
Year end receivables	Rs. Mn.	2154.35	111.73	_	1556.00	NA	1735.00	257.70	13.40	1812.10	192.59	406.67	do

Source: (Except Kerala data) Phase II Benchmarking Urban Water Utilities in India, Water and Sanitation Program, World Bank, September 2008, data of 2005-06; Kerala data collected from KWA

Exhibit 2.5: Indicator Summary Sheet

	Unit	Bangalore	Bhubaneswar	Chandigarh	Chennai	Dehradun	Hyderabad	Indore	Jamshedpur	Pune	Rajkot	Kerala	Remarks
Coverage													
Water coverage	in %	90.92	45.14	100.00	98.00	80.00	95.00	54.14	79.29	88.11	98.33	75.26	as on 31-3-2011
Sewerage coverage	in %	78.99	25.72	100.00	98.00	30.00	51.40	33.33	61.82	56.76	55.23	1.19	as on 31-5-2011
Water production, consumption and metering													
Per capita daily production	lpcd	142.85	268.93	290.43	108.36	149.06	192.12	101.66	607.84	274.17	125.52	82.70	2009-2010
Supply continuity	% of 24 hours a day	20.83	16.67	50.00	12.50	16.67	8.33	3.13	25.00	29.17	1.39	55.13	do
Per capita consumption	lpcd	85.06	108.16	239.13	95.17	113.01	96.93	81.34	554.02	168.20	111.72	57.10	do
Functional meters	% of total connections	90.00	0.68	71.30	3.50	8.02	93.35	0.00	0.52	15.52	0.37	91.76	as on 1-6-2011
Metered consumption	% of total consumption	78.43	2.22	74.91	20.84	11.27	90.02	0.00	70.38	54.58	18.73	86.03	2009-2010
Unaccounted for water	% of water produced	40.46	59.78	17.66	15.98	24.19	49.55	19.99	8.82	38.65	11.00	30.00	do
Nonrevenue water	% of water produced	48.63	59.78	24.85	15.81	26.76	49.55	49.99	9.36	40.00	12.00	30.00	do
Staffing													
Staff - Water	% of total staff	62.50	69.84	91.13	62.58	87.12	79.47	91.46	72.32	68.98	67.85	97.55	do
Staff - Sewerage	% of total staff	37.50	30.16	8.87	37.42	12.88	20.53	8.54	27.68	31.02	32.15	2.45	do
Staff per 1000 water connections	ratio	5.42	52.90	10.67	12.56	6.35	9.95	8.84	6.88	16.65	1.62	7.07	do

Source: (Except Kerala data) Phase II Benchmarking Urban Water Utilities in India, Water and Sanitation Program, World Bank, September 2008, data of 2005-06; Kerala data collected from KWA

Exhibit 2.6: Unit Operating Cost and Revenue

	Unit	Bangalore	Bhubaneswar	Chandigarh	Chennai	Dehradun	Hyderabad	Indore	Jamshedpur	Pune	Rajkot	Kerala	Remarks
Unit operating cost and revenues													
Unit operational cost	Rs. Per cu m water produced	11.10	3.67	4.61	34.65	5.11	9 16	12.77	3.44	3.21	10.21	9.03	2009-2010
Average revenue (demand)	Rs. Per cu m water sold	21.96	2.78	4.68	30.28	4.86	16.11	4.68	4.44	8.53	1.75	5.54	263.71crores(sales)/Net water sold(476.28Mn Kl)
Working ratio	Operating revenues/ operating expenses	0.98	3.29	1.31	1.35	1.44	1.13	5.45	0.85	0.82	6.63	0.90	Total revenue(2009-10)/Total Operating expenses (561.64/622.61)
Cost split													
Labour cost Vs Operating cost	% of total operating cost	–	15.34	30.63	21.52	18.74	26.19	16.64	15.43	17.90	9.68	45.10	(280.79/622.61)*100
Electricity energy cost Vs Operating cost	% of total operating cost	–	50.66	82.95	7.91	74.56	33.33	73.98	40.43	34.08	26.84	23.13	(144/622.61)*100
Contract-out services costs Vs Operating costs	% of total operating cost	–	–	–	–	–	–	–	–	–	–		
Collection Efficiency													
Collection period	Days	362.92	589.56	0.00	611.55		227.60	610.78	9.11	847.97	–	658.00	
Collection ratio	%	57.01	82.34	100.00	37.38	64.52	96.73	NA	NA	68.45	0.00	43.55	

Source: (Except Kerala data) Phase II Benchmarking Urban Water Utilities in India, Water and Sanitation Program, World Bank, September 2008, data of 2005-06; Kerala data collected from KWA

Exhibit 2.7: Network Performance and Customer Service

	Unit	Bangalore	Bhubaneswar	Chandigarh	Chennai	Dehra-dun	Hyderabad	Indore	Jamshed-pur	Pune	Rajkot	Kerala	Remarks
Net work performance and customer service													
Pipe breaks	No. per km of net work	5.23	2.00	1.00	0.19	–	3.97	–	6.24	–	0.01	7.88	For Details see Exhibits 11 and 12
Sewer blockages	No. per km of net work	8.22	7.51	1.77	19.82	–	15.27	–	0.42	5.85	155.84	42.59	For Details see Exhibit 13
Samples passing on residual chlorine conducted	% of tests	90.00	100.00	100.00	98.85	96.00	87.06	87.06	97.40	99.38	99.91	91.59	For Details see Exhibit 10
Complaints of W&S services	% of water connections	–	7.82	2.26	44.09	4.01	39.49	0.36	42.86	–	30.44	23.63	For Details see Exhibit 12
Waste water undergoing primary treatment	% of waste water collected	0.00	0.00	31.24	0.00	0.00	69.92	100.00	0.00	0.00	0.00	92.31	For Details see Exhibit 13
Waste water undergoing secondary treatment	% of waste water collected	36.50	63.20	35.42	75.61	0.00	15.04	0.00	66.44	67.65	100.00	7.69	do

Source: (Except Kerala data) Phase II Benchmarking Urban Water Utilities in India, Water and Sanitation Program, World Bank, September 2008, data of 2005-06; Kerala data collected from KWA, All Kerala data of 2010-2011

Exhibit 2.8: Daily Supply of Water (Supply Duration in Hours) in Kerala by KWA

Trivand-rum	Kollam	Alappu-zha	Pathanam-thitta	Idukki	Kottayam	Kochi	Trissur	Palakkad	Kozhi-kkode	Kannur	Malapp-uram	Wyanad	Kasar-gode	Average
24	3	16	5	24	12	24	16	8	4	3.5	11	20	5	12.54

Note: After completion of the JBIC Assisted Kerala Water Supply Scheme, the daily supply will increase up to 24 hours at Kollam, Alappuzha, Kozhikkode and Kannur.
Source: KWA, 2010-2011

Exhibit 2.9: District-wise Length of Pipe Line in Kms

Trivand-rum	Kollam	Alappu-zha	Pathanam-thitta	Idukki	Kottayam	Erna-kulam	Trissur	Palakkad	Kozhi-kkode	Kannur	Malapp-uram	Wyanad	Kasar-gode	Total
4887.83	3691.80	4258.38	2646.36	1068.83	3842.577	9212.12	4573.05	1791.05	2055.653	1883.599	2756.874	1141.47	818.382	44627.97

Source: KWA, 2010-2011

Exhibit 2.10: Test result for Residual Chlorine (2010-2011)

	Test Conducted	Test Passed for residual Chlorine	Test Failed	Test passed
	Nos	Nos	Nos	%
Trivandrum Corporation	681	641	40	94.13
Cochin Corporation	742	710	32	95.69
Trissur Corporation	153	130	23	84.97
Total	**1576**	**1481**	**95**	**91.59**

Source: KWA, 2010-2011

Exhibit 2.11: Details of Water Connection and Breakages of Pipe Line

No	Name of Division	Total no. of metered connection as on 1-06-2011	No. of not working meter as on 1-06-2011	Total number of working meter as on 1-06-2011	No. of breakages during 2010-11
1	Public Health Division,	179850	20300	159550	21479
2	Head Works Division, Aruvikkara	1290	85	1205	7021
3	Water Supply Division, Neyyattinkara	49962	5902	44060	12602
4	Water Supply Division, Attingal	28291	3059	25232	12112
5	Public Health Division, Kollam	105591	9492	96099	22016
6	Public Health Division, Pathanamthitta	30785	1924	28861	19526
7	Public Health Division, Kottayam	37344	2576	34768	14092
8	Public Health Division, Thiruvalla	59924	2967	56957	25012
9	Public Health Division, Alappuzha	78362	9686	68676	20871
10	Public Health Division, Kochi	125219	19007	106212	6328
11	Water Supply Division, Kochi	114295	8876	105419	11570
12	Public Health Division, Aluva	55505	2591	52914	15375
13	Public Health Division, Moovattupuzha	60057	9239	50818	25550
14	Public Health Division, Thodupuzha	20815	823	19992	9979
15	Public Health Division, Trissur	50379	2212	48167	25117
16	Public Health Division, Irinjalakkuda	66574	1907	64667	16260
17	Public Health Division, Palakkad	64439	2802	61637	9304
18	Public Health Division, Shornur	27786	89	27697	15605
19	Public Health Division, Kozhikkode	46924	2448	44476	11307
20	Public Health Division, Vadakara	10214	516	9698	8981
21	Public Health Division, Malappuram	41501	284	41217	17815
22	Public Health Division, Edappal	11874	365	11509	4449
23	Public Health Division,Sulthanbathery	11156	299	10857	11493
24	Public Health Division,Kannur	33206	266	32940	3792
25	Public Health Division,Kasargod	15479	1565	13914	4078
	Grand Total	**1326822**	**109280**	**1217542**	**351734**

Source: KWA, 2010-2011

Exhibit 2.12: Rate of Pipe Breakages

Total number of connections	Total no. of metered connection as on 1-06-2011	Total No. of not working meters as on 1-06-2011	Total number of working meters as on 1-06-2011	No. of breakages during 2010-11	Total length of pipe line in KM	% of functional meters	Breakages per KM of pipe line	% of Complaints (breakages) based of W.S connection	Total population in Kerala	Benefited population	% of coverage
1488304	1326822	109280	1217542	351734	44628	91.76	7.88	23.63	33387677	25127566	75.26

Source: KWA, 2010-2011

Exhibit 2.13: Sewerage System

Description	Units	Thiruvananthapuram	Kochin	Kerala	Remarks
Sewer connection	nos	91877	1055	92932	Sewerage system implemented at Thiruvananthapuram and Kochi only
Population covered	nos	367508	30769	398277	as on 1-6-2011
Length of sewer line	KM	244	25	269	
Quantity of sewage	Mld	48	4	52	
Quantity of sewage	Million m3 per year	17.52	1.46	18.98	
Waste water under going primary treatment only	Million m3 per year	17.52	–	17.52	Construction of 107 mld Sewage treatment plant is in progress at Trivandrum
Waste water under going secondary treatment only	Million m3 per year	–	1.46	1.46	
Complaints per year	nos	11278	180	11458	
Sewerage blockages per year	nos	11278	180	11458	
Sewerage blockages per KM net work	nos	46.22	7.20	42.59	
Total Population	nos	957730	2141000	33387677	as per 2011 Census
Sewerage coverage	%	38.37	2.70	1.19	
Waste water under going primary treatment	% of waste water collected	100	–	92.31	Construction of 107 mld Sewage treatment plant is in progress at Trivandrum
Waste water under going secondary treatment	% of waste water collected	–	100	7.69	

Source: KWA, 2010-2011

Exhibit 2.14: Year-wise Collection Efficiency of KWA

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Sales	116.48	130.77	135.22	144.5	152.07	149.37	138.09	150.23	238.9	263.71
Receivables-Beginning	148.48	184.81	243.65	321.23	402.89	523.91	677.33	815	460.49	456.67
Total	264.96	315.58	378.87	465.73	554.96	673.28	815.42	965.23	699.39	720.38
Amount Collected	91.28	96.15	105.79	115.35	115.23	166.35	138.46	165.1	230.89	313.71
Collection Efficiency (%)	34.45	30.47	27.92	24.77	20.76	24.71	16.98	17.10	33.01	43.55
Annual Collection / Annual sales (%)	78.37	73.53	78.24	79.83	75.77	111.37	100.27	109.90	96.65	118.96
Receivables-Year End	184.81	243.65	321.23	402.89	523.91	677.33	815	460.49	456.67	441.86
Receivables in month	19.03949	22.35834	28.50732	33.45799	41.34228	54.41494	70.82338	36.7828	22.93864	20.10663

Source: KWA

Exhibit 2.15A: Various Performance Indicators of KWA (Year-wise)-A

Indicators	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Service coverage (% of total population)			58.64	60	67.52	68.02	69.99	71.06	71.77	72.77
Service coverage (%) - Urban			79.36	80	82.59	83.07	84.21	84.6	84.73	84.8
Service coverage (%) - Rural			64.02	65.2	62.24	62.74	65	66.31	67.22	68.55
Average Water availability in hrs/day										
Average Water availability in hrs/day -										
Average Water availability in hrs/day -										
Average tariff (Rs/Kl ltr)										
Total Water Production (mld)	1030	1511.96	1511.58	1583.6	1617.13	1635	1750	1791	1811	1890
Total Water Production (mld) - Urban										
Total Water Production (mld) - Rural										
Unaccounted water (%)	22.5	23	23	23	22.96	23	20	30	30	30
Net water sold(mld)	798.25	1164.2092	1163.9166	1219.372	1245.836952	1258.95	1400	1253.7	1267.7	1323
Net water sold in year in KL	287370000	419115312	419009976	438973920	448531302.7	453222000	504000000	451332000	456372000	476280000
Annual Sales in Crores	116.48	130.77	135.22	144.97	152.06	149.37	138.39	150.23	238.9	263.71
Average Tariff in Rupees	4.05	3.12	3.23	3.30	3.39	3.30	2.75	3.33	5.23	5.54
Population covered in Lakhs	196.30	198.93	203.61	207.34	214.99	216.59	221.71	226.25	228.52	230.10
Prodoction/population covered (in litres	52.47	76.00	74.24	76.38	75.22	75.49	78.93	79.16	79.25	82.14
Consuption/capita(lpcd)	40.66	58.52	57.16	58.81	57.95	58.13	63.15	55.41	55.47	57.50
Production cost (Rs/ kL)(Based on Total	7.36	5.22	5.08	5.77	6.46	6.93	6.69	7.82	8.17	9.03
Production cost (Rs/kl ltr) (Based on Net			8.16	9.7		8.37	7.82	8.61	10.33	10.69
Production cost (Rs/kl ltr) - Small										
Production cost (Rs/kl ltr) - Medium										
Production cost (Rs/kl ltr) - Large										
Accounts receivables (months)										
Staff per 1000 connection										
Average O&M cost per connection		2803.99	2686.81	2989.36	3286.70	3349.75	3296.20	3789.02	3825.94	4183.35
Average Electricity cost per connection		723.64	665.09	890.08	1080.26	1164.70	1064.73	1028.34	992.08	967.54
Average Chemical cost per connection										
Service Connections and Street Taps										
Domestic		792158	803706	864262	906617	958337	1015904	1062161	1121557	1184979
Non-Domestic		57239	66323	70019	69852	77090	81050	82865	89873	94486
Industrial		1210	1208	841	855	891	911	947	929	968
Total Service Connection	0	850607	871237	935122	977324	1036318	1097865	1145973	1212359	1280433
Street Tap- Urban		43223	44084	43552	39712	41915	41146	41508	41736	41188
Street Tap- Rural		134027	128297	136616	143519	155559	157088	162366	157088	166683
Total Street Taps	0	177250	172381	180168	183231	197474	198234	203874	198824	207871
TOTAL SERVICE + TAPS	0	1027857	1043618	1115290	1160555	1233792	1296099	1349847	1411183	1488304
Connections metered (%)		82.76	83.48	83.85	84.21	83.99	84.71	84.90	85.91	86.03

Source: KWA

Exhibit 2.15B: Various Performance Indicators of KWA (Year-wise)-B

Indicators	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Operation and Maintenance Charges										
Salary	104.51	97.31	103.19	109.65	125.4	129.78	134.87	203.83	200.39	210.79
Pension	25.71	23.49	26.8	30.95	31	36.11	35.27	48.46	78.35	70
Total salary + pension	130.22	120.8	129.99	140.6	156.4	165.89	170.14	252.29	278.74	280.79
Power	54.91	74.38	69.41	99.27	125.37	143.7	138	138.81	140	144
Operation and maintenance	30.67	31.07	31.9	34.99	39.82	46.3	46.68	49.7	50.92	52
Total operating expenses	215.8	226.25	231.3	274.86	321.59	355.89	354.82	440.8	469.66	476.79
Admin Expenses	5.56	6.49	6.45	6.95	7.06	7.26	7.03	7.47	7.69	7.79
Total Expenses	221.36	232.74	237.75	281.81	328.65	363.15	361.85	448.27	477.35	484.58
Interest on Loans	34.21	35.67	33.36	33.22	33.3	31.07	42.09	27.86	27.21	53.3
Repayment of Loans	21.17	19.8	9.29	18.37	19.49	19.07	23.28	35.33	35.35	84.73
Total	**276.74**	**288.21**	**280.4**	**333.4**	**381.44**	**413.29**	**427.22**	**511.46**	**539.91**	**622.61**
Production cost/ kl	7.36	5.22	5.08	5.77	6.46	6.93	6.69	7.82	8.17	9.03
Revenue										
Collection of water charge	91.28	96.15	105.79	115.35	115.23	166.25	138.46	165.1	230.89	313.71
Non Plant Grant	47.8	61.86	61.86	61.24	76.21	80	88.6	99.46	107.2	167.92
Other Income	11.46	11.4	6.81	8.94	12.47	15.67	21.64	25.26	25.78	30.05
Share debt	29.53	25.19	29.6	27.31	36.76	38.51	30.28	48.08	34.41	49.96
Total revenue including non plant grant	**180.07**	**194.6**	**204.06**	**212.84**	**240.67**	**300.43**	**278.98**	**337.9**	**398.28**	**561.64**
Net Deficit	**96.67**	**93.61**	**76.34**	**120.56**	**140.77**	**112.86**	**148.24**	**173.56**	**141.63**	**60.97**

Source: KWA

Exhibit 2.16A: Various Operational Indicators of KWA (Year-wise)-A

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Remarks
Consumption percapita (lpcd)	40.66	58.52	57.16	58.81	57.95	58.13	63.15	55.41	55.47	57.50	
Production / population (lpcd)	52.47	76	74.24	76.38	75.22	75.49	78.93	79.16	79.25	82.14	1 cubic meter = 1000 liters
Connections meterd %		82.76	83.48	83.85	84.21	83.99	84.71	84.90	85.91	86.03	All service connections except street taps are meterd. Street taps are charged at fixed / agreed rate
Accounts recevable (months)	19.04	22.36	28.51	33.46	41.34	54.41	70.82	36.78	22.94	20.11	
Revenue collection efficiency %	34.45	30.47	27.92	24.77	20.76	24.71	16.98	17.10	33.01	43.55	Annual collection / (Recevables in the beginning + Sales during the year)
	78.37	73.53	78.24	79.83	75.77	111.37	100.27	109.9	96.65	118.96	Annual collection / Annual sales
Average tariff (Rs/m^3)	4.05	3.12	3.23	3.30	3.39	3.30	2.75	3.33	5.23	5.54	Annual Sales / Net Water sold
New connection fee (Rs)											
Domestic	500	500	500	500	500	500	500	500	500	500	Additional Rs 500 if pipe length > 30 meters
Non Domestic	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Industrial	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	

Note (Water Availability): In Thiruvananthapuram for 90% of consumers water availability is 24 hours. In other areas it varies from 3 to 8 hours daily.
Source: KWA

Exhibit 2.16B: Various Operational Indicators of KWA (Year-wise)-B

Indicators	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Net water sold in kl	419115312	419009976	438973920	448501303	453222000	504000000	451332000	456372000	476280000
Estimated consumption of street taps									
Urban	56017008	57132864	56443392	51466752	54321840	53325216	53794368	54089856	53379648
Rural	115799328	110848608	118036224	124000416	134402976	135724032	140284224	135724032	144014112
Total consumption - Street taps	171816336	167981472	174479616	175467168	188724816	189049248	194078592	189813888	197393760
Metered water consumption in kl	**247298976**	**251028504**	**264494304**	**273034135**	**264497184**	**314950752**	**257253408**	**266558112**	**278886240**
Proportion of metered connection as %	**82.76**	**83.48**	**83.85**	**84.21**	**83.99**	**84.71**	**84.90**	**85.91**	**86.03**
Proportion of metered consumption as %	**59.00**	**59.91**	**60.25**	**60.88**	**58.36**	**62.49**	**57.00**	**58.41**	**58.56**

Source: KWA

Note: Total consumption = Production - estimated loss. The loss of 20% during 2006-07 seems unrealistic. Loss is estimated as 30% from 2007-08 onwards. Exact consumption data is not available. Metered water consumption = Total consumption - estimated street taps consumption.

Consumption of street taps is estimated as follows:

- Urban - 5 litre per minute per tap for 12 hours a day
- Rural - 5 litre per minute per tap for 8 hours a day

Exhibit 2.17: Capital Expenditure per Connection of KWA

Water supply Scheme	As per 2008 revised estimate in crores	population benifited (in lakhs - year 2036)	Capital Expenditure / connection (1 connection for 5 persons
Thiruvananthapuram (Urban)	407.20	10.71	19010.00
Kozhikkode (Urban)	805.60	13.03	30916.00
Cherthala (Urban)	491.30	6.53	37636.00
Meenad (Rural)	295.60	5.26	28094.00
Pattuvam (Rural)	392.20	5.30	37028.00
Average Capital Expenditure / connection			30537.00

Source: KWA

Note: These are JICA assisted Kerala Water Supply Projects (major water supply schemes).

Capital Cost per connection based on schemes assisted by Govt of India, Govt of Kerala and NABARD

Sl no	Name of schemes	Project cost in Lakh Rupees	Projected Population	Capital cost per connection	Remarks
1	Augmentation of Karakulam water supply scheme	1335.68	66504	10042.10	NABARD Assisted
2	CWSS to Parasala & adjoining villages & Maragil Maranallur villages	13640.00	513671	13276.98	State budget
3	CWSS to Kilimanoor-Pazhayakunnumel& Vadavoor panchayat	3100.00	114763	13506.10	State budget
4	CWSS to Pallichal Balaramapuram & Vilavurkal panchayat	3862.49	157595	12254.48	NABARD Assisted
5	RWSS to Azhoor Kizhuvilam & Keezhattyl village	1894.99	87970	10770.66	NABARD Assisted

6	Augmentation to WSS to Kunnathukal Panchayat	1648.71	65165	12650.27	NABARD Assisted
7	RWSS to Pattazhy, Pattazhivadakkekara, Mylom &Thalavoor panchayat	3373.00	144006	11711.32	ARP
8	RWSS to Pathanapuram &Piravanthur panchayat	1891.00	106000	8919.81	ARP
	Average capital cost per Connection			**11641.47**	

Cost per connection calculated based on one connection for 5 persons

Exhibit 2.18: Various Financial Indicators of KWA (Year-wise)

Financial Indicators	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08 (Audited)	2008-09 (Provisional)	2009-10 (Provisional)	Remarks-Data extracted from annual accounts
Net Fixed Assets (Rs in Lakhs)	84478.39	81809.54	79080.87	76446.43	73970.81	152254.96	147044.33	141697.54	
Working Ratio	0.8	0.91	0.87	0.86	0.98	1.07	1.14	0.97	Working ratio= (Annual Revenue Expenditure-Depreciation-Interest)/Annual Gross Income.
Operating Ratio	1.44	1.67	1.83	2.07	2.28	2.48	1.84	1.67	Operating Ratio = Operating Expense/ Net sales (Office expenses, Adminiostrative Expenses and Travelling and conveying Expenses in Income and Expenditure Expenses are excluded).Other income as per schedule M excluded
Collection Period (In Months)	30.11	34.84	42.39	55.62	71.41	38.06	23.1	21.6	
Accounts receivables/ Collection period (RS in Lakhs)	1126.74	1208.18	1278.45	1250.2	1166.55	1257.27	1990.84	2197.64	
Percentage Contribution to Investment (RoI)	-5.21	-2.63	-30.87	-29.30	25.84	-5.03	-2.54	-1.50	Based on PAT and not EBIT
Debt Service Coverage Ratio									EBIT -ve

Debt : Equity Ratio	0.91	0.91	0.94	1	0.2	0.39	0.54	0.56	Long term loan/ Eqity
Current Ratio	3.63	2.83	1.86	1.67	1.73	2.54	4.26	3.52	Balance Sheet Schedule (G+I)/H
Return on Net Fixed Assets (%)	-21.28	-11.99	-11.67	-6.51	129.21	-15.01	-9.27	-6.54	
Return on Equity (%)	-9.95	-5.03	-60.02	-58.92	30.88	-7	-3.93	-2.34	Equity=Contribution & Grants
Other Details Supplemented (Rupees in lakh)									
Equity	180589.16	195110.45	200358.17	212511.36	309468.96	326563.3	347087.30	395167.68	
Networth	80896.84	85607.94	81628.74	88806.94	281338.77	281961.19	288855.35	327669.62	Networth = Equity + Reserves & Surplus- Accumumulated loss
Capital Employed	244926.3	263161.14	270178.76	302609.7	340235.64	408211.55	475185.84	546930.11	Capital Employed= NFA+CWIP+NCA
Capital Invested	344818.66	373063.62	389508.18	427314.13	369895.75	454887.24	536098.78	617740.24	Capital Invested = Equity+ Long term loans
Profit /loss after depreciation and Interest	-17978.42	-9810.15	-9226.92	-4975	95574.23	-22860.21	-13629.82	-9266.13	
Return on Capital Employed (%)	-7.34	-3.73	-3.42	-1.64	28.09	-5.60	-2.87	-1.69	

Source: KWA

Note: Return on investment is computed based on profit or loss after prior period adjustments. Wide variation visible during 2006-07 is due to prior period adjustment amounting to Rs 107117.52 lakhs. The year wise split up details needs to be obtained. The prior period adjustment relates to waiver of interest on Government Loans

Exhibit 2.19: Miscellaneous Customer Care Indicators of KWA

a) Percentage of budget spent on Customer Management: It is difficult to quantify at present as those involved in customer management are discharging other functions also.

b) Annual no of connections

Year	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Connections effected during the year	15761	71672	45265	73237	62307	53748	61336	77121
Total Connections as at the end of year	1043618	1115290	1160555	1233792	1296099	1349847	1411183	1488304

Source: KWA

c) Response time to complaints (official claims / policies): Complaints on leakage are normally solved within 24 hours. The maximum time limit for initiating action on complaints received by post is 3 days.

d) Continuity of service (official claims / policies):

- Emergency Helpline in KWA HQ premises: 24 hours working. This service is available only in Thiruvananthapuram.
- Working hours of field staff 8 AM to 5 PM
- Working hours of ministerial staff 10.15 AM to 5.15 PM
- Generally repair works which are likely to create traffic problems are executed during night time under the supervision of KWA officials.
- In Thiruvananthapuram P H Division all the Assistant Engineers & Assistant Executive Engineers are provided with official residential telephone and the EE with official mobile phone. Mobile phone connectivity is provided to all Field officers up to AE and senior level other officers.
- During extreme emergency situation the field officers will be available on 24 hours duty.

