Revised KUKL Organization Chart and Recruitment Plan

STUDY REPORT

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LIST OF ABBREVIATIONS

KUKL	:	Kathmandu Upatyaka Khanepani Limited
KVWSMB	:	Kathmandu Valley Water Supply Management Board
NWSC	:	Nepal Water Supply Corporation
PID	:	Project Implementation Directorate
CBP	:	Capacity Building and Public Private Partnership Support
CEO	:	Chief Executive Officer
GM	:	General Manager
DGM	:	Deputy General Manager
MLD	:	Million Liters Per Day
NRW	:	Non-Revenue Water
PPP	:	Public Private Partnership
WTP	:	Water Treatment Plants
SCADA	:	Supervisory Control and Data Acquisition
MIS	:	Management Information Systems
GIS	:	Geographical Information Systems
IT	:	Information Technology
HR	:	Human Resources
Sr.	:	Senior
Jr.	:	Junior
Tech	:	Technical
E/M or EM	:	Electro-Mechanical
Asst.	:	Assistant
Hrs	:	Hours
UNW	:	Un-Accounted for Water
Adm	:	Administration / Administrative
Acc	:	Accounts

EXECUTIVE SUMMARY

Human resource management in KUKL is in a state of critical juncture crunching by internal factors and external demands. The inadequate number of human resources working at top, middle management and technical areas making most of the division operations less functional. While the number of staffs mostly in top and middle level are retiring in a steady trend which is creating more vacuum and depletion of institutional memory. At the same time, there is expectation of expansion of activities by the completion of Melamchi demanding more human resources including specialized professionals.

The present organization structure headed by General Manager supported by two major broad areas namely (i) Administration and Finance and (ii) Technical. Among these, technical department is overloaded because all technical matters and service delivery are their responsibility.

With an intention to operate KUKL in corporate culture, PPP modality has been adopted to enter into market-led system intending to be more modern service delivery organizations that emphasize operational and financial sustainability.

International Experiences

Most of the reforms in utility sector have been guided by new public management approach which focuses on results, performance, efficiency, decentralization and accountability.

A comparative performance study of 11 international water utilities have different institutional modalities reveals the positive relationship between level of income of country and technology with fewer number of staff per 1000 connections. These organizations have been aligning tightly with internal accountability in terms of effectiveness (the degree to which