Chapter 3

The Role of KWA in the water and sewerage sector in Kerala

3.1 Introduction

Traditionally, the communities in Kerala as elsewhere in the world managed their water needs locally. Water supplies were based on open dug wells, and rivers and ponds. The first form of protected water supply system in Kerala was started at Ernakulam Town in 1914. Another protected pipe water system in Trivandrum was started in 1930 by the erstwhile Travancore State. After the formation of the present Kerala State, various urban and rural piped water supply schemes were initiated[i].

The Public Health Engineering Department (PHED) was formed in 1956 under the National Water Supply and Sanitation Programme of the Government of India during the 2nd five year plan to execute public health engineering activity for water supply and sewerage. It was the department of the government of Kerala that developed and regulated water supply, waste water collection and disposal in the state of Kerala. The Kerala Water Authority was formed by converting the Public Health Engineering Department of the Government of Kerala into an autonomous organization responsible for the supply of water in Kerala. It came into existence on March 1, 1984 after the Kerala Water and Waste Water Ordinance, 1984 was promulgated in response to the national policy of establishing autonomous agencies in the sector. Later the Kerala Water Supply and Sewerage Act, 1986 was passed to replace the ordinance and still guides the functioning of KWA. However, after the 73rd and 74th constitutional amendments, the responsibility of supplying drinking water has been vested with the local bodies. Further, another organization named Kerala Rural Water and Sanitation Agency (KRWSA) has been functioning for sometime focusing on rural schemes. This has required KWA to re-examine its role in the water and sanitation sector in Kerala.

3.2 Role of KWA as per the Kerala Water Supply & Sewerage Act, 1986

According to the Kerala Water Supply & Sewerage Act, 1986, KWA was the nodal agency with the responsibility of water and sewerage in the state of Kerala. Its role included:

1. Preparation of plans related to water supply and waste water on behalf of the government of Kerala.
2. Establishment of state standards for water supply and waste water services.
3. Conduct research to improve the functioning of KWA.
4. Preparation, execution, promotion, operation, maintenance and financing of schemes for the supply of water and the disposal of waste water to ensure supply of wholesome water and efficient sewerage services.
5. Fixation and revision of tariffs and charges for water supply and waste water services.

According to the Act, KWA was to work to be a financially independent organization. It suggested that KWA should manage its operations and fix its tariffs "to enable it to meet as soon as feasible the cost of its operations, maintenance and debt service and where

practicable to achieve an economic return on its fixed assets". However, it was required to take the approval of the government in case of revision of water tariffs, schemes costing more than Rs. 100 lakhs, and contracts of value more that Rs. 100 lakhs.

In the past, it was expected that the government, directly or indirectly through a department or an autonomous organization supported by it, was responsible for the provision of water and sanitation services. This meant that in Kerala, KWA was the monopolistic organization in this sector. All government investments in infrastructure and schemes were channeled through the KWA as it was the nodal agency. Over the years this monopolistic environment led to poor planning and poor management both in terms of ineffective implementation of new projects and schemes, and in terms of inefficient operation and maintenance of existing infrastructure and schemes.

3.3 Changing Role of KWA

KWA used to operate as a centralized monopolistic organization in a stable environment without significant economic pressures. As PHED, it was an extended arm of the government of Kerala and operational and financial efficiencies were not of prime concern. Also, when the sector was not well developed, it was primarily engrossed in establishing water and sanitation related infrastructure. Several decentralization decisions have forced it to take a close look at operational and financial efficiency. As an autonomous organization it cannot rely entirely on the government for its capital needs or operation expenses nor can it expect consumers to pay higher prices for water unless it provides better quality and reliable supply of water. It is trying to adjust to its new role as a facilitator and supervisory agency for water related schemes in Kerala.

Since 1997-98, the government has launched several water schemes that are targeted at local governments with KWA providing only technical assistance. The government has asked the KWA to hand over 1050 Rural Water Supply Schemes which have independent water source and fall within the limits of a panchayat to the local panchayat. The local panchayat will be responsible for the operation, maintenance, and improvement of the schemes and will be required to meet the expenditure from its own resources. Further, as part of a World Bank assisted program the Kerala Rural Water and Sanitation Agency (KRWSA) has been set up and 360 panchayats in 4 districts have been handed over small water schemes. Again, the panchayats are to become owners of the schemes after they have been established. A similar program based on Dutch funding is also under discussion.

While the devolution of roles and responsibilities is still in progress as several local governments/communities have not yet taken over their responsibilities, KWA is under pressure from consumers, advocacy groups and external bodies to improve quality of water and also improve reliability of supply. Several officials at KWA have an apprehension that if it does not perform well and meet the increasing demands for quality drinking water in the state, local governments will take over the sector and also handover the activities to private utility companies or introduce public private partnerships in the sector. It appears that some other states in India have already made some moves towards greater participation of private sector companies to meet the demands from consumer groups. Hence, there is a felt

need that KWA should transform itself into a professionally managed organization with well defined business and financial objectives.

Provision of drinking water and sanitation services has been a priority for the government of Kerala. Initially the Public Health Engineering Department of the Government of Kerala was the arm of the government for fulfilling those needs. Following the formation of the KWA, it became the nodal agency for these services and it delivered these services in collaboration with the Local Self Government Department. The state has done reasonably well in meeting the needs in the urban areas but there is a perception that much more needs to be done to provide adequate services in the rural areas of Kerala. Further, even in the urban areas some of the assets are not able to deliver to full capacity due to lack of proper management and adequate maintenance. Several investments in the water and sewerage sector, as well as in other sectors, have not been financially sustainable, making it difficult for the government to rely entirely on its own funds for future investments in the sector also rely on KWA as the only organization in the sector.

The challenges faced by the state of Kerala in general and KWA in particular in meeting the commitment for demand of public goods are similar the experiences in other states. Following the 73rd and 74th constitutional amendments more authority and responsibility for a range of public services were transferred to local bodies. Since 1997-98, the state started making separate plan outlays for drinking water schemes to be managed by local elected bodies in cities and panchayats. Based on an order of the government of Kerala issued in March 1998, local bodies were allowed to undertake water schemes for single panchayats with the technical assistance of KWA. Further, the government decided to hand over 1050 rural water schemes that provided services to single panchayats to the local bodies. In order to facilitate, rural supply projects with World Bank assistance the government has established the Kerala Rural Water and Sanitation Agency (KRWSA) to implement small community based water supply schemes. Similarly, some Dutch government assistance and funds from the Government of India have been provided to District Rural Development Agencies (DRDAs) in some districts to implement water schemes. In these cases, the districts/panchayats/ communities (beneficiary groups) are to be responsible for operating, maintenance, quality control, augmentation and improvement of the schemes and also to revise tariffs if required to make the schemes financially viable. In short, these changes have modified the role of KWA from the only monopoly organization in the sector to one large nodal organization but with other agencies taking over it responsibilities particularly in the rural sector. This means that the domain that is exclusively in the domain of KWA in the water sector is the role of facilitator and supervisory agency implementing largely urban and more comprehensive rural water supply schemes.

There have been less significant changes in the sewerage sector in Kerala. It was not a very significant portion of KWAs activities as sewerage schemes have been concentrate in the large urban areas. It is expected that these sector will also go through the changes observed in the water sector.

3.3.1 The State Water Policy 2008

The State Water Policy 2008 was adopted to reflect the new realities in the water and sewerage sector, which has implications for KWA. The vision of the new policy framework is:

> **"To cater all the urban and rural households in the state with protected water supply and sanitation at all times"**

with the long term goal:

> **"To attain 100% coverage of the urban and rural population of Kerala with Protected Water Supply and Scientific Sanitation facilities so as to have a clean and healthy Environment"**

The guiding principles for the new policy are:

i. Access to water is a human right
ii. Ownership of Water is with the State
iii. Micro watersheds are the basic units of management and conservation
iv. River basis shall define water rights and regulate water use

The principles have changed the dynamics in the sector. Making access to water a human right will raise the expectation on the service provision. KWA as a major provider of water in the state will have to gear up to meet those expectations. It will have to revitalize itself to fulfill the government aspirations of the public of the state. In short, the current mode of operations, which makes large section of Kerala society to rely on alternate, and often unreliable, sources of water unacceptable.

Further, making micro watersheds as the basic units of management and conservations suggests that the future water schemes in Kerala are going to rely extensively on smaller areas with small beneficiary groups or schemes covering single or few panchayats. In short, the current strength of KWA to implement large scale projects covering large urban areas and some geographically spread rural areas is unlikely to be of great advantage in the future.

The basic strategies outlined for the new water policy are:

i. Restructuring the roles and relations of the state and water users
ii. Redesign the institutional set up for better regulation and stakeholder participation in management
iii. Development and adaptation of new and appropriate technologies

These clearly reinforce the view that the government is going to devolve power, now concentrated in the ministry, to the public and beneficiary groups that will allow for better stakeholder participation in the decision making and management of the schemes. The stakeholder participation will also allow for better regulation. This suggests that, in the

future, KWA will have to acquire the new managerial and consumer management skills to deal with diffused power that will be exercised by civil society and non-government agencies rather than rely on just managing the ministry and the government. This will require a significant re-orientation in terms of vision and functioning.

Extending the reliance on micro watersheds as a principle, the strategy to focus on new and appropriate technologies also suggests that KWA will have to develop new technical skills. It will have to acquire technical awareness of smaller technologies and also develop the innovation skills to adapt and/or develop new technologies that are appropriate for the location. In parallel, it will have to learn how to develop the managerial skills and processes for smaller schemes, which are different for the rather slow processes, which also have to change, used for large projects.

There is a clear emphasis on making the Panchayati Raj Institutions (PRIs) have the control over the resources and decision making and they will be provided support from KWA, KRWSA and Local Self Government Department. While, as suggested above, there is a major thrust on public-public partnership, there is also a possibility of exploring public-private participation for operation and maintenance for new projects. Private contractors already participate in the operation and maintenance of schemes, even the large ones, and the new policy is likely to make them more acceptable and formalized relative to the past.

3.3.2 Organizations in the Water and Sewerage Sector in Kerala

Recognizing the need to change the institutional arrangements in the sector to take the vision of the new water policy forward, the government of Kerala envisages the establishment and/or revamping of organizations in the sector. The following organizations are to be involved in the sector:

There are expected to be three organizations focused on understanding the big picture and sanctioning projects to achieve 100% water and sewerage coverage in rural and urban areas, and monitoring the implementation of projects and performance of schemes.

(i) State Water and Sanitation Mission (SWSM): This organization is to provide the policy guidance for organizations in the sector. It is expected to coordinate across relevant government departments and other stakeholder groups to provide norms for the water supply and sanitation sectors. It will monitor and evaluate the physical and financial performance of various water and sanitation projects and schemes to ensure an integrated approach to meeting the goals in the sector.

(ii) Water and Sanitation Support Organization (WSSO): This organization is to work under the SWSM and coordinate with the community level stakeholders and monitor and evaluate outcomes at the household level.

(iii) State Level Scheme Sanctioning Committee (SLSSC): This organization is to have representatives from the various organizations/agencies in the water and sanitation sector in Kerala. This is to ensure that all projects/schemes in Kerala mover towards the objectives in a coordinated and integrated manner.

There will be two organizations involved in the implementation of projects and schemes:

(iv) Kerala Water Authority (KWA): KWA is envisaged as a main agency through which drinking water supply and sewerage schemes, except for World Bank funded projects such as Jalanidhi, will be implemented. This essentially makes KWA the nodal agency for implementation of large scale projects both in the urban areas as well as rural areas. It includes project and schemes that may be owned by local bodies local government bodies.

(v) Kerala Rural Water and Sanitation Agency (KRWSA): KRWSA is envisaged as an agency that is to provide cost effective solutions for water and sanitation in the rural areas in Kerala. The focus will be on demand responsiveness, community ownership and sustainability of investments through recovery of costs. Hence, KRWSA will develop it competence in small scale alternate models of service delivery while KWA will be required to retain its current competence and area of operations.

There will be three organizations under the local self governments/Panchayati Raj Institutions to ensure that the project implements and scheme performance are effective by monitoring things at the ground level.

(vi) District Water and Sanitation Mission (DWSM): The DWSM will be headed by the Chairman of the Jilla Panchayat and work under the Jilla Panchayat with representative from district level stakeholders, and be the district level organization to consolidate the initiatives within the district.

(vii)Block Resource Centre (BRC): The BRC will be the extended arm of the DWSM in a block. It will word under the Block Panchayat and consolidate and monitor initiatives within the block.

(viii) Panchayath Raj Institutions (PRI): The PRIs are 978 Grama Panchayaths, 152 Block Panchayaths, 14 District Panchayats, 60 Municipalities and 5 City Corporations. After 1992, the 73rd and 74th amendment implementation has made these organizations central to the delivery of water and sanitation services. It is expected that gradually funding will be provided directly to these organizations who will use the services and help of other organizations in the sector to ensure quality services in their local areas. While public-public participation is at the core of these initiatives in Kerala, there is always a possibility that these local self governments will seek the services and help of private organizations if the services provided by organizations such as KWA or KRWSA are not adequate.

Given that a sector that was the sole responsibility of KWA is now going to have so many organizations, there will definitely be a tussle for responsibilities and also financial outcomes. Hence, KWA has to learn to be more responsive to various stakeholding groups to garner their support to retain its dominance in the sector.

3.3.3 Challenges during the process of decentralization in the sector

Single Panchayat Schemes

The government has already started the process of handing over 1050 single panchayat schemes to local bodies. Several have been taken over, but several local bodies have not taken over their water schemes because they are in poor condition in terms of maintenance. It is expected that the government will use the services of KWA to rehabilitate the schemes before handing over to the panchayats. Gradually, all the single panchayat schemes in the rural areas are to be handed over to the panchayats.

The difficulties involved in handing over schemes to the local bodies are several. The first concern is that most of the schemes that are envisaged to be handed over are not in good condition. Some of the schemes that were handed over to local bodies without rehabilitation are now been returned to KWA by the local bodies as they cannot operate them. The local bodies would be in a better position to takeover the responsibilities if the schemes were rehabilitation for which Government of India and /or World Bank assistance is be provided. KRWSA has successfully rehabilitated several schemes are handed them over to local communities. The second concern is that the schemes are not sustainable under the current revenue and cost structure. The local bodies will not be able to absorb the cost of KWA employees as the salaries are very high and may have to rely on alternate employees. However, the local bodies will have the authority to revise tariffs to improve financial viability. In our field visits, we assessed that if the local authorities take ownership of the schemes they are able to make the schemes viable by changing the cost and revenue patterns in the schemes. Under the Jala Nidhi Model, the local community provides about 15% of the funding for rehabilitation (with the rest being funded by the World Bank schemes) and handed over the communities – this generates community ownership which facilities the sustainability of the schemes. The third concern is the reach of many of these schemes. They are based on ground water which leads to potential quality problems as also quantity problems. Some of these schemes have had to supplement the water from ground water with water provided by KWA. In that sense, even when schemes are based on ground water, there is scope for KWA to remain the bulk supplier of water.

Multi Panchayat Schemes

Just as in the case of the single panchayat schemes there is a proposal to handover multi-panchayat schemes to the local bodies. Again, there is a need to rehabilitate the schemes before they are handed over. It is expected that gradually, all these schemes will be handed over to local bodies. As a result, the role of KWA will be limited to providing technical assistance to local bodies for the upkeep of these schemes. However, KWA will have to compete with KRWSA and may be even other organization to obtain contracts to provide these technical services.

Bulk Supplier

The new initiatives in the water sector in Kerala as described in a report called ""*Kerala Water and Sanitation Sector: Medium Term Rural Water Supply & Sanitation Programme (2011-2016)" dated December 2010 which is prepared by WASCON, the consultancy wing of KWA* envisages KWA to be a bulk water supplier to schemes managed by beneficiary groups and/or panchayati raj institutions. A pilot project has also been implemented. An assessment by WASCON suggest that there are significant difficulties in implementing the program. There is need to improve the capacities of these local bodies before they can take full responsibility. There is a role for KWA to play a significant role in building these capacities for the local bodies so that they can continue to supply bulk water and obtain revenues for them. Without KWA support the schemes will not be economically viable and KWA will suffer due to non-payment of dues for supply of bulk water.

Analyzing the Challenges

Decentralization and handing over management of water supply schemes to local bodies, especially in the rural areas will be a challenging issue at KWA. This is because there is a general perception among the KWA employees that Gram Panchayats (GP) are technically incompetent to handle water schemes and in many cases, they are unwilling to take ownership of managing the water schemes. There is also apprehension among KWA employees that if these schemes are handed over to the local bodies, there will be very little work left for a large number of KWA employees, which might pave the way for retrenchment. Moreover, once the schemes are handed over to the GPs, they will approach NGOs and other institutions rather than KWA for technical assistance and their dependency on KWA will go down. Overall, we sensed significant discomfort among KWA employees regarding the issue of decentralization, who are not very open to the idea of a new role for KWA where the actual management of simple schemes are done by local communities while KWA focuses on large complex schemes as well as provide consulting services to the local bodies as and when necessary. The importance and utility of decentralization needs to be communicated internally so that there is considerable buy-in among KWA employees and an understanding that in the absence of such decentralization, KWA will never be able to reorient its role in the changing environment – a reorientation that is absolutely necessary for KWA's financial viability.

Following some of the case studies of schemes that were handed over to the local communities:

<u>Aryumala Scheme:</u>

The Aryumala scheme benefits 213 families by providing individual water taps to each of the households. Water consumption is monitored by meters and the families are charged Rs. 20 per ten thousand liters. Clean water drawn from the wells is supplied to the families, without purification, between 700 and 1700 hrs every day. Initially the consumers were charged Rs. 60 / 10 K litres, but water rates were voluntarily reduced over the years as the scheme became financially viable. Prior to this scheme, KWA used to supply water to these families in water tanks. The two key reasons behind operational viability of this scheme are

reduced electricity tariffs (local bodies are charged a reduced rate of 90paise per unit – the monthly electricity bill is Rs2500) and lower management costs. The scheme employs a youth from the local community for operating the pump, maintenance of the system as well as for meter readings at a monthly salary of Rs. 4000. He informed us that there has been not been a single case of default in payment so far. As a result, the scheme is able to generate revenues of Rs. 13,000 per month and have accumulated reserves of 1.5 lakhs so far. It has used these reserves to purchase a new pump. The scheme has its own office and necessary infrastructure such as a computer and has started to provide insurance to the local community. The Panchayat holds elections regularly and selects a new governing committee for the scheme every year. The beneficiary group has been very strict in keeping the number of members close to 200, which was the capacity for which the scheme was designed. They are planning for an additional scheme because of demand from other families within the same region to have access to water. Mr. P A Basheer, the head of the Panchayat informed us that they are very satisfied with the functioning of the scheme and will be happy to continue with its operation and maintenance, so long KWA absorbs capital expenditure and provides them technical advice, whenever necessary.

Poyali Scheme:

The Poyali scheme was originally designed to benefit 350 families. The capital expenditure for the scheme was provided by the village Panchayat and state government under special scheme for the Scheduled Caste communities. Over a period of time the scheme succumbed to demands from other families to be made part of the scheme resulting in total membership of 950. This resulted in severe shortage of water resulting in unhappy consumers, who refused to pay. Around the same time, some of the water meters stopped functioning and some opportunistic consumers started consuming a lot of water without paying for it. The scheme thus became financially unviable and when their dues to KEB increased beyond 3 lakhs, KEB disconnected the electricity supply, resulting in complete collapse of the scheme. The consumers in this scheme were charged Rs. 60 / 10 k litres of water and the scheme employed four people, two for field operations at Rs. 4000 / month and two in different shifts for pump operations at Rs. 10,000 / month. Their monthly electricity tariff was about Rs. 24,000. When we met the head of the beneficiary group, he was hopeful about regaining the financial viability of the scheme by raising money from the community to pay back part of the dues to KEB and by convincing the users to repair their meters so that proper revenue can be collected.

The Kavattumukku scheme has been running successfully since 2008 benefitting 126 families. The scheme charges its consumers Rs, 60 / 10 k litres and employs two person for pump operations and meter reading at a salary of Rs. 3000 and Rs. 3500 / month respectively. In three years of operation the scheme has been able to generate a surplus of Rs. 40,000. The capital expenditure for this scheme was obtained from the central government under the SC scheme.

The Valappikuezhi scheme has been mired has been mired in controversy regarding quality of water. The capital investment for this scheme was made by the district Panchayat and the scheme was setup under supervision of KWA. The stream from which the water is being drawn is polluted by fertilizers, being next to a paddy field. Therefore the water is not used

for drinking purpose and the users are not charged for its usage. The operational costs are being met at present by Panchayat and no user group has been formed yet.

The key learning from this sample of case studies is as follows

- Local bodies have the willingness and ability to run water supply schemes that are relatively simple and small in size
- The local bodies are able to run the schemes in a financially viable manner because of the subsidy that they get in electricity tariffs as well as the lower operational costs that they incur. Operational cost savings happen because they are able to employ people who can multi-task and who work at lower salaries
- There is a high ownership of the schemes by the local community. As a result, there is greater compliance in terms of payment of water charges. The employees who run the operations are also able to maintain tighter control over the community and are in a better position to monitor usage and enforce penalty (through disconnections) if necessary
- Capital expenditure for these schemes will need to be provided from public funds, since the communities have little or no ability to raise funds for capital expenditure
- KWA needs to play consultative or advisory roles for schemes that are operationally complex or those that encounter technical problems. Therefore, KWA will continue to play an important role even if the schemes are operationally managed by the local bodies
- Over and above technical expertise, KWA needs to provide financial and managerial inputs to some of these communities. Failures, wherever it has happened are possibly a result of inexperience in handling social and economic pressures – something that can be avoided in future through transfer of best practices

In short, we concluded that the local bodies were running the water schemes that were handed over to them successfully. The high level of community ownership allowed these communities to do better than KWA in dealing with leakages, metering and revenue collection.

The local bodies may not be able to fund their own capital expenditure and may rely on the government for that. However, that is no different from the situation with KWA today. Even when the projects are implemented by KWA, the actual work in the field is still conducted by contractors and not by employees of KWA. So, if the projects are owned by the local community, there is unlikely to be a major change in responsibility as the same contractors are likely to be employed to implement the projects. They may seek the assistance of KWA for project management. Also, the local communities will not have the technical expertise to setup the schemes or undertake major rehabilitation work. KWA will be the most suitable organization to provide these services and unless it fails to provide reliable services for a payment, the communities are unlikely to seek the assistance on outside agencies. The operation cost are lower because these communities rely on local youth who are available for lower salaries than KWA employees and perform multiple tasks unlike KWA employees who perform narrower roles. Further, such employment creates employment for youth in the community.

3.3.4 Emerging Role of KWA

On paper, KWA is an autonomous organization which may obtain grants, capital contributions or loans from the government, but has the autonomy to fix tariffs and other operations to avoid losses. However, there are some restrictions on revision of tariffs and schemes or contracts costing more than Rs. 100 lakhs. In actual practice, KWA does not have the required autonomy as the some of the systems that were put into place when KWA was a department (PHED) of the government still prevail.

KWA is one of the agencies in the sector and clear lines of responsibilities are not assigned. Hence, there is need to work in close coordination with other entities in the sector. The Kerala State Water Resources Council (KSWRC) is body that helps KWA coordinate with other agencies. It consists of the Chairperson, KWA, Director, Ground Water Department, Chairperson, Kerala State Council for Science Technology and Environment (KSCSTE), Chairman, Kerala State Electricity Board (KSEB), Chief Engineer, Irrigation Department, and Executive Director, Centre for Water Research Development and Management (CWRDM). However, it appears that there are areas where there is overlap in responsibility while there are other issues, such as environmental issues arising out of overexploitation of underground water, which is no ones responsibility. Further, the regulatory responsibilities are diffused.

KWA also seems to have inadequate organizational mechanisms to deal with the stakeholders that have recently become important, such as Local bodies, NGOs or other community groups. While the legislation has attempted to decentralize authority and increase community participation, KWA has found it difficult to adapt to the new context. At the same time, the impact of state level policy formation is significant on the operations of KWA.

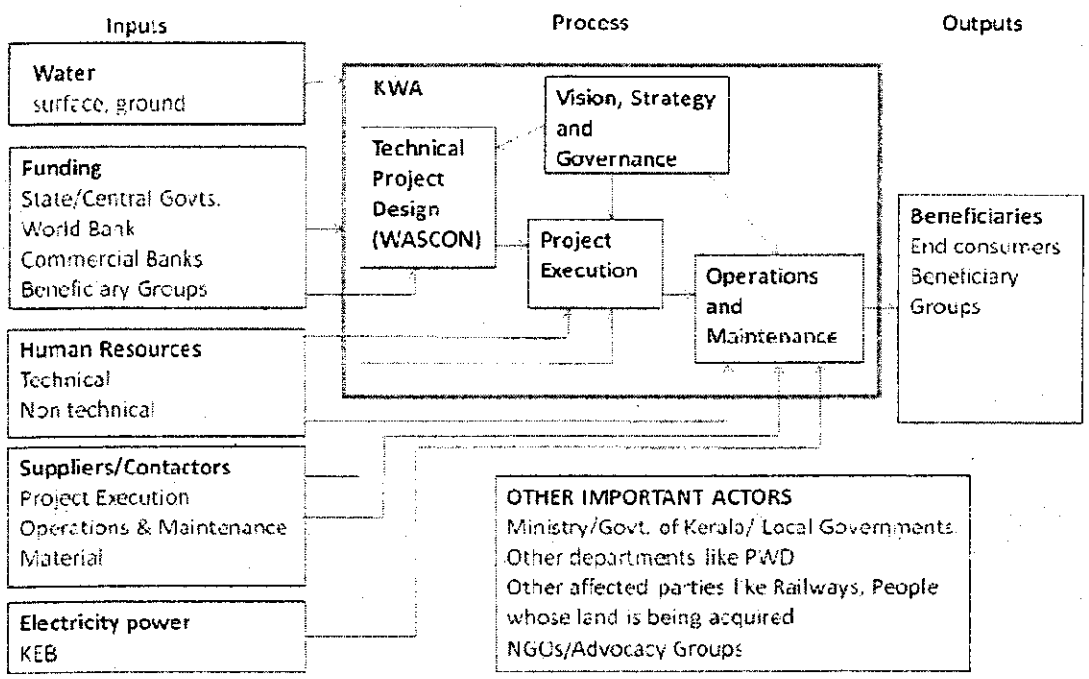
Our reading of the situation is that it is only a matter of time, when Kerala Water Authority will have to hand over all rural water schemes to local authorities and become focused on the urban water supplies. Even in the case of urban water supply, for the newer schemes it may be the organization provides technical expertise and on some occasion's implementation but will have to prepare for local urban bodies taking over the operation and maintenance of the schemes. The process of transition when local bodies are not ready to take up the schemes or KWA is not ready to handover the schemes may take some time, but it is better that KWA plan for that scenario. (It is unlikely that the existing large urban schemes will move away from KWA.)

Since KWA is the only state wide water utility in the country, KWA should focus on implementation and maintenance of large integrated projects and become the bulk supplier of water to municipal bodies and local bodies. The distribution schemes should be handed to local bodies for operations and maintenance with KWA continuing to provide technical support.

Figure 3.1 below shows KWA in its context. It highlights that in the new emerging environment KWA will have to respond to multiple external forces. It will need to establish a Vision, Strategy and governance structure to create a coordinated effort between technical

project design, project execution, and operation and maintenance activities, which are the three major requirements, while trying to respond to environmental pressures related to water resources, funding, human resources, suppliers and contractors, and electricity on the input side, and demands from the consumer groups, in addition to influence from the government, other organizations in the domain, and advocacy groups.

Figure 3.1
KWA in its context



Water Resources

KWA will face a major challenge in identifying new large perennial sources of water as the most easily accessible sources have already been tapped. High capital costs are likely to be incurred to access new sources of water and transport to high density areas where demand is located. It is likely that KWA will have to rely on local sources/ground water in many areas. Hence, KWA needs to plan the large projects judiciously for environmental sustainability. It may require to make changes in technical design of large projects with the need to ensure efficient use of water that is extracted at all stages: production, transportation, distribution and consumption. Further it will need to acquire and/or develop the necessary skills for small projects with local sources/ground water for local usage in case of small clusters of consumers.

Funding Agencies

Traditionally, access to drinking water was the only criterion used by the government and other funding agencies when providing funds to KWA. This led to a focus on capacity addition without much attention to long term technical or financial viability of projects and schemes. Now, in addition to access, the funding agencies are assessing the financial viability of the projects. As of today, KWA does not have the capacity to fund capital expenditure from its internal resources. Further, neither the Central government nor the Kerala government are flush with funds to support projects that cannot be self sufficient in the long run. Funding institutions such as the World Bank, Asia Development Bank, and Japan Bank quite naturally have a tendency to evaluate the financial viability of projects and apply efficiency conditions when evaluating projects. Finally, beneficiary groups do not have capacity to support high costs of KWA operations. If KWA is forced to rely on loans from Commercial Banks as is the case today, KWA will have to learn to function on financial terms.

As of today, KWA is almost entirely dependent on external source of funding, leading to severe resource dependence which effects even regular operations and maintenance. The lack of capability of generating resources from operations is leading to cash flow constraints which leads to delays in payments to suppliers and contractors, and even contract employees. The high dependence on external commercial debt has created a severe interest burden. To cope with the funding crunch, there is an occasional diversion of project funds to O&M activities on expediency basis. This puts KWA on a vicious cycle of long term financial unviability.

It is very clear that KWA has to become more financially independent. In the short term, KWA has to at least meet O&M costs from its revenues. In the medium term, KWA should be able to generate finances to rehabilitate existing projects and schemes that it retains. In the long term, KWA should be able to meet its capital costs from its own resources, with government subsidy only for water provided for BPL consumers. GoK may be prepared for one time grant to clear the balance sheet but KWA will have to be financially independent in the future. GoK may support some capital costs but operation and maintenance costs have to be recovered by KWA. GoK may support rehabilitation of necessary infrastructure before the distribution systems are handed over to local bodies (Municipal governments/ panchayaths/ beneficiary groups).

KWA cannot survive with the current capital and operational costs, as the end consumer cannot absorb the high costs of this essential consumable, and the government does not have the finances to cover the capital and revenue shortfall to allow KWA to break even. First, efforts should focus on eliminating avoidable operational costs, including non-revenue water.

Simultaneously, efforts to connect to consumers by addressing their concerns and improving services, and also efforts to improve image so that tariff revision, if required, will be acceptable in the future. Second, there has been an excessive focus on adding capacity in the past and not enough attention to the operational costs and the cost of maintenance /rehabilitation of the schemes over its lifetime. Huge assets are underutilized because a

small portion of the asset is not completed or not functional. This adds to the financial problems at KWA. Further, efforts should focus on reducing avoidable capital costs by improving project estimates, tendering and execution to bring assets to revenue generation stage at the earliest. With improvements KWA is capable of breaking even or even generate funds for rehabilitation projects based on its own revenues at current tariff rates after operational and capital costs are brought under control. Further, with improved service performance to the consumers, the willingness to pay will be higher, and it will be feasible to raise tariffs, so that in the long run, KWA will be self-financing on a no-profit and no-loss basis for all its capital and operational requirements.

Human Resources

KWA is not attractive for high skilled workforce. As the Indian economy and the Kerala economy evolve and provide better career prospects for young qualified people, getting human resources for the long term viability of KWA will be a challenge, given other options for talent. We understand that even long term high performing employees are leaving for other opportunities. Poor skill will perpetuate the vicious cycle of non-performance to becoming an unattractive employer to further non-performance. KWA needs to simultaneously improve performance and internal working climate to become an attractive employer for the right kind of talent to remain viable in the long run

Contractors/Suppliers

KWA is unattractive for high caliber suppliers/ contractors. Outdated estimation processes and standards, inefficient tendering process, delays in award of contract, impractical implementation norms, delays in payment, and corruption keep good contractors away. Several good local contractors find it better to deal with large private companies in the domain rather than work with KWA. Also, poor contractor management leads to litigation with the contractors who do participate. And courts award relief to contractors as KWA cannot defend its case due to poor paper work and poor legal support relative to contractor

KWA needs to change its internal processes and decision authority to deal with contractors better and make Itself attractive for good contractors. KWA needs to run a transparent tendering and contact management system. KWA needs to improve its interface with contractors and suppliers to work like a partner (rather than adversary) to address societal needs for water. Philosophically, KWA needs to ensure that contractors are able to earn money in a legitimate manner. Then only KWA will be able to derive benefit from the relationships. For example, (a) timely allocation of contracts, (b) rates in the contract should reflect market realities, (c) contractors should be paid on time – irrespective of delays due to coordination issues with other government departments such as PWD, (d) rewarding contractors for completing the project before time

Electricity

Electricity is a key resource for KWA. The electricity charges are very large. KWA needs to improve its efficiency in terms of power consumption. They need to replace old equipment with efficient equipment and improve monitoring of consumption to improve efficiencies. Further, KWA needs to negotiate with KEB for better power rates

Benficiary Groups

Beneficiary groups want good quality water, with regular supply, and good grievance handling procedures. Happy consumers are prepared to pay more if service improves. However, the poor may be unable to pay more but are willing to cooperate and take responsibility to bring down costs. KWA needs to engage more closely with beneficiary groups, local governments, and consumers to understand their concerns and address them proactively.

One possible way of dealing with many of the complaints from beneficiary groups is to handover the distribution (including operations and maintenance and revenue collection to local bodies. All the bodies are likely to have more community ownership, good revenue collection, and low operation and maintenance costs.

3.4 Top Level governance structure

The highest level body that governs the KWA is the board . It consists of a Chairman, a Managing Director, Secretary to Government (Water Supply), Secretary to Government (Finance), Secretary to Government (Local Administration), Secretary to Government (Rural Development), two members representing the local bodies, two members appointed by the Government of which one should be of the SC/ST community, a Technical Member and Accounts Member.

While the size of the board is reasonable, it appears that the representation from the government is too high. It appears that since the senior secretaries from the government have to balance several engagements, they often do not have the time to attend to the issues of KWA and often have to miss some of the meetings. Ideally, there should be greater representation from user groups on the board to ensure greater public participation in decisions of the organization.

Further it appears that the tenures of CEOs and members hinder long term vision and strategy. It would be nice if KWA has some stability at the top executive level to provide a new vision and implement it.

3.5 Creation of a State Level Regulatory Authority

In the emerging environment it is only natural to expect that KWA should seek greater autonomy from the government. It should become an autonomous water services provider with the ability to manage its affairs most effectively and efficiently in its domain. It can be

effective and efficient if it adopts more streamlined processes (and gives up some processes that are essential in the government) in terms of estimation, tendering, and implementation. It should also be able to segment the consumer groups and charge different charges etc.

In order for this to happen, it is necessary that the government create a separate regulator in the sector to assess the economics of water supply in Kerala and then fix tariffs. It cannot allow KWA to fix prices on its own and political compulsions will not allow the government to approve changes in prices on its own. It is best that an independent regulator have the responsibility of keeping the interest of KWA and the consuming public while approving changes in tariff. Separate regulator for the water sector as in the case of Electricity with help. (We understand that Maharashtra already has a regulator although its success is not yet known and Gujarat is planning to have one). Some KWA employees can be on deputation to regulator. The regulator to monitor the sector - projects quality, water quality, tariff

3.6 Vision for KWA in the emerging Environment

As KWA prepares its vision for the emerging environment it is very clear that it has to work towards becoming a more financially viable organization than it is currently. However, it is clear that no privatization of KWA direct or indirect is an option that will be acceptable in the state of Kerala. It will definitely be opposed by the executives and staff unions of the KWA employees. There is support for making KWA more financially independent with a view to "Social viability" rather than mere "commercial viability" . We agree with that sentiment and hope that KWA can create a vision that is suitable to the context of Kerala.

KWA should be run on a no-loss and no-profit basis. Economic efficiency should not focus on profits but on reducing the cost of water to the public, particularly the poor. Government may subsidize water for certain groups, but KWA should be compensated for it

In order to achieve its new mission KWA can be reorganized but not restructured drastically to increase private ownership. In other words, KWA employees cannot be reduced. However, KWA employees can be reassigned/ transferred and new roles defined. Further, if required there can be a reduction in contract labour and also a reduced reliance on contractors for regular work

KWA should aspire to be best service provider in the water and sanitation sector in India. The parameters of importance are clear in Chapter 2 and KWA should aspire to be on the top or near the top on all parameters. In order to pursue this vision, KWA needs some short term and some long term strategies.

In the short run, KWA needs to move from supply driven approach to demand driven approach. As of now there is very little involvement of consumer groups or beneficiary groups in the planning and execution of schemes – there is a need to understand the needs of the general public in the planning and execution of schemes to help them address the needs directly. KWA needs to build credibility among the people which as of now is very poor. It needs to improve quality and supply of water and also address complaints, technical

or commercial, better. There needs to be a headon drive on cost cutting and efficiency improvements which are known to all involved but not addressed because of lack of professional thinking. There is a need to consolidation of existing schemes and plan expansion based on integrated thinking without thinking in terms of addition of new capacity and capital expenditure. It should be clear to KWA that it is not not possible to raise tariffs in the near future unless there is a substantive improvement in service. However, there may be scope to increase tariff only after internal efficiencies have been obtained and there is public support for the increase. (Even if there is an independent regulator, it is unlikely to permit tariff increases if KWA does not improve on its technical and financial efficiency as it will be forced to protect the interest of the general public, particularly the poor.)

In the long run, KWA may be able to function in the way envisaged by the current changes in the sector. It will have to make a transition to align with GOI and GOK policies in the long term and not hope that it can go back to the days in which it was a department of the government. Once the short run strategies start bearing fruit, it can examine the possibilities of raising tarigss. While the poor need cheap and good quality water and may need lower prices based on consumption, the rich are capable/willing to pay more once the series improve. Better services to people (particularly poor) and a better public grievance addressing system is required.

KWA should focus on production and transportation of bulk portable water. KWA should be responsible for operation and maintenance of production and transportation systems with some reliance on contract partners. Distribution to homes/street taps can be handed over to local urban bodies/local governments/beneficiary groups. KWA will obtain revenues based on metering of bulk water at point of handover to distribution agency (urban body/local government/etc). Local bodies/local governments/ beneficiary groups will be responsible for operation and maintenance of distribution system> However, they may retain KWA for consulting and advice for a fee.

KWA should also look at broadening is scope of operations. Sanitation is a part of KWA mandate but currently neglected in vision/strategy with focus mainly on water. KWA needs to be ready to implement sanitation projects. Some KWA staff may need to be deputed to local bodies as consultants/advisors to help transition.

In future, KWA should examine the possibility of developing infrastructure for dual water supply (portable and raw water). While the initial capital costs will be high the O& M costs will be lower making the overall lifetime costs of the schemes lower. Of course, KWA should examine possibility of dual water supply infrastructure only after the existing infrastructure is rehabilitated.

Chapter 4

Organizational Rearrangement

4.1 Introduction

As an organization, KWA seems to be encountering two kinds of problems – there is a high degree of procedural delay in approval and implementation of new projects and there is high degree of inefficiencies in its operations and maintenance of assets. On the field, we heard comments such as "KWA is perpetually in the project mode" and "Project activities are deemed to be much more prestigious in KWA when compared to operations and maintenance activities". This has resulted in inadequate attention being paid to day to day operations of KWA. Paradoxically, KWA's orientation towards projects has not resulted in efficient implementation of its project activities either. A significant portion of such inefficiencies in project implementation is a result of the procedural lacunas present in the approval process. This has been separately dealt with in Chapter 5. Thus, the focus of this chapter is to design an organization structure that would enable KWA in doing effectively whatever activity it undertakes. Since data collection and record keeping is rather poor in KWA, our assessment of KWA's present situation with respect to adequacies or inadequacies of its structure is based on primary data that we collected through in-depth interviews with various stakeholders. Thus, in some places, to strengthen our arguments, we have used quotations from our interviews.

The key idea that we propose with respect to organizational rearrangement is complete separation of project based activities from operations and maintenance activities. While this separation is already present at the field level, the Chief Engineers at KWA are responsible for looking after both project activities and activities pertaining to operations and maintenance. We propose separation of these disparate activities at the level of Chief Engineer as a signaling devise so that over a period of time, KWA can create specialized divisions looking after each of these activities. This specialization, which is hitherto missing in KWA, will be a key enabler for developing excellence in all its activities – be it project execution or efficient running of operations. However, such specialization in structure can be achieved through various means, each with its advantages and disadvantages. The following sections describe the rationale behind our suggestion, which is followed by discussion of various structural alternatives that KWA can adopt.

4.2 Operational Inefficiencies

The most visible and significant impact of operational inefficiency at KWA is its Non Revenue Water (NRW). In the absence of proper data, estimates of NRW vary between 45-60% of total water that is delivered by KWA. That NRW is a big source of KWA's operational inefficiency is well known within the organization. It has also been pointed out by multiple external agencies and consultants who have been employed from time to time by KWA. However, no improvement in the efficiency (through reduction of NRW) seemed to have happened in KWA, despite this awareness. In fact, this is an endemic characteristics of most of KWA's problems – the problems have been well known for quite some time (as external

consultants, we did not need to spend much effort in knowing about them!), yet there is very little remedial action that is being taken by the organization to systematically deal with the problems and remedying them, a phenomenon known as the "knowing –doing gap" in academic literature on organization learning.

While there are several reasons for such high NRW at KWA, the following have been identified to be significant

- There is no reliable estimate of the total water that is being pumped and supplied by KWA, in the absence of which, there is no reliable estimate of NRW. Some KWA employees believe that they "operate on hypothetical figures". There is no robust method of collecting data pertaining to installed capacity or capacity utilization and information that exists in the system is not up to date. KWA personnel pointed out that there is less than adequate number of properly functioning bulk meters at points of generation, distribution, overhead tanks and water treatment plants. Neither is there much information about the points at which the water is being lost. Given that water is the only product and service that KWA produces / delivers, it is very surprising that KWA does not have a reliable estimate of its production figures. For an enterprise manufacturing widgets, this is equivalent to saying that it does not have reliable estimates of how many widgets it produces and how many it is able to sell. On one hand, this indicates a complete lack of business orientation of KWA. On the other hand, this might also point to a high degree of apathy among employees and leadership towards making KWA a financially viable organization.

- There is poor maintenance of existing assets such as pipes and motors resulting in high degree of leakage from the system. In the absence of proper tools for asset management, assets are not fully accounted for. Maintenance, if at all, is done in an ad-hoc manner without any proper schedule and planning. Neither is there any system of preventive maintenance at KWA, resulting in reduction of operative lives of its assets. It was pointed to us that many of the operational and maintenance activities were being carried out by employees and contractors who are technically not qualified to deal with the complexities of the machinery. Therefore, they might be doing further damage to the system because of their ignorance, rather than maintaining the system at high degree of performance. We were also told that while KWA had purchased state-of-the-art leak detection units some years ago, they are till date lying unutilized for various reasons, primary one being employees who were trained for using such equipment were eventually transferred to other divisions of the organization.

- KWA earns revenue from its customers by charging them for water usage. This water usage is supposed to be monitored through meters installed at points of consumption. Thus, installation and maintenance of water meters as well as taking proper readings from the meter for billing the customer is a critical activity for KWA that has direct impact on the revenue that it generates. However, as an organization, KWA does not seem to be paying adequate attention to this critical activity. For various reasons, the task of meter reading has been extensively outsourced and there is little in terms of monitoring that KWA can undertake to ensure that the meter readers are doing their job adequately. There is no performance linked incentives, either for KWA employees or the

contractors. There are several indications from the field about inadequacies in the meter reading system – meter readings are infrequent and irregular in many places and there are customer complaints about wrong readings that result in improper bill values. The problem is worse in remote areas where unofficial estimates suggest that more than 30% of the water meters are non functional. The billing and meter reading cycles are much longer than what is desired and customers do not always get adequate response or service of a desired quality from KWA when their water meters stop functioning or start to malfunction. Meters are not standardized, nor are standard procedures followed while taking readings from the meters. Many a times the meter readers come back from the field without measuring the water usage because either the meters were malfunctioning, or they could not be read properly or the consumer was not available in their residence. Needless to say, all these issues can be resolved by following proper procedures, the absence of which creates potential for loss of revenue to KWA as well as possibilities of malpractices on the field.

- It is palpable that there is very low degree of motivation among field employees at KWA. Many aspects of the job that they do are routine. Given that transfers of field level operators to other kind of jobs is very rare in KWA, most employees are likely to find their jobs monotonous and uninteresting, resulting in lack of commitment. Thus, there is little initiative or urge to rectify problems, which results in inordinate delays, sometimes as high as three to four months especially in the rural areas, to repair and make the system up and running. This results in customer dissatisfaction and loss of revenue for KWA. Field level employees do not have any incentive for performance, neither are they provided adequate training to do their jobs better. Moreover, since significant part of the field level work has been outsourced and are being done through contractors, some employees feel that operations and maintenance is not their responsibility and should be done by the contractors. There is very little that KWA can do at present to instill accountability in the system, especially when it comes to the meter readers, even though they are a critical last-mile link for KWA's revenue generation and financial viability.

- In KWA, there seems to be lack of ownership when it comes to operations and maintenance. Senior management seems to be perennially busy with new projects resulting in inadequate attention being paid to field level activities such as operations and maintenance. For example, one of the largest cost items on KWA's P&L is electricity charges. Several engineers confirmed that KWA's electricity consumption can be reduced considerably by increasing efficiency of its motors. While some of these might involve replacement of old motors with new ones that are energy efficient, it would also need periodic preventive maintenance of existing motor and conducting of periodic energy audits to understand energy consumption patterns. However, these do not seem to be the priority areas for KWA. Instead, the focus of the organization seems to be "laying of new pipelines and increasing capacity rather than better utilization of existing capacity". It is also surprising to note that operations and maintenance costs are not factored in cost estimation and viability assessment of new projects at KWA. Thus, it is possible that many of the projects that KWA is undertaking will become infeasible if the operations and maintenance costs are factored in. Moreover, undertaking projects without proper planning for its maintenance might result in making decisions that would

result in high maintenance costs in future. Overall, it confirms that there is a lack of adequate engagement in KWA, at every level of the organization, with issues pertaining to operation and maintenance management. It has also been suggested that the focus of new projects rather than increasing efficiency of the existing system is driven sometimes by political compulsions where increasing capacity and the number of connections gets greater media attention and political mileage. We are not suggesting that KWA should stop providing new connections or stop doing new projects. We are recommending that new projects should not be done *at the cost* of inadequate attention being paid to field level operations and maintenance activities, especially because KWA is facing a huge crisis in its financial viability, largely because of its NRW.

4.3 Structural Changes – Various Options

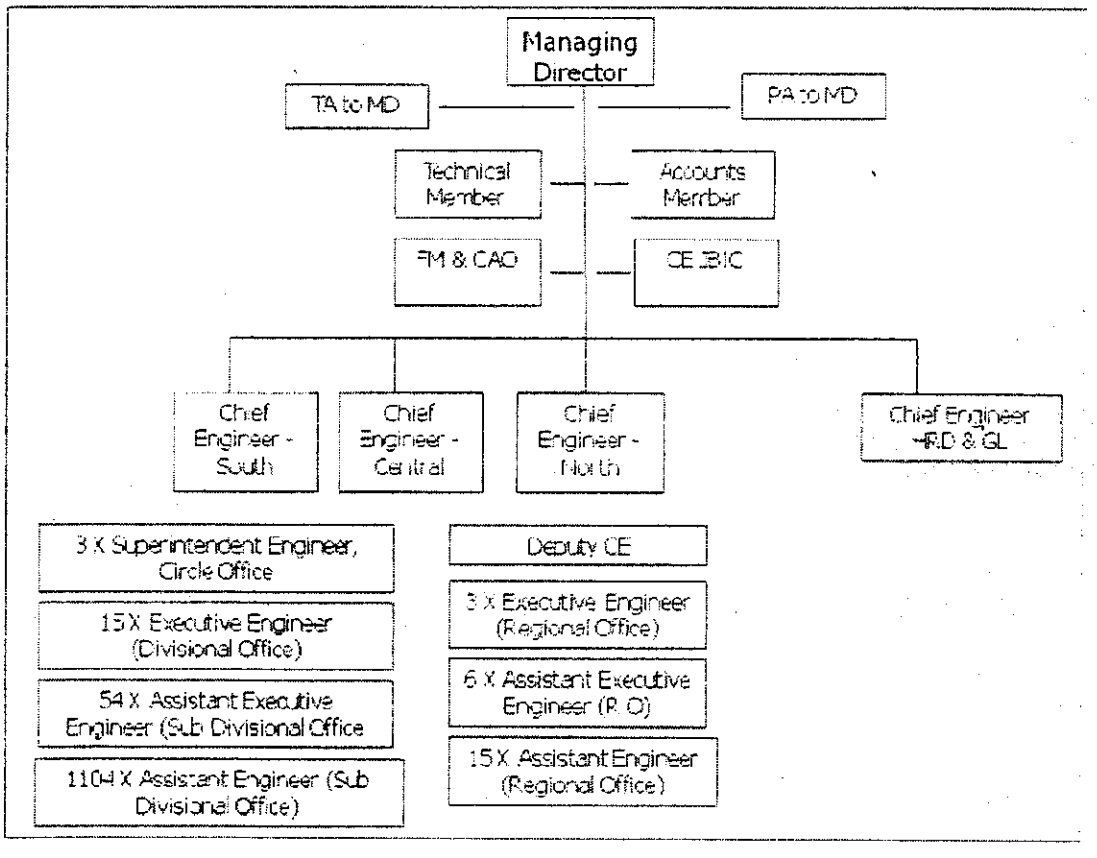
The scope of our project does not involve providing technical solutions to KWA for reducing its NRW and other procedural efficiencies. There are enough qualified engineers and expertise at KWA who know how to increase operational efficiency and what needs to be done for preventive maintenance of KWA's assets. It is our hypothesis that it is the *lack of intent and adequate attention* rather than lack of expertise that is causing operational inefficiency at KWA. If an organization such KWA that has a rich pool of talent and expertise applies itself to have a meaningful engagement with its operational issues, it should be able to solve most of its problems. Thus, it is necessary to design a suitable organization structure that will facilitate KWA providing adequate attention to its operational problems. Organization structure creates the macro-environment within the organization that provides direction to the process of decision making. It signals to decision makers issues that they need to prioritize and focus on and draws boundaries around their responsibilities. It is to facilitate adequate and undivided attention on KWA's operational and maintenance (O&M) issues that we propose a complete separation of its project and O&M departments, up to the level of Chief Engineer.

In an ideally designed organization, one should not need to make tradeoffs between doing new projects and getting the best out of existing assets. Tradeoffs happen between new projects and O&M of existing infrastructure because of fundamental difference in nature these two activities. Similar tradeoffs are observed between sales and services of engineering enterprises and the conflict of interest that might arise because of the differing nature of these activities are dealt with by separation and creation of dedicated units in the organization structure, wherever feasible. A significant advantage of dedicated units is their ability to focus on a particular domain and thus develop specialized skills and competencies within that domain. To senior management, it provides greater ability to allocate responsibilities, set expectations and monitor performance on sharper parameters.

Apart from improving its operational parameters (such as reduction of NRW) KWA also needs to develop and nurture competency in operations and maintenance because in future, there is a significant opportunity for KWA to monetize such competencies. KWA today is not known for its competencies in the domain of operations and maintenance. Some of the urban customers whom we interviewed expressed their desirability to pay KWA more if it delivers better service. However, many of them seemed apprehensive about KWA's ability to improve its service levels. In a following chapter we have argued that KWA

should decentralize many of its present operations to local bodies and communities. Experience with local bodies so far indicate that while they are able to take care of water production and management issues under normal / usual circumstances, they do not have the technical competencies to deal with complex issues of infrastructure maintenance. It is here that KWA can play a significant role even in operations that have been handed over to local bodies – by providing them consulting services on maintenance issues, doing periodic preventive maintenance as well as operational audits and by charging the local bodies reasonable fees for the consulting services delivered. For this to happen, KWA must be seen as an organization that possesses specialized skills and competencies in maintenance of technologically complex infrastructure for water and sanitation services.

Figure 4.1 provides a high level organogram of KWA, as adopted from Organization Review report by TEC Consortium in 2005.



As can be seen from the diagram, KWA largely follows a regional structure where activities pertaining to the region fall under the purview of the Chief Engineer (CE) of the region. Thus, the CE is singularly responsible for approval and implementation of new projects on one hand and operations of his or her region on the other hand. A regional structure such as the above is well suited for delivering regional responsiveness and needs to be followed where there is considerable difference between one region and another, either in terms of customer demands or in terms of organizational capability, which in turn determine supply

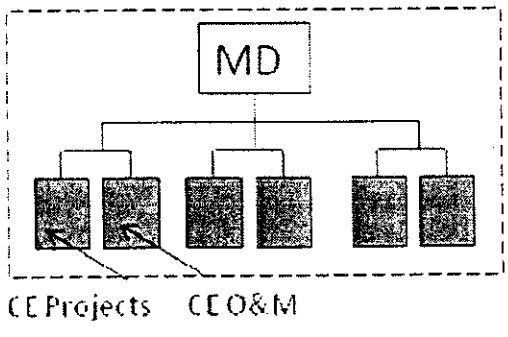
and competitive capabilities. The drawback of such a structure is lack of specialization – when the region is supposed to deliver on multiple fronts, it finds difficulty to focus on and develop in-depth expertise on any single dimension.

It is our assessment that the different regions in Kerala where KWA operates are not so different from one another that they demand regional specializations or responses that needs to be designed for specific region. Instead, KWA needs to develop in depth expertise in matters pertaining to operations and maintenance. This can only be achieved if there is complete separation of roles and responsibilities between new projects and O&M at every structural level of the organization. A senior executive at the level of a Chief Engineer should be made entirely responsible for O&M activities to bring in the focus that is needed in this domain. His or her sole responsibility will be monitoring and improving operational parameters of KWA and s/he will be evaluated based on what KWA's performance on O&M parameters. S/he will be responsible for developing a specialized O&M team that will, over a period of time, become indispensable for any strategic direction that KWA decides to adopt. As a repository of knowledge and expertise, KWA's dedicated O&M team will provide important inputs to any projects that KWA decides to undertake as well as work towards developing a business model where it can provide consultancy services to other organizations involved in providing water and sanitation services within or outside the state. It is thus not inconceivable that over a period of time the dedicated O&M units will become profit centres on their own, thus creating a high degree of motivation among its team members for being able to provide value added services rather than being involved in routine activities as O&M is viewed within the organization today.

Once it is decided to structurally separate O&M from Project management, the next question arises about their location – where should the O&M and the Project team lie in the organizational hierarchy – whether they should be regional units or whether they should be corporate units. The least disruptive option is to keep both the functions at the regional level. This implies that the current role of the CE in each of the regions will be divided into project responsibilities and responsibilities pertaining to O&M and allocated to two CEs. This option is shown in figure 4.2

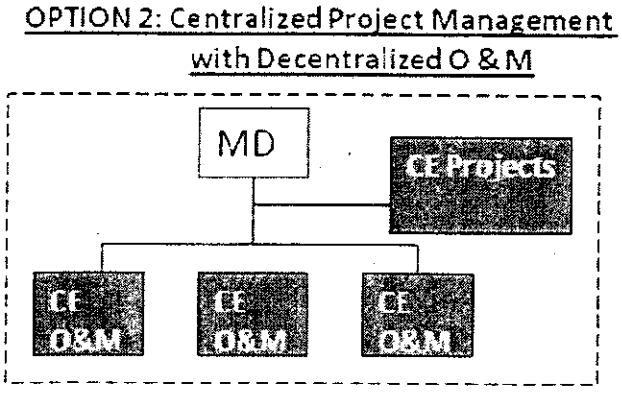
Figure 4.2

OPTION 1: Separation at Regional Level



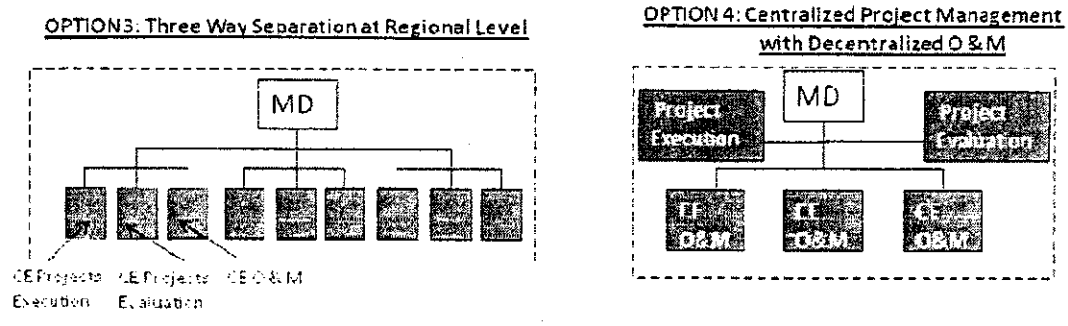
While this option might be easy to implement, it will need the creation of new posts and might result in creation of two power centres at every regional level. It should also be kept in mind that while O&M will have several activities that need to be regionally responsive, there is considerable scale and scope economies that can be gained by making project approval and management a centralized activity that works closely wit the office of the Managing Director. This gives rise to the second option that is shown in figure 4.3

Figure 4.3



Given the large number of projects that KWA is involved at with at any point of time, both in terms of appraisal and implementation, it is possible that the new proposed structure in option 2 might create unmanageable load on the Chief Engineer who is made responsible for projects at the centre. Therefore, we have presented below two other options which, instead of dividing the work into two parts of Projects and O&M, further divides Project work into appraisal and implementation activities. The two corresponding options, one purely regional and one that centralizes project functions is depicted in figure 4.4

Figure 4.4



The final choice between these four options will have to be made based on availability of resources as well as analysis of workload, some of which will be addressed during the implementation phase of our project. At this stage, we feel option 2 to be the most feasible, since it makes a balanced allocation of responsibilities between the regions and the

corporate centre. It also has the added advantage of requiring to create only one additional post of CE Projects. [2]

4.4 Managing the Change Process

Structural changes need to be matched with behavioral changes in order to achieve the desired objective. Therefore the implementation of the proposed changes should be planned with care – else the change management effort will fail. Given that Project activities have been traditionally viewed to be prestigious within KWA, CE projects might become a coveted position and there might be competition among existing CEs to get into that position. KWA has several options to deal with such a scenario. First, it might try and recruit someone from outside KWA who has proven expertise in project execution. Else KWA might look into the records of existing CEs and appoint the one who has the most impeccable record in terms of executing projects at KWA. Whichever option KWA decides to adopt, it must make sure that the process of appointment is seen to be fair and transparent and it lays down clear deliverables for the new appointee on which his / her performance will be judged. It is also equally important to convey to the organization about the renewed importance that KWA wants to put on O&M and to communicate the message that this structural change has been brought about so that regional teams focus on making significant and positive improvement in O&M, without having to dissipate their energy on matters pertaining to project appraisal and implementation. Such communication needs to be complemented with changes in incentive structure so that being part of the regional O&M team and developing expertise in that domain becomes professionally attractive and financially rewarding for the employees.

[2] KWA's IS Working Committee has done some analysis in this regard and come up with a structural recommendation that is similar to one of the possible options suggested above. This recommendation is added in Appendix 3. While the recommendation is fairly detailed, the basis for making a choice needs to be verified and the pros and cons of the option chosen vis. a vis. other possible options needs to be clearly understood by IIMB before a final decision can be made

Chapter 5

Organizational Processes and Procedures

5.1 Introduction

The organization structure, including the staffing pattern of the organization, provides the static capabilities, or potential, available to an organization to achieve its objectives. The organizational processes and procedures, including the organizational culture, provide the dynamic capabilities of the organization to convert the potential to actual achievement of results. In this chapter, we examine the critical processes to assess the extent to which the support or hinder the organization from fulfilling the potential that is available. KWA is experiencing a change in its environment that requires it to be more responsive to its external stakeholders both in terms of the types of issues that require attention and the speed at which they are addressed. The organizational processes that performed reasonably well when the external stakeholders were not empowered and the only significant stakeholder that needed to be addressed was the government now need to change to fit the new environment.

5.2 Degree of Centralization/Delegation of Power

It is well known that organizations that operate in a stable environment can do quite well with high levels of centralizations that reserve decision making power/authority to the highest level roles in the organization. In a stable environment, there are very few triggers from the environment that require a quick organizational response so high centralization does not hurt the performance of an organization. KWA has performed reasonably in the past. However, there is a need for decentralization to take decision making authority to the level at which executives engage with the external stakeholders so that they can improve the quality of decision making by incorporating local information into decision making. Further, decentralization will improve the speed of response to external triggers. As the people have been exposed to high quality responses from other organizations in Kerala and some have experienced high quality services outside Kerala, their expectations from KWA has changed and there is strong pressure for KWA to change the level of centralization.

5.2.1 Autonomy from the State Government

As already discussed in Section 3.5, autonomy for KWA to make its own decisions is important. The need to decentralize and delegate power starts with the need for greater autonomy from the government. Since the KWA was formed from the PHED department, it still functions as a department of the government rather than an autonomous organization. The administrative, financial and technical powers in practice are that should reside with the KWA Board are still in exercised by the ministry. However, some of this has been necessitated because KWA has not been able to achieve financial independence and relies heavily on the government for not only capital expenditure but also for operating expenses. For example, the approval of the government is required for all projects with expenditure of more than Rs. 5 crore. Since many administrative and technical decisions also have financial

implications the ministry is likely to change very slowly under current circumstances. Some of the suggestion for autonomy may not be implementable unless the financial autonomy is achieved.

The GoK and the ministry should be involved in influencing the decisions at KWA through policy directives and legislation and allow KWA to operate within the space created rather than retain sanctioning authority for projects as well as operations. The KWA board should be delegated most of the decision making that is currently with the GoK. Some changes in this direction have already been implemented but more is required.

However, there is also a political angle to the decision to provide autonomy to KWA. Water is very important from the public point of view. It is seen as the right of the public to obtain regular good quality water. Despite all its shortcomings, KWA still caters to a big public need, and the government may be reluctant to provide autonomy to KWA if it apprehends that autonomy might lead to worsening water supply and cause the government to become unpopular. Further, as suggested above, unless KWA is able to at least cover the operating costs, and seek assistance from the government only for capital expenditures, it will be difficult for the government not to exercise some control over KWA.

5.2.2 Delegation of Power within the Organization

KWA is a geographically spread organization. It is already subdivided structurally into regional and sub-regional units to address needs of specific areas, and some further changes have been submitted in this report. However, KWA will not be able to benefit from the geographically distributed organization structure unless there is a delegation of decision making power to lower level executives in the regional and sub-regional offices. However, as in the case of autonomy from the government, the delegation of authority may not be feasible or successful unless those to whom the authority is delegated take responsibility for their decisions. Information acquired from the field suggests that executives are unwilling to take responsibility for the power already delegated as they are unable to take responsibility for their decisions. In the absence of a performance oriented culture they push decision making files up the hierarchy even when it is not required.

5.2.2.1 Sanctioning of Projects

One of the processes that takes a lot of time and adds to the inefficiencies at KWA is the process of obtaining sanction for a project. Table 5.1 shows a typical process along with the typical duration for each step of the process. However, a more detailed study of the sanction process of about 90 projects for which data was available showed that the actual duration in most cases is much longer with the delays higher up in the hierarchy are even more. A file can be at the CEs office for about 2 months and at the MDs office for about 3 months. There is no need for repetitive scrutiny of estimates and there is a need to delegate authority so that not all sanctions have to be made at the level of the CE or the MD. Depending on the level of sanctioning authority (based on the new delegated powers) there should be only one level of scrutiny after the estimates have been made before it undergoes a final scrutiny by the sanctioning authority. Officers who have been identified as providing

repeated erroneous estimates and erroneous clearance for projects should be relieved of those responsibilities.

Table 5.1[3]

Process for Sanctioning projects with duration at each step

Step	Activity	Duration (days)
	Section	
1	Site Inspection	3
2	Soil classification/investigation	7
3	Finalization of items required	2
4	Rate from data book	7
5	Quantifying the items required	4
6	Finalization of cost estimates	4
7	Sent to Sub-division office	3
	Subdivision	
8	Receipt of Estimates in Subdivision (in warding)	2
9	Scrutiny by DB (full form required)	7
10	Signing by AEE and forwarding to Division Office	3
	Division	
11	Receipt of Estimates in Division (in warding)	2
12	Scrutiny by DB (full form required)	7
13	Scrutiny by TA (full form required)	5
14	Signing by EE and forwarding to Circle Office	5
	Circle Office	
15	Receipt of Estimates in Circle Office (in warding)	2
16	Scrutiny by DB (full form required)	7
17	Scrutiny by HD (full form required)	7
18	Scrutiny by PA (full form required)	5
19	Signing by SE and forwarding to CE Office	5
	CE Office	
20	Receipt of Estimates in CE Office (in warding)	2
21	Scrutiny by DB (full form required)	7
22	Scrutiny by AE	7
23	Scrutiny by AEE	5
24	Scrutiny by EE	5
25	Scrutiny by DCE	3
26	Signing by CE and issue of TS	2
	Total	109 (over 3.5 months)

[3] This table is based on a table provided by the IS Working Committee

The time delay in sanctioning the project and the long delays in the tendering process delays the tenders by about a year and sometimes even more. With high levels of inflation and rising costs of inputs and labor, the commercial bids quite frequently exceed the sanctioned amount. Based on a government order dated March 25, 2010 the Executive Officer can approve excess of upto 5% on works costing Rs. 25.00 lakhs, the Superintending Engineer can approve excess of upto 5% on projects between Rs. 25.00 lakhs and Rs. 75 lakhs, while the Chief Engineer can approve excess of upto 10% on projects upto Rs. 300.00 lakhs. All projects about Rs. 300 lakhs have to be tendered by the government. When the excesses cannot be approved the approval process requires the request be moved to the next higher office and in many cases to be re-tendered. All the delays add to the costs and inability to respond quickly to emerging context lead to further delays.

Many of these delays can be attributed to fact that project appraisals are done in an adhoc manner. There is a strong incentive for the KWA employees as well local politicians and contract for the creation of additional infrastructure even though there is not enough demand. Many project proposals are in response to such external pressures and not related to a real demand for the scheme. The initiate project report is prepared by AE's office, goes through several layers for scrutiny and finally approved by SLSC (State Level Sanctioning Committee). Typically 30% of projects are approved. Once approved, it once again goes through a cycle of detailed report preparation

In order to avoid adhoc processes and ensure that high impact projects are speedily sanctioned while "make work" projects are speedily rejected, KWA should have an overall water and sanitation plan for a region/area. Projects should only be initiated if they fit with the overall planned infrastructure , else they should go through the old process which requires detailed scrutiny. KWA should be able generate own financial resources or borrow on its own to avoid reliance on government for project approval.

Delays in technical approval and financial sanction takes more time than essential, particularly for smaller projects. Delays and old estimate rates contribute to unreasonable financial estimates which often lead to re-tendering as sometimes estimates are off by 35-40% despite multiple layers of scrutiny and ground up estimation. KWA does not have proper codes for making relevant estimates (e.g., estimates are made for manual labor even when KWA knows that the contractor will use earth movers). While we notices a strong emphasis on the need to develop new and accurate codes, we suggest that if a clean sanctioning, tendering and contract granting process is established, KWA can rely on market forces to get the best price in the market instead of updating the estimation codes.

The major delays is because technical evaluation and financial verification is done at multiple levels without any value addition. In the terminology of process assessment, very few of the stages add "value" to the outcomes, most add "no value" or as suggested above add "negative value". While some stages of scrutiny add "business value" the repitive scrutiny only adds "negative value"

We recommend that the Approval/Sanction Process should have maximum three stages. An executive can initiate a project as long as it is within the broader approved infrastructure plan for the area – this executive can be at any appropriate level. The proposal needs to be

closely scrutinized by the next level officer who is aware of the local context and issues. After this scrutiny it should be assumed to meet the technical and financial requirements and should be sent to the Sanctioning Authority depending on the size of the budget for budgetary compliance and final sanction. Not all projects should require approval of Chief Engineer as long as projects sanctioned are within certain fixed limits and also within overall budget approved for the Sanctioning Authority. There is need to develop a KWA estimate sheet and keep it current so that estimates are correct. However, as indicated above, absolute accuracy is not essential if the processes are transparent and fair.

In conjunction with these changes, the current limits for sanctioning projects need to be rationalized. As of now, all project with Rs 3 crores budgets need board approval, and even Board has to go to ministry for approval of projects worth more than Rs. 5 crores. There needs to be greater delegation of authority for projects that come within the larger infrastructure plans for the area. Projects that are initiated within approved budgets should be approved at lower levels in the hierarchy based on new limits. Projects that deviate from the approved budget should be approved through the current process.

5.2.2.2 Tendering Processes

The delays in the sanctioning process if further complicated by the delays in the tendering process. It is normal expect that any water scheme should have an estimated implementation period of 24 months. Out of this 6 months is allotted for preparation of estimate, sanction of estimate, finalization of tender process of which sanctioning and tender processing should take 3 months each. The remaining 18 months is estimated for execution and commissioning.

Since KWA follows the Kerala PWD codes and manual for execution of works, the firm period, i.e. the period during which tenders should be considered for acceptance and finalized, is 3 months from the date of opening of the tender. In other words, a tender has to be processed and finalized and selection notice issued within 3 months from the date of opening.

It is typical for the tender to be received and opened at the office of an officer who is not competent to settle the contract. The officer is normally expected to scrutinize the tender documents and make his recommendations and tabulation statement to the next higher officer within 1/3 of the time fixed as firm period. For example if the firm period is 3 months, the officer receiving tenders should submit the tender documents to his superior within 1 month.(PWD Manual). The balance 2/3 of the time may be divided equally between the various offices which have to deal with the tender. If special orders of Government are also necessary at least one month time should be provided for consideration by Government and only balance period distributed between officers. We understand that in KWA these time limits are seldom complied. A study of the 90 projects for which data was available showed that rarely was the firm period 3 months. In some cases it took more than year. This has its own implications for cost escalations and re-tendering.

The reasons for this situation are many. First, as mentioned above there is improper planning and most of these processes happens in a adhoc fashion. Like in the case of the

sanction process there is no process thinking so files often lie of desks of executives for extended periods of time before they get the attention. Senior executives, such as the CE and MD, who have so many files referred to them are most likely to cause delays.

Second, just like in the case of sanctioning multiple scrutiny for tenders at all offices at all levels. It is ironic that there are inadequate standards and norms for verification of technical and financial implications of the tenders but the files go through numerous stages of scrutiny. As in the case of the sanctioning process, the excessive scrutiny does not add value as most executives do not take any real decisions. Most executives are likely to send the file to the next stage without any significant comments. In short, everyone wants to be a part of the decision making process without sharing responsibility. The norm for most is to evade responsibility by passing the buck to higher level.

The recommendations for the tendering process are similar to those for the sanctioning process. First, the levels of decision making should be reduced to 3. The first level of decisions should be made by the person who receives the tender. He is required to conduct a detailed analysis of the tender documents and see if the technical requirements are met. Persons evaluating the tender shall record their specific comments with respect to technical and financial terms and offer their view regarding whether the tender may be accepted or not. He may recommend that some technical proposals be accepted for financial bid while others are rejected. His assessment and comments need to be verified by a officer at the next level. Unless the office has substantive differences of opinion with the earlier analysis, he should it add his comments and put it up for approval to the person with the authority to sanction the project. All intermediary levels to which the file goes should be eliminated from the process. After approval, the financial bid can be opened and contract can be closed with the technically acceptable contractor with the best financial offer. In some cases, there may be some discussions related to the financial bid and these should all be conducted at the office of the sanctioning authority. There is no need to pass these decisions through several layers of scrutiny. Further, all technical bids and notations by officers should be open to scrutiny by other parties that have participated in the tender and to the public under the RTI Act.

In order to support the 3 stage firm period, there is need to prepare a time schedule for processing the tender by the tender inviting authority based on the guidelines provided by the PWD manual with specific time provided for each officer processing the offer. In addition, a standard tender evaluation format has to be prepared so that the comments on each tender are clearly identified and can be compared across tenders. This will make the scrunity and authorization more efficient and also fix responsibility for the comments and approvals.

To further increase the efficiency of the tendering process, KWA should move to e-tendering process for all projects. This will make the whole process more transparent. All tender announcements will be made on the KWA website and the tenders will be received electronically. There is no need for hard copies to be submitted as is required now. Also all observations and decisions should be entered in the e-tendering system using the common template developed. In the electronic system, KWA can adopt a centralized tendering and monitoring system for project works.

The tendering process for several routine projects can be simplified if KWA can prepare a standard list of pre-qualified contractors based on the nature of the work. This will reduce the time evaluating the technical evaluation of tenders. For major projects the tenders can be publized widely, but for small projects KWA can rely on efficient e-tendering with this group of contractors.

There is evidence that due the poor tendering processes and the unrealistic time it takes to finalize the tenders, good qualified contractors do not participate in the KWA tenders. KWA is left to dealing with many unqualified contractors who provide speculative bids. Due to the criticality of projects and need to avoid further delays, it is seen that some tenders were awarded with high percentage of excess and some tenders were not sanctioned with low excess rate. It caused huge financial losses to KWA and often also leads delay for executing the work as the contractor who is awarded the contract is often not capable of executing the project. Some these problems can be overcome by preparing more realistic estimates of the projects so the bids are more accurate and their evaluation is easier. Further, since there will always be changes in market conditions in a dynamic marker there should be a fixed limit for tender excess to be allowed for the same nature of work. The officer providing the excess will have to document the reasons.

The excess granting authority should also be delegated to approximate levels. As per order No. G.O. (Rt) No. 1226/2010/PWD dated 30-7-2010, the Government has ordered that the Schedule of rate 2010 has been prepared taking in to account the market realities and conditions and hence no tender excess will be granted on any Government works, until further orders. This is not realistic. If any tender excess is not given to the works, the rates should be at par with the market rate. In addition to the above, about 10% contract value all have to be paid towards Income Tax, VAT, Workmen Welfare Board etc. So even if the estimate is prepared based on the market rate, minimum 10 to 20% tender excess will have to be paid.Hence it is pointed out that the Non-granting of tender excess is not practicable in Kerala Water Authority as per the 2010 SoR. Also, for avoiding this situation, the time for sanctioning the tender should be ideally less than 3 months.

5.2.2.3 Procurement Processes

The procurement for regular procurement of consumables also has similar flaws as in the sanctioning process and tendering process.

The first step is to assess the requirements and forecast the requirements for the next period. In order to this, the requirements are collected from the various offices of KWA and consolidated itemwise to prepare for the tendering process. A step of rationalization the requirements should be conducted at this stage but it is currently not done.

The second step is to obtain administrative sanction for the procurement items. In order to obtain the sanction, the officer calculates the approximate cost based on the market rates or last purchase rates. Based on the amount, administrative sanction is obtained form the competent authority, Chief Engineer, MD or Kerala Water Authority Board.

Once the sanction is approved, KWA places a tender. The purchases are made through open tenders as item rate contract, rate contract or running contract. A tender notice showing EMD, cost of tender form, due date of tender etc. is published in leading English and Malayalam newspapers and Kerala Water Authority website for publicity. Tender notice is also send to previous tenderers, other leading firms etc. Form of tender is prepared with general and special conditions of tender and list of materials to be procured. Tender forms are priced. Tenders of Kerala Water Authority are either manual or electronic tenders.

For manual tenders, cost of tender forms and EMD (1% of PAC) and EMD are remitted as Cash/DD. For e-tenders, remittance is as e-payment. Tenders are opened on the due date and covers are opened depending on as one, two or three cover system. If two or three cover system, technical bid will only be opened on the due date. It will be evaluated, necessary clarifications, if required form the tenders, will be called for and placed in the Tender Committee for recommendation. Based on the Committees recommendation, tenders will be accepted or rejected. Price bids of technically accepted tenders will be opened on dates fixed subsequently. Rates will be tabulated, and the most competitive tenderer / rates will be found out. Depending on the amount of purchase, approvals for the tender will be obtained form the respective authority.

The next stage is to place the order for the supplies. Supply orders incorporating the terms and conditions of supply will be placed with the eligible tenderer and copy of the orders to consignees. They have to execute an agreement with the purchasing officer and remit security deposit of 5% of the cost of purchase before starting supply. Before the materials ordered are supplied to the consignees, they are inspected by third party agencies or department offices as decided by Kerala Water Authority. For certain materials, inspection is done from the raw material to finished product at various stages and for some others inspection is only for the finished product, before the material is released from the factory. For chemicals, quality assessment is done by the Quality Control wing of Kerala Water Authority after the materials are supplied at the respective site.

Payment is made by the purchasing officer or consignee depending on the supply order conditions, after the materials received are verified and taken into account. Any defects found for the supplied materials is rectified or defective materials replaced depending on the supply order conditions in the warranty document. After the warranty period, security deposit furnished by the supplier is released by the purchasing officer, deducting for all liabilities with respect to the supply.

Just like in the case of tendering for projects, the cumbersome process dissuades reliable contractors from participating in the procurement tenders. There is a need to re-examine the procurement process based on the type of item being procured. KWA needs to undertake an ABC analysis of the procurement items. It is based on the idea that items need to be categorized into 3 categories in order to better manage the procurement and inventory processes. Type A category products constitute about 20 % of the items procurement but contribute to about 70-75 % of the value of the items procured and/or inventories. Given the criticality of such items and its impact on the organization, the detailed process as described above may continue to be used. Such procurement can be

centralized at the head-office. Type B category items constitute about 30 % of the items and contribute to about 25-30% of the value. Such items can be procured at the regional offices with minor modifications to the processes. Type C category items constitute about 50% of the items but contribute about 10% of the value. It is best that such procurements be decentralized at the project office level within broad price guidelines.

5.3. Horizontal Processes

An organization structure is organized functionally or regionally to ensure adequate staffing for various roles, and delegation of powers/decentralization of decision making powers ensures that the top managers have adequate control over the operations. However, actual work in the organization flows horizontally.

5.3.1 Project Implementation Processes

In project implementation, in addition to all the processes discussed above, it is required that KWA has to interface with other agencies, including other government authorities and offices. In addition to the deficiencies identified earlier that have to be remedied, KWA has to plan in advance to coordinate its activities with others in the field for successful completion of the project.

We examined two projects (i) Chowara Project which involved the laying of a main line from Chowara to Parur and (ii) HUDCO Project which involved a water treatment plant and laying of several mainlines from different locations.

The Chowara Project was presented as a successful project. However, it appears that this only suggests that there were no major coordination problems with external bodies. The details of the project illustrates the ineffectiveness of the internal processes at KWA. The project was estimated to be about Rs. 37 crores in 1996 but had to be revised upward to Rs. 72 crore due to improper estimation and time delays. The tenders were called in 2000 and the submission date had to be extended from 20/10/2000 to 17/08/2001 due to internal problems. Finally the work was awarded on 7/3/2003 which is a gap of about a year and a half after the tenders were received. The scheduled completion period was 24 months but it took almost three years to complete the project with regular water supply available in April 2006 and the project formally commissioned in September 2006. After a warranty period of two years, the scheme was handed over on 1/10/2008. A project that could have been completed in 24 months took almost 10 years to complete and is yet seen as a success as it has met all the technical requirements of the projects. There seems to be a lack of appreciation of the financial implication in terms of cost escalation and schedule delays. As far as the project implementation team was concerned a project that was estimated to take 24 months after award of contract took about 36 months which seems to be within acceptable levels of schedule delay as long as the project delivers the technical requirements. Even this schedule was feasible because land acquisition was not a problem. The 15.86 acres of land required to be purchased for construction of clear water sump at North Parur was acquired by invoking an urgency clause under Section 17 of Land Acquisition Act of 1894, and the land required to lay the pipes was already public land and the help of the District Collecter was sought to successfully remove encroachment. It

appears that the various approvals required form the PWD, GCDA, and the Panchayat etc was easily obtained and did not cause delay to the implementation of the project.

The HUDCO Project was presented as an unsuccessful project. The project was undertaken to address the acute water shortage in Kochi. The project included a water treatment plant at Alwaye, main transmission mains from Alwaye to Karnakodam, from Kathrikadanu to Palluruthy, from Edappilly to Vypin, and resoviours and publistiona stations at Elamkulam, Palluruthy, Vaduthala and Puthuvypin. This project was originally estimated to be Rs. 50 crores and obtained administrative sanction on 5/5/95. It was revised upward to Rs. 58.5 crore in 1998, and again to Rs. 136.8 on 3/1/2004. The scheme was finally commission on 5/10/2007 about 91/2 years after the original sanction was obtained. The only reason this was presented as a failure as KWA could not acquire the 15 hectares of land as this had to be obtained from 600 separate plots. The landowners formed an association and challenged the acquisition in the courts. The acquisition process started in 1995 but completed in 2004 after the government and the KWA could adequately compensate the owners of the land. On the one hand it shows the difficulty in acquiring land in Kerala but also displays an inability of KWA to convince affected parties of the benefit of the schemes. Again in this case cooperation from the other agencies was relatively easy to obtain.

Both these projects suggest a need to re-vamp the internal processes at KWA. Further, they also suggest a need to take into consideration societal needs and restrictions when planning schemes. Given the difficulty in acquiring land, KWA needs to plan for them rather than just focus on technical issues with taking into consideration societal costs. If well understood, the projects and routes of pipelines need to be planned to reduce and eliminate societal disruptions.

5.3.2 Preventive Maintenance Processes

Operational efficiency at KWA is quite low. A key reason for this is that there is no systematic process for maintenance. One major reason is a lack of funds for preventive maintenance. Most project budgets are focused on increasing capacity and do not envisage the maintenance and replacement costs. Due the lack of funds, there is very little preventive maintenance and most of the time engineers are responding to crisis that have emerged from failures. There is a need to develop a preventive maintenance system. Management should provide financial support for these activities and future projects should plan to generate resources for the preventive maintenance.

Poor maintenance of infrastructure results in slow detection of leakages in pipes, even slower rectification. Apparently, modern equipment to detect leakages have been lying unutilized. There is no state wide scheduled maintenance of regular maintenance or preventive maintenance. KWA needs to develop a preventive maintenance schedule and also a schedule for rehabilitation of infrastructure that is obsolete.

5.3.3 Public Grievance Re-dressal Processes

KWA does not have a good image in the eyes of the consuming public. Some of this may be attributable to the fact that water is of public importance and any negative news related to water is played up by the media while the positive related to KWA does not get as much visibility. KWA has tried to open new communication channels with the public (e.g., Citizen Journal) but the success is very limited.

However, there are real reasons behind the negative image of KWA. KWA has been unable to handle the technical and commercial complaints. While some of this is due to lack of adequate staff in the field and also lack of maintenance funds, much of it can be attributed to lack of adequate processes. KWA has a help desk which allows people to record their complaints – this has also not been very effective as the backend was not designed well. The real problems are inadequate follow-up on the complaints and an inadequate communication with the complainant even when the complaint has been addressed. The negative image is sustained even when KWA is actually addressing the complaints.

KWA has implemented a pilot project of Blue Brigade in Trivandrum to attend to complaints on priority basis. While it has address some of the issues in the city it is yet to be rolled out in other 10 cities for which it has been planned. If implemented effectively it can go a long way to address some of the image problems that KWA currently had.

5.3.4 Revenue Collection Process

It is estimated that KWA collects revenues of about Rs. 300 crores has a revenue gap of about Rs. 100 crore. Executives in KWA indicated that about 15% of this gap can be attributed to non-revenue water which can be reduced/eliminated if adequate routine maintenance is done, and about 35% of this gap can be attributed to obsolete technology and aging infrastructure that might require significant capital investments. However, the same executives also suggested that the remaining 50% of the revenue gap can be covered by improving revenue collection from the field. We did a field visit in several neighborhoods in Cochin and at the revenue collection office in the same city to understand the issues and we are also hopeful that improvements in revenue collection can significantly improve the financial situation of KWA.

Issues that hamper proper revenue collection range from no meters for several homes and establishments, and faulty meters at many others to meters not being read on regular basis, errors in bills, and finally bills not being paid. While some of these are real possibilities even if we do not attribute further motivations to KWA employees, but we were given to understand that corruption also has a big role to play in poor revenue collection. While it is the job of the consumer to ensure that a good quality functioning meter is installed it is also the role of the KWA employee to identify establishments without meters and faulty meters to make the changes. It appears that meter readers to not visit the field at all to able to do these routine checks. Even when meters are read the readings are so infrequent that billing is incorrect, and sometime the readings are wrong or based on presumed (average) consumption. As a result consumers who are willing to pay do not pay. Lack of motivation of employees to pursue remedial measures and corruption in the billing and collection process

leads to revenue losses. Revenue collection can be improve by standardization of metres, standardizing frequency of reading the meter, and providing incentives to field employees to collect the revenues.

As the experience of the water authority in Vijaywada suggests the revenue collection process can be dramatically improved. Vijayawada's water supply system was plagued by multiple problems. Almost like the case of KWA, it had no accurate data on various supply parameters – flow, overflow, leakage and unaccounted water was estimated at 45% with 4700 KL overflow from reservoir, and 13138 KL purified water leakage per month.

The technical problems were resolved first. A major problem that was identified was incomplete closure and poor maintenance of valves, and an absence of alarm system alerting the control room relating to leakages and overflows. Real time controlling and monitoring was found to be the key solution A comprehensive online database setup was established, and data collected from sites was validated, processed and networked into a central place. Hence, real time data was available online to staff at headquarters. Any field problems are relayed to ground staff through SMS in real time, ensuring faster repair of faults and alarms were installed in each reservoir to alert about overflow As a result, unaccounted water was brought down to 18%, overflows brought down to nil. This can be a high impact area since it will have direct consequence on the revenue. More than a technical issue, this seems to be a motivation / incentive issue

5.3.5 Performance Appraisal Processes

The HR Systems at KWA are poor. At the time of this study there was no top manager (the post of CE (HR) has been abolished) with specific responsibility allocated for HR and a holistic view of the human resources is absent. A key weakness of the HR system is the absence of a performance appraisal system that functions. Earlier reports did stress the need to implement a performance system but it has not be implemented so far. As a result, external political influence plays a significant role in promotions and roles which not only hurt the overall performance of KWA but also demoralize the remaining staff further burdening KWA.

While on paper there is clarity in terms of roles, the roles are defined in terms of activities which leads to resistance in working beyond those definitions. For example, there is a clear definition of what a meter reader is supposed to do and it is very difficult to have this person do multiple tasks even if time permits. There are separate definitions of power which are largely geared to expenditure limits and grant of leave etc. There is no role clarity in terms of responsibilities. The staff morale is low as there is not much incentives to improve the system.

5.3.6 Organization Culture

There is a growing realization that professionalism is important and KWA should function as a professional organization. However, fragmented thinking currently prevails as the staff working in their respective silos without paying attention to the larger vision of KWA.

The staff at KWA do not have a sense of the value of money and hence are unable to think in terms of the financial efficiency of the activities of KWA. So far, although there have been some difficulties, the government provides funds directly or underwrites the loans obtained for KWA. There is a perception that this will continue. The government is strained and has to balance multiple requirements and staff need to be educated that inefficient function of KWA is probably hurting the general public of Kerala by consuming resources that could be better spent elsewhere.

There seems to be a culture of apathy, corruption, and confrontation. There are employee factions due to affiliation to multiple and conflicting unions. This coexist with absence of concerns for performance, efficiency, and quality work and very low work involvement. In the past there has also been a strong resistance to any change that can improve efficiencies or accountability. There is a need to establish an organizational culture of performance with responsibility and accountability. As mentioned above, there needs to be a performance appraisal system with reward and promotions linked to performance. Explicit incentives to improve operational efficiency and reduce wastages should be implemented. After that there may be scope to introduce performance related pay.

Some employees have an attitude problem when dealing with O&M issues in the field. There are incentives to be in the project groups but not in customer facing roles. This needs to be changed. Alcoholism is quite common at all levels in the organization – this affects performance and image. There may be a need to implement disciplinary system to address unacceptable behavior .

5.3.7 Transfer Processes and operational requirements

In order to make firm recommendations on staffing patterns and transfer policy, it is important that accurate data is available. Unfortunately, accurate data on staff strength is not available. We understand that about 9000 positions are sanctioned but only approximate numbers of actual staffing is available. Further, there are varying estimates of contract staff from 3000 to 5000, mainly in field, without accurate information about their posting. At one level this is alarming, but also provides an opportunity to re-assign some staff from the office to the field to take over some roles currently performed by contract staff.

The transfer policies and processes are not well coordinated with the operational requirements. They are often based on the convenience of the employees and favor those with political influence. For example, we were provided an example where there was no chemist at the Trivandrum head water point for testing the water as the post was shifted without attention to operational needs. Greater coordination between HR and Operations will alleviate these problems. Transfer policies that ensure minimum tenure in key positions to maintain continuity and also ensure adequate staffing is implemented. Without this, staffing levels in large cities particularly Trivandrum is very high while work suffers due to lack of personnel in the field. The transfers should not be ad hoc. People should be aware of their transfers well in advance so that they can plan both professionally and personally.

There are other consequences of poor transfer processes. There is excess staff in the offices, particularly in the headquarters and regional offices. This leads to increased bureaucracy

with people inventing roles to be performed. Most roles are at the offices repeat what someone earlier in the process has already performed only adding delays in the decision making process without adding value to the quality of the decision. For example, a person in the field who may be called an "overseer" will prepare a project estimate and an equally qualified person called a 'draftsman' posted in an office will repeat the same work or audit the same work without adding new value. Despite so much of repetitive work there is an abundance of faulty decision. Concentration of the staff in offices exists simultaneously with less than adequate staff on the field. This leads to poor service experience for the consumers. The complaints of consumers are not attended punctually and often this is attributable to inadequate staff. Further, regular maintenance suffers due to lack of staff which forces the staff in the field to be in crisis management mode all the time. Lack of staffing also leads to poor meter reading and revenue collection. Inadequate staff in the customer facing creates a vicious cycle. The high level of dissatisfaction of the public is faced by the staff and they try to get transferred to non-customer facing roles. Other opportunities for gratification provide greater incentive to be in "works" department rather than in the revenue department where employee will have to face the customer

With the implementation of IT infrastructure in KWA and subsequent role redefinitions in the offices, there is an opportunity to correct the imbalance between office and field roles. As more staff is shifted from offices to the field, KWA will be able to reduce its dependence on contract staff which will reduce the wage bill and also improve the quality of service in the field. We were given to understand that some redeployment has already started but this needs to further emphasized to sustain the benefits.

5.3.8 Recruitment Processes

KWA has an aging employee body. In the next few years, several officers and other employees will retire. There is a need to assess the long term needs of manpower with contemporary skills for long term recruitment. (The roles as described in The Kerala Water Authority Duties of Employees Regulation 1999 need to be revised to match the current and future needs). Once the needs are assessed and the retirements acknowledged, the Kerala Public Service Commission need to be provided needs in advance so that new recruits join KWA as the need arises. This requires advanced manpower planning and proactive recruitment policy.

5.4 Energy efficiency

A big component of the operating costs of KWA is the electricity costs. While several members of the KWA executive and staff emphasized the need to request KSEB to reduce the power tariffs, several of them also indicated that almost as much can be achieved by internal changes to reduce the consumption of electricity. There is a need for KWA to implement energy audits to understand the consumption patterns to change the patterns to save on costs. There is a need to rehabilitate and/or replace some old pumps and motors to reduce power consumption, as well as implement a preventive maintenance system to prevent the deterioration of equipment to maintain efficiency. Given the high energy consumption and hence high costs, KWA need to increase its efforts to become more energy efficient

Chapter 6

Preparedness of the Organization to Accept Change

Any large-scale change effort involves disturbing the status quo. When organizational members are not aware about the rationale for change, and the direction of change efforts, then the disturbance of status quo is likely to create skepticism and insecurity. This may result in lack of support for implementation of the change. Often this is the most important reason why an organization-wide change effort fails. Therefore, it is very important in an organization-wide change effort to assess whether organizational members are prepared for the change or not.

This chapter is based on an organization-wide survey conducted at KWA to measure the preparedness of the organization to accept change. Refer to **Exhibit-6.1** for the survey instrument. 720 employees of KWA participated in the survey. For demographic profile of the participants refer to **Exhibit-6.2**. **Exhibit-6.3** provides classification of the survey instrument items into various categories relevant for acceptability of change, and provides aggregate-level response of the participants. **Exhibits 6.4A** and **6.4B** provide the response for all the demographic categories. We discuss the analysis of the aggregate-level responses below. Most of the times the aggregate-level response is consistent with disaggregated responses across the demographic categories. We also discuss recommendations regarding prioritization of change based on the possibility of success of acceptance of the change and implementation of the change.

6.1. Linkages between goals and functioning of KWA

The survey shows that KWA employees are ambivalent about the linkages between the goals and objectives of KWA, and its functioning. Between 38-44% of employees perceive that the KWSS Act 1986 provides clear direction for KWA goals and objectives; that they are valid for KWA in today's context; that they are well-known and agreed by all employees, and are well implemented; and that they closely identify with the goals and objectives. However, between 33-36% employees disagree with these perceptions. This ambivalence is prevalent across all the type of respondents.

Recommendation: We recommend that (1) the modified goals and objectives based on the current organizational restructuring exercise should be clearly articulated; (2) that the change process should begin with clear communication to all the categories of employees, regarding the modified goals and objectives, and how they are relevant for functioning of KWA in today's context; and (3) that the measurement of department-level and individual performances need to be aligned with the modified goals and objectives.

6.2. External influences on the functioning of KWA

These set of items are related to the perceptions of employees regarding the influence of policy environment and politics on KWA functioning. Regarding the influence of the policy

environment, employees are ambivalent regarding whether the applicable systems /rules of Government of Kerala facilitate KWA to meet its objectives; whether there is adequate political will in the state to support a new vision for KWA, including expansion into the water and sewerage sector; and whether KWA has smooth collaborative arrangements with organizations in the sector to meet the needs of the public. Between 35-47% of employees agree on these perceptions; while between 31-37% of employees disagree.
Recommendation: We recommend that this ambivalence needs to be managed through proper articulation and communication at the time of implementing change.

60% of the employees do not believe that decentralization of water supply to panchayats / local bodies in rural areas will improve service to the public. This perception is consistent with high opinion of employees regarding the technical capabilities of KWA and its relative performance, and lack of perceived importance of financial aspects of projects, which we discuss later in this chapter.

Recommendation: We recommend that at the time of implementing the change, the financial benefits of decentralization should be highlighted.

65% of the employees believe that there is a need for a separate regulator to set prices and monitor the performance of organizations in the sector.

Recommendation: This is a desirable perception consistent with the way the policy environment is going to change. Therefore, at the time of the change, it should be nurtured.

Regarding the influence of politics on the functioning of KWA, 63% of the employees believe that there is too much political influence in decisions related to award of contracts for projects. There is ambivalence about external / political influence on decisions related to promotions and transfers of employees, and autonomous functioning of the KWA board.

Recommendation: These perceptions are likely to make KWA employees skeptic about sincerity and willingness of the top management in implementing the change. Therefore, we recommend that the top management needs to deal with these perceptions through proper communication, backed with the required change in internal policies, at the time of implementing the change.

6. 3. Internal Functioning of KWA – Technical Aspects

These set of items are related to the technical functioning of KWA. They cover assessment and monitoring processes, resource availability, utilization, and efficiency improvement, and project management processes.

The respondents are ambivalent about the strength of assessment and monitoring processes inside KWA. 33-39% of employees believe that KWA has a well-developed system to monitor its programs /activities to ensure effective implementation; that KWA uses the feedback from the monitoring system to make improvements to its services; and that KWA regularly assesses the needs of its stakeholders (including consumers/public) to make improvements. However, 37-43% of employees disagree with these perceptions.

The respondents are ambivalent about whether KWA properly utilizes people resources, financial resources, and physical infrastructure, and whether the quality of administrative support at KWA is excellent. However, 59-69% respondents believe that KWA requires developing a preventive maintenance system to avoid potential failures; that it requires reducing operations and maintenance costs and becoming more efficient in energy consumption.

The survey provides strong support that KWA needs to improve project management processes. 70-76% of the respondents believe that the project management system at KWA needs to be revamped to meet cost and schedule targets; that the estimation process for sanctioning projects needs to be improved; and that there is a need to improve the tendering process to attract high quality contractors.

Recommendation: We recommend that the necessary changes be made in project management processes and efficiency improvement processes, in order to make KWA more effective and efficient. Further, we also recommend that proper monitoring processes should be implemented which will ensure the embedment of the change in the organizational settings, and allow KWA to continuously improve effectiveness and efficiency of technical aspects of functioning.

6.4. Relative Performance of KWA

These set of items measure perceptions of the survey participants regarding KWA's relative performance compared to other similar organizations in the last three years. The survey provides strong support that KWA's relative performance is superior to other similar organizations. 81% of the respondents believe that KWA's quality of water and services is superior to other organizations. However, 77% of the respondents believe that the public is not fully aware of all the work that KWA does to improve quality of water and services. Between 57-68% of employees believe that KWA's performance is superior to other organizations in development of new services, ability to attract and retain essential employees, satisfaction of customers or clients, relations between management and employees, relations between employees in general, and relations with the government of Kerala.

Recommendation: We recommend that the perceptions about relative performance, which are consistent with other objective measures, should be widely publicized inside and outside KWA. This is likely to boost employee morale and pride, and make them more supportive of the change effort. At the same time, the top management should identify those perceptions which are inconsistent with objective realities. These inconsistencies should be communicated inside KWA and become an integral part of the implementation of the change.

6.5. Financial Viability and Resource Generation

The survey results show strong skepticism regarding financial viability and resource generation capability of KWA. The survey participants are ambivalent about whether KWA

has adequate access to other funds to support its activities. However, 66% of participants believe that the existing sources of funding are not adequate for the future financial viability of KWA; and 61% of them believe that KWA is not in a position to raise additional funds on its own, without government support.

More than 71% of the survey participants believe that it is not possible to meet capital costs and operation and maintenance costs of KWA from the current revenue collection. 65% of them believe that lack of functioning meters is the major reason for non-revenue water at KWA. Between 60-70% of the respondents perceive that corruption is responsible for the below-par revenue collection and financial performance of KWA; and that there is a need to confront corruption directly to improve the performance of KWA.

There is a strong perception that additional revenue generation is possible. 57% of the respondents believe that the public in Kerala is prepared to pay more for the water supply that they get from KWA; and more than 74% of them believe that charges for water supplied to rich urban area, and fees charged for various services provided can be increased.

An important aspect of KWA culture is that while its employees take pride in technical capabilities and technical performance; they do not consider that financial aspects and financial performance are equally important. This is apparent in the survey results. 49% of the respondents believe that financial viability of water and sanitation projects should not influence the decisions to implement schemes.

Recommendation: We recommend that KWA needs to build and nurture a culture which gives due importance to financial viability and resource generation. It needs to communicate the importance of financial viability and resource generation at the time of implementation of the change, reinforce it through top managerial demonstrable actions, and embed it through adoption of appropriate appraisal criteria and rewards and promotion policies. In order to succeed in this endeavor, KWA needs to directly tackle corruption through demonstrable actions and adoption of appropriate monitoring and control mechanisms. KWA also needs to identify alternate source of funding to start new projects with enough financial potential for sustainability; and explore potential for increasing revenue collection for improving financial viability.

6.6. Growth / Expansion of KWA Offerings

These items are related to the perceptions of KWA employees about expanding the service portfolio or KWA. More than 84% of the survey respondents believe that there is a demand to from consumers/public to increase the services currently offered by KWA; and that there is a demand to increase the towns/cities/ panchayats currently covered by KWA. Between 73-86% of the respondents believe that KWA has the required capacity to be responsive to the needs of consumers / public, and expand its customer base. However, 78% of the respondents believe that KWA needs to change its culture to become more responsive to the needs of public/communities. More than 77% of respondents believe that KWA has the required capacity to diversify into other businesses such as consulting or advisory roles to other organizations and urban and rural water schemes in Kerala, operating a water-bottling

plant and supply to the market in competition with private players, and taking up sewerage projects in urban areas in Kerala.

Recommendation: These perceptions are likely to be supportive of the altered goals and objectives of KWA, and implementation of the change. Hence KWA needs to nurture and utilize these desirable perceptions as an organizational strength.

6.7. Internal Functioning of KWA – Managing People and Performance

These items are related to various aspects of managing people and performance inside KWA, such as organization structure, human resource practices, and organizational culture.

Training and skill improvement: More than 83% of the respondents believe that there is a need to improve skill levels at the senior levels and at the field level in order to improve the performance of KWA.

Recommendation: We discussed earlier that an important aspect of KWA culture is that while its employees take pride in technical capabilities and technical performance; they do not consider that financial aspects and financial performance are equally important. This understanding and appreciation is essential for financial viability of KWA. Therefore we recommend that the senior level and field level employees of KWA should undergo financial, operations, and project management training. Additionally, the senior level employees should also undergo general management and leadership training.

Organization structure and coordination of activities: The respondents are ambivalent about whether the current organizational structure of KWA adequately supports the achievement of KWA goals and objectives. However, 66% of the respondents believe that KWA should keep project evaluation, project execution, and operations as separate entities. Further, 87% of the respondents perceive that the performance of KWA can improve if there is coordination and cooperation across functions/groups.

Recommendation: These awareness and perceptions are likely to be supportive of the implementation of the change. We recommend that KWA should be restructured in the three divisions as each of them would cater to different part of the value chain. This is likely to improve coordination inside each of the divisions. Additional coordination inside each of the divisions may be achieved by adopting various horizontal coordination mechanisms. Each division may operate with significant autonomy. The top management of KWA can retain control over the three divisions through budgeting process and treating each divisions as separate activity centers to evaluate the performance of each division separately. Coordination across the three divisions may be achieved using appropriate transfer-pricing mechanisms.

Information sharing and involvement in decision making: The respondents are ambivalent about the degree of information sharing and involvement in decision making inside KWA. Between 27-43% of the respondents agree that information sharing inside KWA is appropriate; that the information system in KWA is adequate and strong; and that decisions in KWA are usually made at the level where the best information is available. However, 28-

42% of the respondents disagree on these aspects. Similar ambivalence is apparent in the perception whether there are vested interests in KWA that do not want the information system to be improved.

Recommendation: We recommend that KWA needs to ensure that required information is available for decision making at the appropriate levels. Further, KWA needs to reduce this ambivalence by clear communication at the time of implementing the change.

Work climate, individual level job satisfaction, commitment, and identification: More than 50% of the respondents perceive that KWA provides a fairly positive climate where employees believe that they can have a positive impact. They are highly involved in their work and committed to their roles; they have a positive attitude towards change that will improve services; they work in harmony with each other; they are willing to take on leadership roles and express new ideas to those in authority at KWA. At the individual level, significantly high percentage of employees report job satisfaction, high degree of commitment, and identification with KWA.

Recommendation: All this is likely to be supportive of the effective functioning of KWA, and implementation of the change. KWA needs to nurture this type of work climate and use it in making the change implementation effective.

Rewards, promotion and transfer: The survey response shows ambivalence about various aspects of human resource (HR) practices, such as rewards, fair treatment of employees, availability of adequate career opportunities, and whether promotions are based on merit or favoritism. 49% of the respondents believe that one can get along at KWA by being a good person (i.e. doesn't give trouble), regardless of the quality of your work.

Recommendation: As discussed earlier, KWA needs to reduce external political influence on promotion and transfers. It is essential that KWA redesigns the appraisal criteria at each level by aligning them with the redesigned KWA goals and objectives; that a fair, objective, and periodical appraisal process is conducted; that rewards and promotions are linked to performance of individuals, and that the transfers are made as per organizational or technical requirement and not based on external political influence. This will ensure that a performance-oriented culture will evolve inside KWA, which is critical for long-term financial viability and sustenance of KWA.

Miscellaneous HR aspects: 84% of the respondents believe that there is a need to improve the methods used to evaluate organizational and individual performance at KWA. 86% of them believe that there is a need to improve the level of discipline at KWA if the organization has to improve performance. 74% of them believe that KWA needs to transfer excess staff in the offices to field positions to improve performance. 66% of them believe that the roles for different positions need to be redefined, including multi-tasking, to improve performance at KWA.

Recommendation: All these perceptions are consistent with our earlier recommendations on developing a performance-oriented culture at KWA. The wide-spread awareness and

acceptance of the necessity of these changes are likely to support implementation of the change.

6.8. Overall Readiness for Change

52% of the respondents believe that KWA employees are aware about the problems faced by the organization and their potential solutions. Between 50-55% of them believe that KWA has capability to respond to the changing environment, and different units of KWA can cooperate in implementing this type of change. 70% of them believe that KWA can be transformed into a professionally managed organization with attention to effectiveness/efficiency. 48% of them believe that the top management of KWA has the will to sustain a change program that will improve the performance at KWA. However, there is ambivalence about the degree of resistance to change.

Recommendation: The top management of KWA should utilize this awareness and acceptance to improve the effectiveness of implementation of the change.

Exhibit-6.1

Kerala Water Authority

Assessment of Preparedness for Change Questionnaire

You are requested to respond this questionnaire to help us assess the awareness among the employees of the challenges faced by KWA and their preparedness to accept and implement change to improve to make it a professionally managed dynamic organization to meet the future demands of consumers/public is Kerala. Your inputs will be kept confidential so please free to respond to the best of your ability. There are no right or wrong responses – we only want to have your independent assessment on the statements listed.

Please indicate how much you agree or disagree with each of the statements below:

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The KWSS Act 1986 provides clear direction for KWA goals and objectives that are still valid for KWA today	1	2	3	4	5
2.	The objectives of KWA are well known and agreed by all employees of KWA to guide their behavior.	1	2	3	4	5
3.	The objectives of KWA are well implemented through specific goals and targets for departments/individuals.	1	2	3	4	5
4.	The officers and staff of KWA identify closely with the goals and objectives of the organization.	1	2	3	4	5
5.	Decentralization of water supply to panchayats/ local bodies in rural areas will improve service to the public.	1	2	3	4	5
6.	The Government of Kerala systems/rules that apply to KWA facilitate the organization to meet its objectives.	1	2	3	4	5
7.	There is adequate political will in the state to support a new vision for KWA.	1	2	3	4	5
8.	KWA has smooth collaborative arrangements with organi-zations in the sector to meet the needs of the public.	1	2	3	4	5
9.	There is sufficient support from the government to expand the role of KWA in the water and sewerage sector.	1	2	3	4	5
10.	There is too much political influence in decision related to promotions and transfers of employees.	1	2	3	4	5
11.	There is too much political influence in decision related to award of contracts for projects.	1	2	3	4	5
12.	There is a need for a separate regulator to set prices and monitor the performance of organizations in the sector.	1	2	3	4	5
13.	The KWA Board has the autonomy to pursue the objectives of KWA without external interference.	1	2	3	4	5
14.	KWA has a well-developed system to monitor its programs /activities to ensure effective implementation.	1	2	3	4	5
15.	KWA uses the feedback from the monitoring system to make improvements to its services.	1	2	3	4	5
16.	KWA regularly assesses the needs of its stakeholders (including consumers/public) to make improvements.	1	2	3	4	5
17.	KWA uses its officers and staff to the best of their abilities to provide effective services to the public.	1	2	3	4	5
18.	KWA uses its physical facilities (buildings/equipment) efficiently to provide cost effective water supplies.	1	2	3	4	5
19.	KWA is able to utilize its financial resources in the best possible manner to improve cost efficiency.	1	2	3	4	5
20.	The quality of administrative support (Stores / Accounts etc.) at KWA is excellent.	1	2	3	4	5
21.	KWA has a well developed preventive maintenance system that address potential failure before the occur.	1	2	3	4	5
22.	There is tremendous scope to make KWA more efficient in terms of energy consumption.	1	2	3	4	5
23.	There is a need to improve the methods used to evaluate organizational and individual performance at KWA.	1	2	3	4	5

24.	KWA's current organizational structure adequately supports the achievement of KWA goals and objectives.	1	2	3	4	5
25.	The project management system at KWA needs to be revamped to meet cost and schedule targets.	1	2	3	4	5
26	KWA has the capacity to cater to a larger consumer/user base than it currently does.	1	2	3	4	5
27.	KWA needs to change its culture to become more responsive to the needs of public/communities.	1	2	3	4	5
28.	Everyone in KWA knows that there is a need to improve the process of estimation for sanctioning projects.	1	2	3	4	5
29.	Everyone in KWA knows that there is a need to improve the tendering process to attract high quality contractors.	1	2	3	4	5
30.	KWA should keep project evaluation, project execution, and operations as separate entities.	1	2	3	4	5
31.	The performance of KWA can improve if there is coordination and cooperation across functions/groups.	1	2	3	4	5
32.	KWA has the capacity to improve the quality of its water and public services.	1	2	3	4	5
33.	KWA has the capacity to increase the number of consumers that benefit from its services.	1	2	3	4	5
34.	KWA has the capacity to be more responsive to the needs of consumers/public in the communities.	1	2	3	4	5
35.	KWA has the knowledge capacity to increase its contribution to other organizations in the sector.	1	2	3	4	5
36.	KWA has the technical competence to be the chosen advisor for urban and rural water schemes in Kerala.	1	2	3	4	5
37.	KWA has the capacity to run a water bottling plant and supply to the market in competition with private players.	1	2	3	4	5
38.	KWA has the capacity to take up sewerage projects in urban areas in Kerala.	1	2	3	4	5
39.	Individuals occupying positions of responsibility have the required skills and knowledge to perform adequately.	1	2	3	4	5
40.	KWA employees are aware of the problems faced by the organization and also know how to correct them.	1	2	3	4	5
41.	There is a need to improve skill levels at the senior levels in order to improve the performance of KWA.	1	2	3	4	5
42.	There are is a need to improve the skill levels at the field level in order to improve the performance of KWA.	1	2	3	4	5
43.	There is a demand to from consumers/public to increase the services currently offered by KWA.	1	2	3	4	5
44.	There is a demand to increase the towns/cities/ panchayats currently covered by KWA.	1	2	3	4	5
45.	The public is not fully aware of all the work that KWA does to improve quality of water and services.	1	2	3	4	5
46.	KWA has adequate access to other funds (including international) to support its activities.	1	2	3	4	5
47.	The charges for water supplied by KWA to rich urban areas can be increased.	1	2	3	4	5
48.	The fees charged to consumers/public for various other services provided by KWA can be increased.	1	2	3	4	5
49.	The existing sources of funding are adequate for the future financial viability of KWA.	1	2	3	4	5
50.	KWA is in a position to raise additional funds on its own, without government support.	1	2	3	4	5
51.	KWA cannot meet its operation and maintenance costs from its revenue collections.	1	2	3	4	5
52.	KWA cannot meet the capital costs for projects from its revenue collections.	1	2	3	4	5
53.	Financial viability of water and sanitation projects should not influence the decisions to implement schemes.	1	2	3	4	5
54.	The public in Kerala is prepared to pay more for the water supply that they get from KWA.	1	2	3	4	5
55.	Lack of functioning meters is the major reason for non-revenue water at KWA	1	2	3	4	5
56.	There is sufficient scope to reduce operation and maintenance costs at KWA.	1	2	3	4	5
57.	The employees of KWA are committed to their roles and tasks to make KWA effective	1	2	3	4	5
58.	The employees of KWA have a positive attitude towards change that	1	2	3	4	5

	will improve services.					
59.	The employees of KWA work in harmony with each other.	1	2	3	4	5
60.	The employees of KWA feel adequately rewarded for their work at KWA.	1	2	3	4	5
61.	Non-monetary rewards at KWA support desired behavior.	1	2	3	4	5
62.	The employees at KWA feel treated fairly.	1	2	3	4	5
63.	The employees are willing to take on leadership roles in KWA to improve its performance.	1	2	3	4	5
64.	The employees are willing to express new ideas to those in authority at KWA.	1	2	3	4	5
65.	The career opportunities in KWA are excellent.	1	2	3	4	5
66.	I am satisfied with my career progression in KWA.	1	2	3	4	5
67.	Employees in KWA are highly involved in their work.	1	2	3	4	5
68.	Everyone in KWA believes that s/he can have a positive impact.	1	2	3	4	5
69.	Employees are encourages to speak out frankly even when they are critical of well-established ideas.	1	2	3	4	5
70.	Favoritism rather than merit determines who gets promotions and transfers in KWA.	1	2	3	4	5
71.	You can get along here by being a good person (i.e. don't give trouble), regardless of the quality of your work.	1	2	3	4	5
72.	There are "cliques" or "in-groups" which hinder the effectiveness of KWA.	1	2	3	4	5
73.	I am willing to put in a great deal of effort beyond that normally expected in order to help KWA be successful.	1	2	3	4	5
74.	I would accept almost any type of job assignment in order to keep working for KWA.	1	2	3	4	5
75.	I am proud to tell others that I am part of KWA.	1	2	3	4	5
76.	KWA demands the very best in me in the way of job performance.	1	2	3	4	5
77.	I really care about the future of KWA.	1	2	3	4	5
78.	For me KWA is the best of all possible organizations for which to work.	1	2	3	4	5
79.	I feel fairly well satisfied with my present job.	1	2	3	4	5
80.	I feel that my current job is more interesting than others jobs I could get.	1	2	3	4	5
81.	There is a need to improve the level of discipline at KWA if the organization has to improve performance.	1	2	3	4	5
82.	KWA needs to transfer excess staff in the offices to field positions to improve performance.	1	2	3	4	5
83.	The roles for different positions need to be redefined, including multi-tasking, to improve performance at KWA.	1	2	3	4	5
84.	KWA responds well to changes in the external environment.	1	2	3	4	5
85.	KWA continually adopts new and improved ways to do work.	1	2	3	4	5
86.	Different units in KWA often cooperate to create change	1	2	3	4	5
87.	KWA can be transformed into a professionally managed organization with attention to effectiveness/efficiency.	1	2	3	4	5
88.	KWA employees are reluctant to implement changes to the system because of resistance from others.	1	2	3	4	5
89.	The top management has the will to sustain a change program that will improve the performance at KWA.	1	2	3	4	5
90.	Information is widely shared in KWA so that everyone can get the information s/he needs when it is needed.	1	2	3	4	5
91.	Decisions in KWA are usually made at the level where the best information is available.	1	2	3	4	5
92.	The information system in KWA is strong and is able to provide adequate information to all decision makers.	1	2	3	4	5
93.	There are vested interests in KWA that do not want the information system to be improved.	1	2	3	4	5
94.	There is a need to confront corruption directly to improve the performance of KWA.	1	2	3	4	5
95.	Corruption is a major problem at KWA hindering its overall performance.	1	2	3	4	5
96.	Everyone in KWA is aware of that revenue collection can be improved if corruption is tackled.	1	2	3	4	5
97.	Corruption in the field contributes to lack of revenue collection	1	2	3	4	5

How would you compare KWA's performance over the past three years to that of the other organizations that do the same kind of work (your competitors) in terms of the following parameters?

		Very good	Somewhat better	About the same	Worse	Much worse
1.	Quality of water and services	1	2	3	4	5
2.	Development of new services	1	2	3	4	5
3.	Ability to attract and retain essential employees.	1	2	3	4	5
5.	Satisfaction of customers or clients.	1	2	3	4	5
6.	Relations between management and employees.	1	2	3	4	5
7.	Relations between employees in general.	1	2	3	4	5
8.	Relations with the government of Kerala	1	2	3	4	5

Demographic Data:

Personal Information

Age ____				Gender:	Male ____		Female ____		
Education	High School and below	____	Diploma	____	Bachelor	____	Master and above		____

Work Profile

Nature of Posting:	Headquarter/ Regional Headquarter	____	Field/ Rural Office		____		
Nature of Work:	Engineering/Technical	____	Administrative/ Ministerial		____		
First Basic Pay in Salary Scale	Above 1500 ___	Between 1500 and 1000	___	Between 1000 and 650	Less than 650	___	
Years at KWA	Less than 10 ____	Between 10 - 20	____	More than 20		____	

Exhibit-6.2: Demographic Details of KWA Survey

Total number of respondents: 720

Gender
Male: 515
Female: 205

Education
High school and below: 131
ITI/PDC: 32
Diploma: 194
Bachelor: 253
Master and above: 110

Nature of Posting
HQ/Regional HQ: 293
Field/Rural Office: 427

Nature of Work
Engineering/Technical: 450
Administrative / Ministerial 270

First Basic Pay in Salary Scale
Above 1500: 466
Between 1500 and 1000: 49
Between 1000 and 650: 117
Less than 650: 88

Years at KWA
Less than 10 years: 322
Between 10-20 years: 191
More than 20 years: 207

Exhibit 6.3 Aggregate Level Response across Item Categories

Type: RC means reverse coding. Low scores on these items are desirable for KWA. On the other items, high scores are desirable.
Total Number of respondents: 720

		Type	Disagree / Strongly Disagree	Neutral	Agree / Strongly Agree
A.	Clarity in goals / objectives and identification (Items 1-4)				
1.	The KWSS Act 1986 provides clear direction for KWA goals and objectives that are still valid for KWA today.		33%	30%	38%
2.	The objectives of KWA are well known and agreed by all employees of KWA to guide their behavior.		36%	20%	44%
3.	The objectives of KWA are well implemented through specific goals and targets for departments/individuals.		35%	27%	38%
4.	The officers and staff of KWA identify closely with the goals and objectives of the organization.		33%	24%	43%
B.	Perception about institutional environment / regulatory structure / (Items 5,6,7,9,12) External stakeholders excluding customers (Item 8)				
5.	Decentralization of water supply to panchayats/ local bodies in rural areas will improve service to the public.		60%	12%	28%
6.	The Government of Kerala systems/rules that apply to KWA facilitate the organization to meet its objectives.		31%	23%	46%
7.	There is adequate political will in the state to support a new vision for KWA.		37%	29%	35%
8.	KWA has smooth collaborative arrangements with organizations in the sector to meet the needs of the public.		34%	25%	41%
9.	There is sufficient support from the government to expand the role of KWA in the water and sewerage sector.		32%	21%	47%
12.	There is a need for a separate regulator to set prices and monitor the performance of organizations in the sector.		18%	17%	65%
C.	Political influence on KWA functioning (Items 10,11,13)				
10.	There is too much political influence in decision related to promotions and transfers of employees.	RC	16%	21%	63%
11.	There is too much political influence in decision related to award of contracts for projects.	RC	38%	30%	32%
13.	The KWA Board has the autonomy to pursue the objectives of KWA without external interference.		38%	25%	37%
D.	Strength of assessment and monitoring processes (Items 14-16)				
14.	KWA has a well-developed system to monitor its programs /activities to ensure effective implementation.		42%	22%	36%
15.	KWA uses the feedback from the monitoring system to make improvements to its services.		43%	24%	33%
16.	KWA regularly assesses the needs of its stakeholders (including consumers/public) to make improvements.		37%	24%	39%
E1.	Perceived need for change (internal aspects)-A: Resource availability and utilization, efficiency improvement (17-22, 56)				
17.	KWA uses its officers and staff to the best of their abilities to provide effective services to the public.		37%	19%	44%
18.	KWA uses its physical facilities (buildings/equipment) efficiently to provide cost effective water supplies.		31%	23%	45%
19.	KWA is able to utilize its financial resources in the best possible manner to improve cost efficiency.		40%	25%	35%
20.	The quality of administrative support (Stores / Accounts etc.) at KWA is excellent.		40%	29%	31%
21	KWA has a well-developed preventive maintenance system that address potential failures before they occur.		59%	22%	19%
22.	There is tremendous scope to make KWA more efficient in terms of energy consumption.	RC	13%	18%	69%
56.	There is sufficient scope to reduce operation and maintenance costs at KWA.	RC	19%	15%	66%
E2.	Perceived need for change (internal aspects)-B: Project Management Processes (Items 25,28,29)				
25.	The project management system at KWA needs to be revamped to meet cost and schedule targets.	RC	9%	21%	70%
28.	Everyone in KWA knows that there is a need to improve the process of estimation for	RC	10%	15%	75%

	sanctioning projects.				
29.	Everyone in KWA knows that there is a need to improve the tendering process to attract high quality contractors.	RC	9%	15%	76%
E3.	**Perceived need for change (internal aspects)-C: Organization Structure, coordination and roles (Items 24,30,31)**				
24.	KWA's current organizational structure adequately supports the achievement of KWA goals and objectives.		38%	28%	34%
30.	KWA should keep project evaluation, project execution, and operations as separate entities.	RC	20%	14%	66%
31.	The performance of KWA can improve if there is coordination and cooperation across functions/groups.	RC	5%	8%	87%
E4.	**Perceived need for change (internal aspects)-D: Performance measurement and HR aspects (Items 23, 81-83)**				
23.	There is a need to improve the methods used to evaluate organizational and individual performance at KWA.	RC	6%	11%	84%
81.	There is a need to improve the level of discipline at KWA if the organization has to improve performance.	RC	5%	9%	86%
82.	KWA needs to transfer excess staff in the offices to field positions to improve performance.	RC	11%	16%	74%
83.	The roles for different positions need to be redefined, including multi-tasking, to improve performance at KWA.	RC	10%	24%	66%
F.	**Capacity to improve service to the existing customers (Items 26, 27, 32-34)**				
26	KWA has the capacity to cater to a larger consumer/user base than it currently does.		13%	14%	73%
27.	KWA needs to change its culture to become more responsive to the needs of public/communities.	RC	8%	14%	78%
32.	KWA has the capacity to improve the quality of its water and public services.		8%	6%	86%
33.	KWA has the capacity to increase the number of consumers that benefit from its services.		12%	7%	81%
34.	KWA has the capacity to be more responsive to the needs of consumers/public in the communities.		10%	11%	79%
G.	**Capacity for diversification / expansion of service portfolio / entering into related but new businesses (Items 35-39)**				
35.	KWA has the knowledge capacity to increase its contribution to other organizations in the sector.		8%	15%	77%
36.	KWA has the technical competence to be the chosen advisor for urban and rural water schemes in Kerala.		8%	15%	77%
37.	KWA has the capacity to run a water-bottling plant and supply to the market in competition with private players.		6%	9%	86%
38.	KWA has the capacity to take up sewerage projects in urban areas in Kerala.		10%	11%	79%
H.	**Need for improving skills (Items 39,41,42)**				
39.	Individuals occupying positions of responsibility have the required skills and knowledge to perform adequately.		17%	28%	56%
41.	There is a need to improve skill levels at the senior levels in order to improve the performance of KWA.	RC	8%	9%	83%
42.	There are is a need to improve the skill levels at the field level in order to improve the performance of KWA.	RC	7%	6%	87%
I.	**Awareness of problems and potential solutions (Item: 40)**				
40.	KWA employees are aware of the problems faced by the organization and also know how to correct them.		23%	25%	52%
J.	**Demand for increasing service / broadening scope of customers (Items 43,44)**				
43.	There is a demand to from consumers/public to increase the services currently offered by KWA.		7%	8%	86%
44.	There is a demand to increase the towns/cities/ panchayats currently covered by KWA.		6%	10%	84%
K.	**Need for increasing awareness to outsiders (image management)**				
45.	The public is not fully aware of all the work that KWA does to improve quality of water and services.	RC	11%	13%	77%
L1.	**Financial Viability-A: Access to Funds (Items 46,49, 50)**				
46.	KWA has adequate access to other funds (including international) to support its activities.		26%	33%	41%
49	The existing sources of funding are adequate for the future financial viability of KWA.		66%	15%	19%
50.	KWA is in a position to raise additional funds on its own, without government support.		61%	13%	26%
L2.	**Financial Viability-B: Revenue Generation (Items 47-48,51-52,54-55)**				
47.	The charges for water supplied by KWA to rich urban areas can be increased.		8%	8%	84%
48.	The fees charged to consumers/public for various other services provided by KWA can be increased.		12%	15%	74%
51.	KWA cannot meet its operation and maintenance costs from its revenue collections.	RC	17%	12%	72%
52.	KWA cannot meet the capital costs for projects from its revenue collections.	RC	12%	8%	80%
54.	The public in Kerala is prepared to pay more for the water supply that they get from KWA.		24%	19%	57%

55.	Lack of functioning meters is the major reason for non-revenue water at KWA		19%	16%	65%
L3.	**Financial Viability-C: Its Perceived Importance (Item 53)**				
53.	Financial viability of water and sanitation projects should not influence the decisions to implement schemes.	RC	23%	28%	49%
M1.	**HR Aspects-A: Work culture / climate (Items 57-59,63-64, 67-69,72)**				
57.	The employees of KWA are committed to their roles and tasks to make KWA effective		18%	14%	68%
58.	The employees of KWA have a positive attitude towards change that will improve services.		11%	17%	72%
59.	The employees of KWA work in harmony with each other.		19%	29%	52%
63.	The employees are willing to take on leadership roles in KWA to improve its performance.		14%	19%	67%
64.	The employees are willing to express new ideas to those in authority at KWA.		9%	21%	70%
67.	Employees in KWA are highly involved in their work.		21%	22%	57%
68.	Everyone in KWA believes that s/he can have a positive impact.		13%	21%	67%
69.	Employees are encourages to speak out frankly even when they are critical of well-established ideas.		28%	29%	43%
72.	There are "cliques" or "in-groups" which hinder the effectiveness of KWA.	RC	26%	33%	41%
M2.	**HR Aspects-B: Rewards, Promotions, Transfers (Items 60-62, 70-71)**				
60.	The employees of KWA feel adequately rewarded for their work at KWA.		39%	29%	32%
61.	Non-monetary rewards at KWA support desired behavior.		19%	40%	41%
62.	The employees at KWA feel treated fairly.		30%	29%	41%
65.	The career opportunities in KWA are excellent.		32%	32%	36%
70.	Favoritism rather than merit determines who gets promotions and transfers in KWA.	RC	32%	32%	36%
71.	You can get along here by being a good person (i.e. don't give trouble), regardless of the quality of your work.	RC	17%	34%	49%
N1.	**Individual Level Outcomes-A: Job Satisfaction (Items 66,76,79-80)** Comments: Strong job satisfaction reported				
66.	I am satisfied with my career progression in KWA.		28%	20%	53%
76.	KWA demands the very best in me in the way of job performance.		13%	18%	69%
79.	I feel fairly well satisfied with my present job.		12%	14%	74%
80.	I feel that my current job is more interesting than others jobs I could get.		17%	23%	60%
N2.	**Individual Level Outcomes-B: Commitment / Identification (Items 73-75, 77-78)**				
73.	I am willing to put in a great deal of effort beyond that normally expected in order to help KWA be successful.		3%	10%	87%
74.	I would accept almost any type of job assignment in order to keep working for KWA.		13%	14%	73%
75.	I am proud to tell others that I am part of KWA.		9%	10%	81%
77.	I really care about the future of KWA.		3%	6%	91%
78.	For me KWA is the best of all possible organizations for which to work.		14%	25%	61%
O1.	**Readiness for change-A: Organizational Flexibility (Items 84-86) (Or capacity to initiate and sustain change)**				
84.	KWA responds well to changes in the external environment.		20%	25%	55%
85.	KWA continually adopts new and improved ways to do work.		31%	24%	45%
86.	Different units in KWA often cooperate to create change		24%	25%	50%
O2.	**Readiness for change-B: Employees and Management (Items 87-89) (Or capacity to initiate and sustain change)**				
87.	KWA can be transformed into a professionally managed organization with attention to effectiveness/efficiency.		13%	17%	70%
88.	KWA employees are reluctant to implement changes to the system because of resistance from others.	RC	34%	29%	37%
89.	The top management has the will to sustain a change program that will improve the performance at KWA.		18%	34%	48%
P.	**Information sharing and involvement in decision making (Items 90-93)**				
90.	Information is widely shared in KWA so that everyone can get the information s/he needs when it is needed.		37%	21%	43%
91.	Decisions in KWA are usually made at the level where the best information is available.		28%	33%	38%
92.	The information system in KWA is strong and is able to provide adequate information to all decision makers.		42%	30%	27%
93	There are vested interests in KWA that do not want the information system to be improved.		27%	40%	33%
Q.	**Corruption and its impact on performance (Items 94-97),**				
94.	There is a need to confront corruption directly to improve the performance of KWA.		11%	19%	70%
95.	Corruption is a major problem at KWA hindering its overall performance.		22%	18%	60%
96.	Everyone in KWA is aware of that revenue collection can be improved if corruption is tackled.		19%	19%	62%
97.	Corruption in the field contributes to lack of revenue collection		21%	17%	63%

How would you compare KWA's performance over the past three years to that of the other organizations that do the same kind of work (your competitors) in terms of the following parameters?

R.	Relative performance of KWA	Very good / Somewhat better	About the same	Worse / Much worse
1.	Quality of water and services	81%	16%	2%
2.	Development of new services	68%	26%	6%
3.	Ability to attract and retain essential employees.	60%	31%	9%
5.	Satisfaction of customers or clients.	57%	29%	14%
6.	Relations between management and employees.	60%	32%	8%
7.	Relations between employees in general.	65%	31%	5%
8.	Relations with the government of Kerala	65%	28%	8%

Broader Themes:

1. Linkages between goals and functioning of KWA
   A. Clarity in goals / objectives and identification (Items 1-4)
2. External influences on functioning of KWA
   B. Perception about institutional environment / regulatory structure / (Items 5,6,7,9,12), External stakeholders excluding customers (Item 8)
   C. Political influence on KWA functioning (Items 10,11,13)
3. Internal functioning of KWA – technical aspects
   D. Strength of assessment and monitoring processes (Items 14-16)
   E1. Perceived need for change (internal aspects)-A: Resource availability and utilization, efficiency improvement (17-22, 56)
   E2. Perceived need for change (internal aspects)-B: Project Management Processes (Items 25,28,29)
4. Relative performance of KWA
   R. Relative performance of KWA.
   K. Need for increasing awareness to outsiders (image management)
5. Financial viability and resource generation
   L1. Financial Viability-A: Access to Funds (Items 46, 49, 50)
   L2. Financial Viability-B: Revenue Generation (Items 47-48, 51-52, 54-55)
   L3. Financial Viability-C: Its Perceived Importance (Item 53)
   Q. Corruption and its impact on performance (Items 94-97)
6. Growth / expansion of KWA offerings
   J. Demand for increasing service / broadening scope of customers (Items 43, 44)
   F. Capacity to improve service to the existing customers (Items 26, 27, 32-34)
   G. Capacity for diversification / expansion of service portfolio / entering into related but new businesses (Items 35-39)
7. Internal functioning of KWA – managing people and performance
   H. Need for improving skills (Items 39, 41, 42)
   E3. Perceived need for change (internal aspects)-C: Organization Structure, coordination and roles (Items 24, 30, 31)
   E4. Perceived need for change (internal aspects)-D: Performance measurement and HR aspects (Items 23, 81-83)
   M1. HR Aspects-A: Work culture / climate (Items 57-59, 63-64, 67-69,72)
   M2. HR Aspects-B: Rewards, Promotions, Transfers (Items 60-62, 70-71)
   P. Information sharing and involvement in decision making (Items 90-93), 93: Reverse coded
   N1. Individual Level Outcomes-A: Job Satisfaction (Items 66, 76,79-80)
   N2. Individual Level Outcomes-B: Commitment / Identification (Items 73-75, 77-78)
8. Overall readiness for change
   I. Awareness of problems and potential solutions (Item: 40)
   O1. Readiness for change-A: Organizational Flexibility (Items 84-86) (Or capacity to initiate and sustain change)
   O2. Readiness for change-B: Employees and Management (Items 87-89) (Or capacity to initiate and sustain change)

Exhibit 6.4A Response across Demographic Categories-A

Type: RC means reverse coding. Low scores on these items are desirable for KWA. On the other items, high scores are desirable.
Total Number of respondents: 720
Items 1-92 – 1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly agree
Items on KWA's relative performance (7 items at the end) – 1: very good, 2: Somewhat better, 3: About the same, 4: Worse, 5: Much worse

Type	Aggregate		Gender				Education										Posting			
	N=720		Male (515)		Female (205)		High School or Less (131)		ITI /PDC (32)		Diploma (194)		Bachelor (253)		Master or higher (110)		HQ/Regional (293)		Field / Rural Office (427)	
	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5
A.																				
1.	33%	38%	35%	36%	27%	41%	35%	40%	31%	31%	34%	33%	32%	38%	31%	43%	29%	40%	35%	36%
2.	36%	44%	36%	43%	36%	48%	33%	50%	34%	47%	34%	48%	34%	43%	50%	31%	33%	51%	38%	40%
3.	35%	38%	34%	37%	35%	41%	29%	50%	22%	38%	29%	41%	38%	36%	47%	26%	33%	40%	35%	37%
4.	33%	43%	32%	45%	37%	38%	26%	54%	22%	59%	32%	43%	35%	41%	44%	29%	37%	39%	31%	45%
B.																				
5.	60%	28%	65%	24%	47%	38%	64%	27%	72%	13%	56%	32%	62%	25%	55%	35%	54%	34%	64%	24%
6.	31%	46%	33%	46%	26%	46%	28%	47%	25%	56%	25%	51%	32%	45%	46%	35%	27%	51%	34%	43%
7.	37%	35%	37%	37%	36%	30%	31%	42%	19%	44%	35%	40%	38%	34%	48%	19%	38%	33%	36%	36%
8.	34%	41%	34%	40%	33%	43%	30%	44%	25%	53%	25%	48%	37%	40%	50%	25%	34%	42%	33%	41%
9.	32%	47%	33%	47%	31%	47%	25%	53%	19%	72%	28%	53%	35%	45%	44%	30%	34%	44%	31%	49%
12.	18%	65%	18%	64%	19%	67%	19%	64%	19%	56%	21%	62%	18%	63%	13%	80%	18%	69%	18%	64%
C.																				
10. RC	16%	63%	17%	62%	13%	67%	21%	51%	28%	59%	17%	63%	14%	66%	6%	75%	12%	69%	18%	59%
11. RC	38%	32%	38%	33%	38%	28%	38%	34%	31%	31%	38%	34%	38%	33%	39%	25%	35%	32%	40%	30%
13.	38%	37%	41%	35%	32%	42%	35%	44%	31%	47%	31%	42%	40%	34%	52%	24%	40%	38%	37%	38%
D.																				
14.	42%	36%	42%	35%	42%	37%	31%	46%	28%	44%	37%	40%	48%	32%	55%	22%	45%	36%	40%	46%
15.	43%	33%	43%	34%	40%	32%	34%	47%	34%	25%	41%	36%	45%	30%	53%	21%	43%	31%	42%	34%
16.	37%	39%	37%	39%	35%	41%	30%	47%	25%	41%	39%	42%	36%	40%	46%	26%	41%	38%	34%	44%
E1.																				
17.	37%	44%	39%	42%	31%	51%	24%	56%	34%	50%	36%	48%	38%	41%	53%	32%	41%	42%	33%	46%
18.	31%	45%	32%	46%	30%	44%	24%	57%	38%	53%	26%	48%	33%	41%	41%	34%	33%	40%	30%	49%
19.	40%	35%	43%	33%	35%	39%	34%	46%	31%	34%	39%	32%	41%	34%	51%	29%	41%	34%	40%	35%
20.	40%	31%	43%	29%	34%	36%	34%	34%	38%	34%	40%	27%	40%	34%	49%	25%	37%	33%	42%	29%
21.	59%	19%	60%	19%	55%	20%	48%	24%	44%	34%	56%	20%	60%	20%	76%	7%	55%	21%	61%	18%
22. RC	13%	69%	14%	69%	12%	70%	18%	59%	19%	50%	14%	63%	12%	75%	6%	85%	9%	75%	16%	66%
56. RC	19%	66%	18%	69%	22%	60%	22%	60%	6%	88%	21%	65%	16%	70%	23%	59%	17%	69%	20%	64%
E2.																				
25. RC	9%	70%	10%	72%	6%	64%	11%	66%	13%	72%	9%	70%	9%	68%	5%	77%	6%	70%	11%	69%
28. RC	10%	75%	9%	76%	10%	73%	11%	76%	3%	72%	8%	75%	9%	76%	15%	73%	12%	71%	8%	78%
29. RC	9%	76%	8%	78%	13%	70%	6%	79%	0%	91%	7%	77%	11%	75%	15%	69%	12%	73%	8%	78%
E3.																				
24.	38%	34%	41%	33%	32%	36%	41%	37%	31%	22%	32%	34%	41%	36%	44%	28%	37%	35%	40%	33%
30. RC	20%	66%	22%	65%	13%	70%	26%	59%	23%	59%	19%	65%	17%	70%	16%	72%	13%	73%	24%	60%
31. RC	5%	87%	6%	86%	4%	90%	6%	86%	13%	81%	3%	87%	6%	87%	4%	92%	4%	90%	6%	85%
E4.																				
23. RC	6%	84%	6%	83%	5%	86%	7%	82%	9%	78%	6%	81%	4%	88%	6%	84%	4%	88%	7%	81%
81. RC	5%	86%	6%	86%	3%	84%	7%	83%	9%	84%	6%	86%	3%	86%	4%	89%	2%	89%	7%	83%
82. RC	11%	74%	12%	75%	11%	70%	11%	75%	16%	69%	9%	76%	11%	72%	9%	77%	12%	73%	10%	74%
83. RC	10%	66%	12%	67%	9%	64%	20%	50%	9%	56%	8%	61%	9%	69%	5%	80%	7%	72%	12%	62%
F.																				
26	13%	73%	13%	74%	12%	69%	15%	74%	9%	69%	15%	68%	13%	73%	7%	79%	13%	74%	13%	72%
27. RC	8%	78%	7%	78%	9%	79%	13%	74%	6%	69%	9%	72%	6%	83%	3%	86%	4%	83%	10%	75%
32.	8%	86%	9%	85%	4%	91%	8%	86%	3%	94%	11%	81%	7%	87%	5%	92%	3%	91%	11%	83%
33.	12%	81%	13%	81%	10%	82%	11%	82%	9%	84%	17%	76%	12%	81%	5%	89%	8%	86%	15%	78%
34.	10%	79%	11%	79%	5%	81%	11%	80%	6%	78%	10%	80%	11%	77%	6%	84%	6%	84%	12%	76%

G.																				
35.	8%	77%	6%	78%	8%	72%	11%	73%	6%	75%	9%	75%	8%	78%	6%	81%	5%	77%	10%	76%
36.	8%	77%	8%	78%	8%	74%	13%	70%	9%	81%	6%	75%	7%	77%	5%	88%	5%	80%	9%	75%
37.	6%	86%	5%	88%	6%	81%	7%	81%	6%	88%	7%	84%	5%	89%	5%	87%	5%	85%	6%	80%
38.	10%	79%	10%	78%	7%	83%	12%	75%	16%	63%	10%	76%	9%	82%	5%	90%	6%	85%	12%	76%
H.																				
39.	17%	56%	17%	55%	17%	58%	15%	58%	9%	59%	14%	54%	16%	58%	25%	51%	18%	53%	15%	58%
41. RC	8%	83%	8%	84%	5%	80%	11%	76%	0%	88%	7%	85%	6%	86%	8%	80%	4%	84%	10%	82%
42. RC	7%	87%	8%	87%	3%	86%	11%	82%	0%	91%	8%	86%	5%	89%	6%	85%	3%	90%	9%	84%
I.																				
40.	23%	52%	23%	52%	23%	52%	23%	62%	16%	59%	21%	49%	23%	53%	30%	44%	24%	52%	22%	57%
J.																				
43.	7%	86%	6%	87%	7%	82%	11%	76%	9%	81%	7%	88%	6%	87%	2%	93%	3%	89%	9%	82%
44.	6%	84%	7%	85%	4%	81%	11%	79%	13%	78%	7%	84%	4%	87%	2%	87%	3%	85%	8%	83%
K.																				
45. RC	11%	77%	11%	77%	8%	75%	15%	73%	13%	34%	12%	73%	8%	77%	7%	85%	5%	82%	14%	73%
L1.																				
46.	26%	41%	27%	40%	23%	44%	24%	48%	25%	38%	22%	40%	26%	43%	36%	34%	29%	48%	24%	37%
49.	66%	19%	58%	19%	63%	19%	62%	21%	56%	34%	60%	19%	72%	18%	74%	14%	66%	19%	67%	29%
50.	61%	26%	52%	26%	60%	25%	61%	27%	59%	19%	59%	28%	61%	25%	65%	25%	60%	29%	62%	34%
L2.																				
47.	8%	84%	7%	86%	11%	79%	8%	86%	6%	75%	9%	83%	6%	86%	11%	81%	9%	80%	7%	87%
48.	12%	74%	12%	73%	11%	76%	13%	66%	19%	59%	16%	73%	8%	77%	10%	79%	12%	76%	11%	79%
51. RC	17%	72%	17%	71%	16%	73%	21%	67%	22%	53%	17%	69%	16%	74%	11%	80%	14%	76%	10%	80%
52. RC	12%	80%	13%	79%	8%	82%	18%	73%	9%	75%	13%	78%	10%	83%	10%	82%	8%	83%	14%	79%
54.	24%	57%	21%	60%	30%	48%	24%	64%	22%	53%	21%	55%	23%	60%	30%	45%	29%	46%	21%	63%
55.	19%	65%	18%	65%	20%	65%	19%	64%	13%	78%	21%	65%	17%	66%	22%	59%	17%	66%	20%	69%
L3.																				
53. RC	23%	43%	33%	52%	21%	43%	25%	52%	6%	56%	21%	47%	24%	45%	26%	55%	25%	46%	21%	58%
M1.																				
57.	18%	63%	18%	68%	17%	67%	21%	70%	13%	72%	15%	71%	13%	71%	29%	52%	19%	63%	17%	73%
58.	11%	72%	10%	72%	12%	71%	10%	73%	3%	75%	10%	73%	9%	75%	18%	62%	14%	67%	8%	75%
59.	19%	52%	19%	52%	19%	53%	15%	57%	13%	63%	23%	54%	19%	51%	22%	45%	20%	53%	19%	57%
63.	14%	67%	11%	73%	20%	54%	11%	78%	0%	72%	9%	70%	17%	64%	21%	59%	15%	59%	13%	73%
64.	9%	70%	8%	72%	13%	66%	9%	75%	0%	75%	6%	74%	9%	69%	17%	61%	12%	67%	7%	73%
67.	21%	57%	23%	57%	19%	57%	15%	68%	13%	63%	20%	66%	24%	51%	32%	40%	20%	54%	22%	59%
68.	13%	67%	12%	70%	15%	58%	9%	75%	3%	69%	9%	75%	14%	62%	23%	51%	17%	56%	9%	74%
69.	28%	43%	27%	44%	30%	38%	15%	56%	19%	50%	28%	43%	28%	40%	45%	33%	31%	37%	25%	51%
72. RC	26%	41%	28%	39%	20%	46%	34%	37%	25%	28%	25%	40%	23%	45%	24%	44%	21%	50%	30%	45%
M2.																				
60.	39%	32%	41%	33%	35%	31%	34%	40%	25%	44%	32%	34%	44%	29%	47%	26%	37%	31%	40%	39%
61.	19%	42%	18%	44%	21%	35%	19%	43%	9%	41%	14%	43%	23%	40%	20%	39%	22%	33%	17%	42%
62.	30%	41%	32%	41%	25%	40%	24%	48%	22%	41%	29%	43%	31%	39%	37%	33%	28%	41%	31%	41%
65.	32%	35%	36%	34%	22%	39%	24%	43%	22%	53%	34%	34%	37%	36%	31%	25%	30%	37%	34%	35%
70. RC	32%	35%	32%	38%	31%	33%	45%	33%	22%	53%	26%	39%	30%	36%	34%	31%	27%	40%	35%	34%
71. RC	17%	44%	20%	48%	10%	52%	20%	47%	19%	44%	17%	49%	17%	49%	15%	52%	13%	53%	21%	46%
N1.																				
66.	28%	53%	31%	48%	18%	63%	20%	57%	19%	50%	29%	54%	32%	49%	27%	54%	27%	57%	28%	49%
76.	13%	69%	13%	69%	13%	68%	7%	78%	3%	72%	16%	68%	13%	66%	19%	65%	12%	65%	14%	72%
79.	12%	72%	13%	72%	7%	78%	7%	78%	3%	78%	12%	77%	13%	73%	16%	65%	14%	70%	10%	77%
80.	17%	66%	18%	60%	14%	61%	12%	68%	13%	59%	16%	63%	18%	60%	25%	48%	16%	58%	18%	61%
N2.																				
73.	3%	87%	3%	88%	2%	85%	5%	85%	3%	88%	3%	88%	3%	87%	2%	89%	2%	89%	4%	85%
74.	13%	73%	14%	72%	11%	77%	17%	70%	16%	72%	14%	66%	11%	77%	11%	82%	8%	81%	17%	69%
75.	9%	83%	10%	82%	8%	79%	7%	82%	0%	93%	7%	85%	13%	77%	9%	78%	8%	81%	10%	81%
77.	3%	93%	3%	90%	2%	92%	6%	87%	3%	84%	3%	90%	2%	91%	1%	96%	1%	90%	4%	91%
78.	14%	67%	14%	60%	12%	64%	10%	67%	13%	53%	13%	62%	15%	62%	15%	54%	12%	64%	15%	63%
O1.																				
84.	20%	55%	19%	59%	20%	44%	15%	65%	13%	63%	15%	60%	20%	51%	35%	41%	24%	46%	17%	61%
85.	31%	45%	31%	46%	30%	43%	27%	42%	22%	53%	27%	54%	28%	49%	53%	25%	35%	43%	28%	43%
86.	24%	50%	25%	52%	23%	46%	19%	55%	16%	53%	20%	57%	25%	50%	38%	35%	26%	44%	23%	55%
O2.																				

87.	13%	30%	14%	71%	10%	66%	18%	64%	19%	56%	19%	64%	8%	75%	7%	76%	7%	76%	17%	65%
88. RC	34%	37%	35%	39%	33%	33%	39%	36%	34%	16%	28%	45%	33%	36%	41%	34%	31%	39%	36%	36%
89.	18%	48%	20%	47%	14%	49%	11%	42%	6%	50%	14%	59%	22%	47%	30%	35%	20%	52%	17%	44%
P.																				
90.	37%	43%	40%	40%	28%	49%	25%	52%	22%	41%	37%	48%	39%	38%	47%	35%	31%	44%	40%	43%
91.	28%	38%	30%	38%	24%	40%	22%	40%	6%	44%	26%	47%	30%	36%	41%	27%	28%	43%	28%	38%
92.	42%	27%	45%	27%	35%	29%	35%	34%	22%	41%	44%	28%	40%	26%	58%	17%	39%	30%	44%	35%
93. RC	27%	33%	31%	34%	18%	29%	31%	30%	34%	38%	24%	35%	28%	33%	23%	32%	20%	42%	32%	38%
Q.																				
94. RC	11%	79%	12%	71%	7%	69%	13%	66%	16%	75%	8%	73%	10%	72%	14%	68%	6%	74%	14%	67%
95. RC	22%	69%	25%	61%	15%	56%	20%	64%	13%	78%	20%	69%	25%	53%	24%	51%	16%	63%	26%	58%
96. RC	19%	62%	20%	64%	18%	56%	18%	69%	6%	72%	15%	69%	22%	57%	25%	51%	18%	61%	19%	63%
97. RC	21%	63%	28%	67%	26%	52%	18%	68%	13%	78%	19%	70%	22%	57%	26%	52%	17%	66%	23%	64%
R.																				
1.	81%	2%	82%	3%	79%	1%	84%	2%	84%	3%	85%	2%	79%	2%	75%	3%	80%	3%	83%	2%
2.	68%	6%	68%	7%	70%	4%	78%	4%	72%	6%	66%	7%	66%	6%	65%	6%	71%	5%	67%	6%
3.	60%	9%	60%	11%	58%	6%	75%	2%	63%	6%	58%	12%	59%	10%	45%	13%	54%	10%	64%	9%
5.	57%	14%	59%	14%	54%	13%	67%	11%	63%	5%	53%	15%	60%	13%	45%	19%	47%	17%	64%	12%
6.	60%	8%	60%	9%	59%	5%	72%	7%	47%	3%	60%	9%	61%	8%	48%	6%	57%	5%	62%	11%
7.	65%	5%	67%	5%	59%	5%	74%	2%	72%	0%	64%	7%	66%	5%	50%	5%	62%	5%	66%	9%
8.	65%	8%	65%	9%	63%	3%	76%	5%	69%	3%	70%	7%	62%	11%	50%	5%	60%	8%	68%	7%

Note: Last seven items cover perception about KWA's performance over last three years to that of other similar organizations.

1: very good, 2: Somewhat better, 3: About the same, 4: Worse, 5: Much worse

Exhibit 6.4B Response across Demographic Categories-B

Type: RC means reverse coding. Low scores on these items are desirable for KWA. On the other items, high scores are desirable.
Total Number of respondents: 720
Items 1-92 – 1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly agree
Items on KWA's performance (8 items at the end) – 1: very good, 2: Somewhat better, 3: About the same, 4: Worse, 5: Much worse

Type	Aggregate		Nature of Work				First Basic Pay								Years at KWA					
	N=720		Engg / Tech (450)		Admin / Ministerial (270)		> 1500 (466)		1500-1000 (49)		1000-650 (117)		< 650 (88)		< 10 (322)		10-20 (191)		> 20 (207)	
	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5	1/2	4/5
A.																				
1.	33%	38%	35%	34%	29%	44%	32%	37%	39%	41%	32%	38%	35%	36%	32%	36%	34%	37%	32%	41%
2.	36%	44%	41%	39%	28%	53%	38%	42%	43%	41%	28%	52%	28%	48%	38%	42%	37%	42%	32%	50%
3.	35%	38%	36%	34%	33%	46%	39%	35%	29%	33%	26%	44%	27%	51%	36%	35%	36%	36%	32%	46%
4.	33%	43%	35%	42%	31%	43%	37%	40%	29%	41%	27%	46%	26%	52%	33%	41%	37%	41%	31%	48%
B.																				
5.	60%	28%	62%	27%	57%	31%	59%	30%	57%	31%	56%	26%	74%	19%	58%	30%	60%	27%	63%	28%
6.	31%	46%	34%	44%	27%	50%	34%	44%	39%	43%	28%	46%	18%	56%	30%	47%	37%	40%	28%	50%
7.	37%	35%	36%	36%	37%	33%	41%	31%	27%	43%	18%	44%	41%	39%	36%	33%	38%	34%	36%	38%
8.	34%	41%	34%	40%	34%	43%	36%	37%	39%	41%	32%	41%	19%	64%	35%	37%	35%	38%	31%	50%
9.	32%	47%	31%	48%	35%	46%	33%	44%	39%	53%	30%	52%	28%	52%	31%	47%	38%	43%	29%	51%
12.	18%	65%	16%	66%	21%	63%	16%	68%	10%	69%	23%	56%	28%	60%	16%	66%	16%	69%	23%	61%
C.																				
10. RC	16%	63%	17%	62%	13%	66%	16%	64%	16%	63%	15%	68%	13%	51%	15%	66%	19%	62%	14%	60%
11. RC	38%	32%	41%	28%	33%	37%	36%	35%	45%	27%	33%	29%	47%	22%	31%	39%	39%	29%	47%	24%
13.	38%	37%	37%	36%	41%	39%	42%	34%	45%	35%	29%	46%	30%	44%	39%	36%	43%	33%	32%	43%
D.																				
14.	42%	36%	39%	36%	48%	35%	46%	32%	35%	35%	38%	46%	34%	43%	43%	31%	49%	32%	34%	46%
15.	43%	33%	40%	33%	47%	33%	46%	32%	39%	35%	39%	36%	33%	35%	43%	32%	50%	30%	35%	37%
16.	37%	39%	36%	40%	37%	38%	36%	40%	41%	37%	40%	38%	35%	40%	33%	41%	41%	37%	38%	39%
E1.																				
17.	37%	44%	37%	48%	36%	39%	40%	43%	37%	41%	25%	50%	35%	48%	38%	44%	39%	39%	33%	49%
18.	31%	45%	28%	52%	36%	34%	33%	43%	20%	57%	26%	50%	33%	43%	31%	42%	36%	42%	27%	54%
19.	40%	35%	39%	35%	43%	35%	42%	33%	29%	37%	42%	33%	34%	43%	41%	32%	47%	29%	33%	45%
20.	40%	31%	44%	25%	33%	40%	40%	28%	43%	35%	38%	37%	43%	35%	34%	29%	47%	31%	43%	33%
21.	59%	19%	58%	20%	60%	18%	61%	18%	57%	18%	52%	29%	56%	15%	58%	19%	62%	17%	57%	21%
22. RC	13%	69%	13%	68%	14%	71%	13%	73%	10%	78%	16%	61%	11%	59%	14%	67%	15%	73%	9%	69%
56. RC	19%	65%	20%	66%	16%	66%	17%	67%	18%	67%	20%	63%	30%	63%	15%	66%	16%	68%	28%	65%
E2.																				
25. RC	9%	70%	9%	72%	9%	66%	7%	73%	6%	78%	15%	56%	13%	65%	7%	70%	9%	68%	12%	71%
28. RC	10%	75%	12%	72%	6%	80%	9%	76%	18%	67%	7%	72%	10%	78%	11%	69%	7%	79%	9%	81%
29. RC	9%	75%	11%	74%	6%	79%	9%	79%	14%	71%	9%	74%	11%	68%	8%	75%	9%	79%	11%	75%
E3.																				
24.	38%	34%	36%	34%	43%	33%	41%	33%	41%	33%	26%	37%	38%	35%	39%	35%	42%	25%	34%	39%
30. RC	20%	66%	20%	66%	19%	67%	19%	67%	22%	67%	20%	60%	23%	68%	19%	63%	19%	69%	21%	69%
31. RC	5%	87%	4%	88%	8%	85%	4%	90%	4%	88%	10%	79%	8%	80%	3%	88%	8%	88%	6%	85%
E4.																				
23. RC	6%	84%	6%	82%	5%	87%	5%	86%	8%	78%	9%	83%	5%	75%	5%	85%	7%	83%	6%	81%

81. RC	5%	86%	5%	86%	4%	85%	4%	86%	6%	92%	7%	79%	7%	86%	5%	83%	5%	86%	5%	90%
82. RC	11%	74%	8%	78%	14%	67%	11%	73%	8%	7?%	10%	71%	9%	81%	12%	70%	12%	73%	8%	80%
83. RC	10%	66%	8%	66%	13%	67%	9%	68%	16%	61%	12%	62%	10%	64%	11%	66%	10%	68%	9%	64%
F.																				
26	13%	73%	12%	74%	14%	71%	11%	76%	12%	76%	18%	63%	18%	69%	10%	75%	16%	68%	15%	75%
27. RC	8%	78%	7%	77%	9%	80%	6%	81%	8%	76%	15%	70%	7%	74%	5%	80%	11%	76%	9%	77%
32.	8%	86%	7%	88%	9%	84%	7%	88%	6%	86%	9%	82%	11%	83%	5%	89%	9%	84%	10%	84%
33.	12%	81%	11%	83%	14%	78%	11%	82%	10%	86%	15%	76%	16%	83%	10%	82%	15%	79%	13%	83%
34.	10%	79%	8%	80%	13%	78%	8%	81%	12%	76%	12%	76%	14%	76%	7%	80%	12%	80%	12%	78%
G.																				
35.	8%	77%	6%	79%	11%	73%	9%	76%	8%	88%	7%	75%	8%	77%	9%	74%	9%	75%	6%	83%
36.	8%	77%	6%	79%	11%	74%	6%	78%	8%	84%	9%	69%	11%	76%	8%	75%	8%	76%	7%	80%
37.	6%	86%	6%	85%	6%	86%	5%	88%	4%	88%	11%	74%	3%	89%	6%	87%	5%	83%	7%	86%
38.	10%	79%	10%	79%	10%	80%	8%	81%	8%	80%	17%	73%	10%	82%	8%	78%	14%	77%	8%	83%
H.																				
39.	17%	56%	16%	56%	18%	56%	18%	57%	20%	43%	12%	57%	14%	55%	17%	55%	18%	53%	14%	60%
41. RC	8%	83%	9%	83%	5%	83%	8%	85%	6%	82%	8%	78%	6%	83%	7%	86%	8%	81%	7%	80%
42. RC	7%	87%	8%	86%	4%	88%	6%	88%	4%	88%	7%	83%	13%	83%	6%	88%	10%	85%	6%	86%
I.																				
40.	23%	52%	25%	50%	21%	57%	23%	51%	24%	47%	17%	59%	30%	52%	22%	52%	22%	48%	27%	57%
J.																				
43.	7%	85%	6%	86%	7%	84%	4%	89%	4%	86%	14%	73%	11%	84%	4%	86%	7%	85%	10%	85%
44.	6%	84%	7%	83%	4%	86%	4%	87%	0%	88%	15%	72%	8%	84%	4%	86%	8%	83%	7%	83%
K.																				
45. RC	11%	77%	12%	77%	8%	77%	11%	76%	6%	84%	9%	79%	13%	70%	11%	76%	10%	76%	10%	78%
L1.																				
46.	26%	41%	23%	40%	32%	43%	23%	43%	37%	41%	30%	35%	30%	43%	20%	44%	36%	35%	28%	44%
49.	66%	19%	67%	18%	66%	20%	69%	17%	71%	18%	51%	27%	72%	17%	62%	20%	72%	15%	69%	21%
50.	61%	26%	62%	26%	60%	26%	61%	25%	65%	24%	56%	27%	66%	28%	58%	24%	62%	27%	64%	27%
L2.																				
47.	8%	84%	8%	85%	9%	82%	8%	84%	10%	86%	9%	80%	8%	86%	8%	84%	8%	81%	7%	87%
48.	12%	74%	11%	75%	12%	72%	12%	75%	2%	78%	11%	69%	13%	70%	12%	71%	13%	75%	10%	77%
51. RC	17%	72%	18%	70%	14%	74%	17%	70%	12%	76%	13%	78%	22%	69%	16%	66%	13%	80%	21%	72%
52. RC	12%	80%	13%	78%	10%	82%	11%	81%	12%	76%	8%	82%	22%	73%	12%	77%	9%	86%	14%	78%
54.	24%	57%	24%	58%	23%	54%	23%	57%	18%	63%	29%	50%	24%	64%	24%	53%	24%	60%	24%	59%
55.	19%	65%	22%	61%	14%	72%	20%	63%	24%	63%	12%	72%	20%	69%	15%	65%	19%	66%	24%	64%
L3.																				
53. RC	23%	49%	23%	51%	22%	47%	23%	51%	16%	57%	25%	40%	22%	50%	20%	50%	26%	47%	24%	50%
M1.																				
57.	18%	68%	13%	66%	16%	71%	21%	65%	16%	63%	12%	74%	13%	74%	21%	65%	14%	71%	16%	69%
58.	11%	72%	11%	70%	10%	75%	12%	71%	2%	78%	9%	70%	10%	74%	11%	71%	12%	74%	10%	71%
59.	19%	52%	21%	50%	16%	55%	22%	50%	16%	51%	12%	60%	17%	51%	19%	52%	24%	50%	15%	54%
63.	14%	67%	14%	69%	14%	64%	14%	67%	14%	69%	13%	64%	11%	73%	13%	68%	16%	64%	13%	70%
64.	9%	70%	11%	70%	6%	70%	10%	70%	16%	65%	4%	74%	9%	69%	9%	70%	11%	69%	7%	72%
67.	21%	57%	23%	55%	19%	60%	24%	56%	29%	57%	14%	62%	16%	52%	23%	58%	22%	55%	19%	56%
68.	13%	67%	13%	68%	13%	64%	14%	65%	18%	61%	8%	72%	11%	68%	13%	67%	12%	65%	14%	67%
69.	28%	43%	29%	43%	27%	43%	30%	41%	31%	47%	22%	38%	22%	56%	28%	41%	31%	41%	25%	46%

72. RC	26%	41%	26%	40%	26%	42%	24%	44%	18%	41%	35%	32%	30%	40%	22%	43%	27%	40%	32%	39%
M2.																				
60.	39%	32%	40%	31%	37%	35%	42%	33%	41%	24%	26%	33%	41%	34%	37%	33%	42%	26%	39%	37%
61.	19%	41%	17%	42%	22%	39%	20%	43%	14%	43%	17%	32%	20%	41%	16%	43%	25%	38%	18%	41%
62.	30%	41%	30%	37%	29%	47%	32%	38%	24%	41%	25%	44%	27%	52%	28%	40%	37%	40%	26%	43%
65.	32%	36%	34%	32%	30%	41%	34%	32%	35%	29%	26%	41%	27%	50%	34%	31%	35%	33%	27%	45%
70. RC	32%	36%	33%	36%	31%	37%	32%	37%	33%	35%	26%	42%	38%	26%	30%	38%	30%	39%	38%	32%
71. RC	17%	49%	18%	48%	16%	50%	18%	48%	20%	41%	15%	45%	16%	59%	20%	45%	15%	51%	15%	53%
N1.																				
66.	28%	53%	29%	50%	26%	57%	30%	49%	20%	49%	21%	60%	24%	63%	30%	49%	28%	49%	23%	60%
76.	13%	69%	14%	68%	12%	70%	14%	69%	12%	61%	16%	68%	7%	72%	13%	69%	14%	67%	12%	71%
79.	12%	74%	13%	74%	10%	73%	12%	73%	16%	61%	8%	77%	10%	81%	11%	77%	13%	68%	10%	75%
80.	17%	60%	16%	62%	19%	58%	18%	59%	27%	43%	11%	67%	15%	67%	17%	59%	20%	56%	14%	66%
N2.																				
73.	3%	87%	4%	86%	2%	89%	3%	90%	4%	80%	3%	79%	5%	88%	3%	88%	3%	85%	3%	88%
74.	13%	73%	14%	71%	12%	78%	11%	77%	14%	71%	20%	62%	16%	70%	11%	75%	11%	74%	17%	70%
75.	9%	81%	7%	83%	12%	77%	9%	80%	8%	69%	7%	87%	10%	80%	8%	81%	12%	76%	8%	84%
77.	3%	91%	4%	91%	1%	90%	3%	91%	2%	88%	3%	91%	5%	92%	2%	91%	4%	90%	3%	91%
78.	14%	61%	12%	61%	16%	62%	13%	60%	18%	47%	15%	68%	11%	68%	13%	59%	17%	57%	11%	68%
O1.																				
84.	20%	55%	18%	58%	22%	50%	21%	53%	31%	43%	11%	57%	17%	66%	20%	53%	24%	49%	16%	63%
85.	31%	45%	31%	46%	31%	44%	33%	43%	31%	39%	28%	48%	25%	55%	30%	43%	37%	39%	27%	53%
86.	24%	50%	24%	51%	25%	49%	25%	49%	24%	49%	24%	50%	19%	58%	26%	47%	26%	47%	20%	59%
O2.																				
87.	13%	70%	14%	71%	11%	68%	11%	73%	10%	71%	17%	66%	20%	59%	7%	71%	15%	73%	21%	64%
88. RC	34%	37%	35%	37%	33%	37%	35%	38%	33%	41%	26%	36%	40%	34%	31%	37%	34%	41%	40%	33%
89.	18%	48%	18%	47%	20%	49%	20%	47%	20%	43%	12%	45%	16%	56%	18%	49%	22%	44%	16%	49%
P.																				
90.	37%	43%	40%	40%	31%	46%	40%	41%	41%	45%	25%	46%	31%	47%	36%	42%	40%	40%	33%	46%
91.	28%	38%	30%	37%	26%	41%	32%	35%	27%	39%	20%	42%	23%	52%	26%	38%	35%	30%	26%	46%
92.	42%	27%	47%	24%	35%	33%	46%	25%	43%	41%	38%	28%	27%	33%	41%	27%	48%	21%	39%	33%
93. RC	27%	33%	30%	31%	23%	36%	27%	35%	20%	45%	23%	26%	38%	27%	23%	35%	25%	34%	36%	28%
Q.																				
94. RC	11%	70%	13%	69%	8%	73%	11%	72%	10%	71%	9%	62%	15%	70%	9%	71%	14%	66%	11%	72%
95. RC	22%	60%	27%	56%	13%	65%	24%	59%	16%	63%	13%	61%	24%	61%	20%	63%	20%	57%	16%	57%
96. RC	19%	62%	21%	58%	16%	68%	19%	62%	10%	65%	18%	58%	25%	61%	16%	63%	20%	58%	22%	63%
97. RC	21%	63%	23%	62%	17%	64%	20%	64%	18%	59%	19%	61%	28%	59%	17%	67%	21%	59%	26%	59%
R.																				
1.	81%	2%	82%	2%	81%	3%	82%	2%	84%	2%	81%	3%	78%	1%	80%	3%	83%	2%	83%	1%
2.	68%	6%	70%	8%	66%	3%	66%	6%	67%	6%	77%	5%	69%	7%	67%	7%	66%	6%	73%	4%
3.	60%	9%	60%	8%	59%	11%	60%	9%	51%	12%	63%	9%	59%	8%	61%	9%	55%	11%	62%	9%
5.	57%	14%	59%	14%	55%	15%	57%	14%	49%	12%	61%	15%	61%	14%	55%	15%	59%	14%	60%	13%
6.	60%	8%	58%	8%	63%	7%	60%	8%	39%	12%	68%	3%	60%	9%	60%	8%	53%	9%	67%	6%
7.	65%	5%	64%	6%	66%	3%	65%	5%	47%	12%	72%	3%	65%	3%	63%	5%	63%	5%	68%	5%
8.	65%	8%	64%	6%	66%	10%	63%	9%	63%	8%	76%	3%	63%	6%	64%	9%	62%	8%	69%	5%

Note: Last seven items cover perception about EWA's performance over last three years to that of other similar organizations. 1: very good, 2: Somewhat better, 3: About the same, 4: Worse, 5: Much worse

Chapter 7

Recommendations and Implementation Plan

7.1 Introduction

In this chapter, we summarize our key recommendations and lay out a plan for implementation of proposed changes. While the challenges facing KWA have been well known to most of its senior management and employees, KWA has persistently faced difficulty in implementing changes that it realized are necessary for its long term sustainability. Even though the triggers for change can come from external environment, the impetus for change has to be driven internally, from within the organization. This can only happen provided employees see a clear roadmap for change and feel confident about positive impact if they decide to deal with the challenges of change. Thus, our recommendations throughout this report have laid considerable stress on improving internal organizational processes in order to bring about real change in the working of KWA. In other words, our recommendation and implementation plans are geared towards minimizing the "knowing – doing gap" that seems to exist in KWA.

7.2 Changing Role of KWA

Over the last decade, there has been pressure on KWA to change its role from being the only organization responsible for supply of water and management of sewerage in Kerala to becoming a nodal agency that works with several local bodies in delivering water and sewerage related services. While more than 1000 rural water schemes have already been handed over to local panchayats, there is pressure on KWA for greater delegation to local bodies, especially because in geographically dispersed and rural areas, local communities are often in a better position to manage the last mile challenges of water delivery than KWA and be financially sustainable. We have therefore recommended that KWA proactively look for opportunities to delegate water supply schemes to local bodies wherever feasible and focus on being a facilitator and supervisory agency implementing largely urban and more comprehensive rural water supply schemes. While KWA should continue to develop its technological and engineering skills to retain its position as the most competent authority of water services management, it should be increasingly open to having partnership with other public and private agencies. This will require KWA to acquire new managerial and consumer management skills that will enable it to deal with civil society, non-government and private agencies. In the short run, such delegation of activities and partnerships might (mistakenly) be perceived as relinquishing positions of advantage for securing financial viability. However, in the long run, it will strengthen KWA's position as the premium water services organization in Kerala, enabling it to derive additional revenues through advisory and consulting assignments and not get thinly spread into a variety of activities where it does not have much competitive advantage. Especially in cases of handing over single or multiple Panchayat schemes to local bodies, KWA needs to do considerable amount of handholding during the transition and provide the local communities with managerial and financial inputs apart from technical inputs to ensure that the communities can manage the schemes in the steady state.

In the emerging environment, KWA has no option but to become financially viable. While the social contribution of KWA is well appreciated, there are limits to the extent KWA can depend on

subsidies from the State Government. Such dependence also reduces its operational autonomy, increases procedural delays and creates greater challenges for its financial viability. Delegation of relatively simple and dispersed water schemes to local bodies is one step in that direction. This needs to be complemented by several other organizational changes outlined in the next section that would improve KWA's organizational efficiency and responsiveness to external challenges.

7.3 Changes in Organizational Structure and Processes

Various reasons contribute to inefficiencies in KWA's operations, the most tangible evidence of which is KWA's inordinately high Non Revenue Water (NRW), estimated to be between 45-60% of total water delivered. High NRW is a major hindrance towards KWA's financial viability, especially at an operational level. While the causes for such inefficiency have been identified, among others, as poor maintenance of equipments, faulty water meters and low degree of motivation among field staff, we felt that overall, KWA as an organization pays inadequate attention to its operations as against the resources and attention deployed for its projects. Part of the reason for this is due to lack of specialization at the level of Chief Engineers, who are responsible for both project activities and activities pertaining to operations and maintenance. Thus, we have recommended structural separation of project management from field operations. This will also enable KWA to develop competencies in the domain of operations and maintenance and we recommend that KWA seeks opportunities to monetize such competencies in future in the form of operational audits and consulting assignments. While we have presented four structural options, one of which might be chosen based on resource position, we recommend a structural option comprising centralized project management with decentralized (at a regional level) management of operations and maintenance activities.

In order to cater to the demands of a rapidly changing environment we have recommended greater degree of structural decentralization and delegation at KWA. This includes seeking greater autonomy from the State Government – something that is only possible if KWA is able to reduce its financial dependence on the government, especially for operational expenditure. Delegation of decision making rights within the organization needs to be complemented with employees at lower levels being made more accountable and given greater performance responsibilities, which will necessitate instituting a robust and transparent performance evaluation system. In order to overcome procedural delays in project sanctioning and tendering, KWA must revamp the existing process and standardize on a three tiered process comprising initiation, scrutiny and sanction provided the project falls within the pre-approved water and sanitation plan for an area or region. Likewise, for expediting the tendering process, KWA should adopt a three tiered process of approval that follows a standardized format, is transparent and depends on performance history of contractors to ensure that there is minimum time and cost overruns.

The human resource management system at KWA needs to be improved considerably to introduce performance appraisal, role definition, transparency in promotions and transfers. A well performing human resource management system will go a long way in creating a performance oriented culture at KWA where employees are motivated to deliver their best for the organization. It will also enable proper assessment of workload at various levels of the organization and ensure adequate allocation of personnel at field level. In our assessment, the field operations at KWA are understaffed at present resulting in poor levels of service quality while there is excess manpower at the offices.

KWA also needs to setup processes for addressing public grievances and for communicating with the customers, especially those who have complaints and grievances.

7.4 Readiness for Change

During our interaction with various individuals at KWA across organizational level, we realized that KWA is an intensely self-aware organization. The shortcomings of KWA as an organization are well-known to most of its employees and many of them are eager that KWA take necessary steps to overcome the challenges arising out of these shortcomings. Our impression was confirmed through the questionnaire based survey that we conducted to assess the "readiness for change" among KWA employees.

An overwhelming majority of respondents felt the need for improving KWA's tendering, project management and preventive maintenance processes while more than 40% found KWA's internal monitoring and feedback mechanisms to be inadequate. This was in-line with the impression of the consulting team. Likewise, a significant majority of the respondents felt the necessity of separating the functions of project evaluation, project execution and operations, which is a critical recommendation of the consulting team. While a large number of employees expressed satisfaction with their jobs, most of them felt the need for a better performance appraisal process that feeds into decisions related to transfers and promotions as well as creating opportunities for skills-development - confirming the consulting team's analysis that KWA needs to develop a performance oriented culture and have greater focus on its human resource management processes. Finally, close to 80% of the respondents felt that KWA needs to change it culture in order to meet the needs of its various stakeholders. The above domains, where there is convergence of KWA's "felt needs" with the recommendations of the consulting team, represent "low hanging fruits" for the change management initiatives that will be the next step in KWA's effort of institutional strengthening because change is best implemented and sustained when the need for change is driven by those who are going to be most affected by such change processes.

However, there are other areas where the need for change was not so apparent to the respondents. For example, while a majority of KWA's employees take pride in technical capabilities of their organization, many of them are apathetic towards the financial viability of KWA's projects and not adequately concerned with the financially sustainability of KWA as an organization. This probably is driven by the belief (which was expressed to us by various employees during personal interactions) that supply of water is a welfare activity and needs to be sustained through grants and subsidies obtained from the state. Thus, a majority of them expressed their apprehension about decentralization of water supply to local bodies – a strong recommendation of the consulting team keeping in view KWA's long term financial viability. Therefore, the institutional strengthening team needs to be careful in implementation of this recommendation (decentralization) as it is likely to receive considerable internal resistance. It is advisable to have substantive debate and discussion on such issues that do not have immediate buy-in from KWA employees before steps are taken for implementation.

Overall, results of our survey indicate that KWA needs to have greater degree of transparency and well orchestrated communication explaining the rational for important organizational decisions, both during the process of change and on an on-going basis. It is not always easy for employees of a large organization such as KWA that has to satisfy a multitude of stakeholders, to understand and

communicating to KWA about the intension and planned changes. The IIMB consulting team will be an advisor to this team, acting as mentor or a sounding board as required.

- The team should prepare an implementation plan detailing the schedule, milestones and resources that it might need from the organization. The team should also devise an evaluation mechanism so that it can monitor its own progress and effectiveness. The team needs to report such progress to the KWA sponsor and IIMB consulting team periodically. Ideally the implementation plan for the first set of initiatives should not exceed three months for a specific initiative and milestones should be measured and reported on a monthly basis.

- With reasonable progress (ideally a little beyond the midpoint of the implementation schedule) the team should plan for transiting the new process to a regular organization function. For example, the team that would take up the implementation of a better performance appraisal system at KWA should plan to hand over the newly instituted process to the human resource department so that the implementation can be brought to a logical conclusion.

- Once the first set of change management projects are implemented KIST should prepare itself for launching the next set of initiatives, which were perceived to be difficult and expected to have some degree of organizational resistance. Having gone through one cycle of implementing change, there would be greater confidence within KIST and greater acumen to negotiate resistance that it might face at this stage. Moreover, having felt the benefits of the first round of change, KWA as an organization will be more open to change and will develop greater confidence about the positive intention behind such change management initiatives. This is also a stage where IIMB consulting team would gradually reduce its role as a mentor or advisor because by this time, KWA and KIST will be fully equipped to drive the changes themselves.

Bringing about change in a large organization such as KWA will always be challenging. While the change process will be facilitated by KWA's readiness to change (as perceived during our interactions and through the survey), it might receive resistance if such change is perceived to adversely impact status quo, especially because majority of employees do not feel a strong need to improve KWA's financial viability. The approach to change at KWA cannot be radical, because radical changes are acceptable to organizations that perceive that they are undergoing crisis. Thus, the approach that we suggested above is gradual and incremental to start with, so that it can pave the way for initiating some of the other changes that might be deemed disruptive (such as decentralization to local bodies) at a later stage. The exact sequence and prioritization of such efforts will be decided in consultation with KIST, KWA leadership and taking into consideration the resources that are available with the team for driving the change.

Appendix 1
Partial List of People Interviewed

1. Mr. N.K. Premachandran, Former Minister, Water Resources, Govt. of Kerala.
2. Mr. V. J. Kurien, Principal Secretary, Water Resources
3. Mr. A.K. Dubey, IAS, Secretary Finance
4. Mr. Pradeep Kumar, IAS, Secretary, Water Resources
5. Mr. Ashok Kumar Singh, IAS, MD, KWA
6. Dr. V. K. Baby, IAS, Managing Director (when project was started)
7. Mrs. Susan Jacobs, MD and now Member (Technical), KWA
8. Mr. N.S. Pillai, Member (Accounts)
9. Mr. K. Mohan, Chief Engineer (JICA)
10. Mr. Solomon Fernandez, Chief Engineer (JICA Project)
11. Mr. V.S. Pradeep, Finance Manager and Chief Accounts Officer
12. Mr. K.P. Krishnakumar, Superintending Engineer
13. Mr. J. Sasankan, General Secretary, KWA Employees Union (CITU)
14. Mrs. Latha Kumari A. Pillai, Deputy Chief Engineer (General)
15. Mr. P. Sreekumaran Nair, Deputy Chief Engineer, JICA Project
16. Mr. M. Sreekumar (AEE)
17. Mr. Rateesh, KWA (now KWSSRA)
18. Mr. R. Satheesh, Superitending Engineer & Chairman ISWC
19. Mr. Mohan Kumar, Deputy Accountant
20. Mr. Sooraj Sukumar, AEE
21. Mr. Aji Kumar, AITUC
22. Mr. Anthony Albertson, INTUC
23. Mr. K. Sasi, APHEK
24. Mr. Haris, KWA
25. Mr. Salim, Union Representative, KWA
26. Mr. Dasan, Union Representative KWA
27. Mr. Murali, Union Representative KWA
28. Mr. Joy (Graduate Engineers), KWA
29. Mr. Rajagopal, KWA
30. Mr. George, KWA
31. Mr. P. A. Basheer, Panchayat Representative
32. Mr. Rashid, Panchayat Representative
33. Mr. Swami Shekar, Presdent, KWA Contractor's Association
34. Mr. Khalid, Contractor
35. Mr. Abdul Nasser, Contractor
36. Mr. T.T. Balan, Contractor
37. Mr. Anil Kumar, Novell Constructions
38. Mr. Ramesh, Contractor Association
39. Mr. P. Sundaran, Contractor
40. Mr. Moynidin Koya, Contractor
41. Mr. Nagaratnam, Contractors Federation
42. Mr. Shajid, Contractor
43. Mr. P.S. Rajeev, AEE
44. Sunil C. Behanan, AEE
45. Byju V., AEE
46. Deleep Kumar G., AO

Appendix 2

Documents accessed for the Project

1. Preliminary Report on Improving Water Supply Coverage: Increasing number of Water Connection by Institutional Strengthening Team of Kerala Water Authority.
2. *2007 Benchmarking and Data Book of Water Utilities in India,* Ministry of Urban Development, Government of India, and Asia Development Bank
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Appendix 3

Organization Restructuring suggested by KWA Institutional Strengthening Team

While constituting the Working Committee for Institutional Strengthening in Kerala Water Authority the main challenge was the undue delay in implementing Water Supply Projects. The IS Working Committee had serious deliber ations about bringing down the delay which results in cost overrun also. In the ToR provided to the Working Committee there was a module envisaging. Organisation Re arrangement Plan where in separation of projects and O & M offices to bring more focus on construction of new projects and operations / maintenance / customer services for existing schemes to be done.

The IS Working Committee has prepared a proposal for the separations of project offices and O & M offices and decided to implement the separation up to division level as the first phase. The Separation of O & M and project office up to division level offices was implemented in Kerala Water Authority since 1.7.2009 by the formation of new project Divisions in all districts except Kazarkode and Wayanad Districts. There are altogether 14 project divisions at present, and the initiative taken has given good result in the case of project as well as O & M.

As first step the separation was done from the level of division office and downwards. On implementation, the result is good in both sectors, in comparison to the former situation. The IS Committee discussed the improvement in detail and examined the remaining bottle necks and found that the over crowding of work at circle level and Chief Engineer level are the main reasons. In order to get rid of this (further timely completion of projects and providing better service to consumers). The separation up to the level of Chief Engineer level is essential. The proposal for the modifications suggested for higher levels is yet to be materialized. This has to be implemented for the complete success of the initiative. Also there is deficiency of staff in certain offices (in project as well as O & M) which has to be redressed immediately along with the implementation of process re-engineering going to be carried out with the advisory support of IIMB.

While implementing the separation up to Chief Engineer level, it is proposed that the project divisions are to be controlled by two Chief Engineers one in the Southern region and the other in the Northern region. In the case of O & M sector as the sector is a sensitive one,

any reforms should be implemented with utmost care, failing which the result will be against what is expected. More over there is substantial quantity of projects taken up by KWA under SPAN projects, Malabar package, Spark, JnNURM, UIDSSMT, etc in addition to GOI Projects, External aided projects, and State project etc.

The proposal put forward by the IS Committee was to constitute 2 Chief Engineers office exclusively for the project works. However the management has taken a view to convert the present Central region to a project Chief Engineer's office for Northern region and to create new Chief Engineer's office for southern region. The Chief Engineer, Central region has to be retained since it has got substantive significance in maintaining water supply and sewerage systems in the fast developing city of Kochi. More over more schemes are being added to the O & M divisions as and when the works of each project is completed and commissioned.

To get the works of projects completed as envisaged without affecting the O & M works, the committee strongly feels that separate Chief Engineer's office as well as Superintending Engineers office along with necessary support staff has to be established.

Chief Engineer Office

The two CE's offices proposed are to be stationed at Kottayam and the other at Palaghat. Two posts of SE from JICA shall be upgraded as Chief Engineer. There are 5 Superintending Engineer now working in JICA. The project at Meenad and Trivandrum has been partially commissioned and the works of Pattuvam and Cherthala project are nearing completion. The post of Superintending Engineer (Project Coordinator) at Pattuvam and Meenad can be shifted and deployed as two Project CE's office.

Circle Offices

There are five project circle offices proposed exclusively for the Project works. Three of the O & M Circle offices viz P.H.Circle, Palaghat, P.H.Circle, Moovattupuzha and P.H.Circle, Kottayam are proposed to be converted as project circle offices. The remaining two project circles are proposed to be formed each at Trivandrum and, Kannur are to be constituted newly by suitable deployment. The one post of Superintending Engineer (Project Coordinator) of the JICA CE's office Trivandrum and JICA project office Kozhikode can be conveniently deployed.

Executive Engineers

In the place of the Superintending Engineer (Project Coordinator) deployed from JICA can be substituted by Executive Engineers as proposed below

1. The PA of O& M circle office Palakkad proposed for conversion can be deployed at Kozhikode with additional charge of Pattuvam which is nearing completion
2. The present post of Executive Engineer (Project Manager) attached to the Chief Engineer's office, JICA to be redeployed as Project Manager Meenad.
3. The Project Manager at Trivandrum shall attend to the urgent works at Chief Engineer's office, JICA.
4. The PA of O& M circle office proposed for conversion can be deployed to the newly formed Chief Engineer's office as Executive Engineers against the post of Deputy Chief Engineer in the existing regional offices.
5. Asst Executive Engineer post is proposed for the Project Circle offices against the conventional PA (Executive Engineer) post.

Assistant Executive Engineer

The post of Assistant Executive Engineers required can be deployed from JICA TVM – 2, JICA Meenad – 3, Cherthala – 4, JICA Kozhikodu – 1, JICA Pattuvam – 2 there are altogether 22 sanctioned posts of Asst. Executive Engineers deployed in JICA projects and most of them are either idling or having very little work.

Two Assistant Executive Engineer's post shifted to each Chief Engineer's office and one Assistant Executive Engineer's post shifted to each project circle's Kannur, Palaghat, Moovattupuzha, Kottayam, Trivandrum.

The post of Nine Assistant Engineers required can also be redeployed from 14 posts available at JICA H.O.

Administrative Staff

Two post of Administrative Officer I and two posts of Administrative Officer II are to be created by upgrading suitable immediate lower post. Other officers can be conveniently deployed. 4 posts of Peons and 2 posts of Drivers are to be created.

Staff Pattern Proposed for project CE's Office

Chief Engineer	-	1
Executive Engineer	-	1
AEE	-	2
Assistant Engineer	-	4
AO I	-	1
JS	-	1
UDC / LDC	-	2
D'man Ist	-	2
D'man IInd	-	2
Typist /Computer Operator	-	2
Peon	-	3
Driver	-	2
CA	-	1

Staff Pattern to new Project SE's office

Superintending Engineer	-	1
Assistant Executive Engineer	-	1
Assistant Engineer/Head D'man	-	2
AO II	-	1
LDC/ UDC	-	2
D'man I	-	4
Typist /Computer Operator	-	1
Peon	-	2
Driver	-	1
CA	-	1

JnNURM Circle Offices

It is proposed that the JNNURM circle may be retained with the present O & M Chief Engineers for administrative reasons and that KWA does not have any major role in the implementation of these projects.

For favour of further orders

Chairman

[1] (In) Equity in Drinking Water provision:Kerala Water Authority in Trivandrum, India by I.M.W.H. Ploumen, August 2010.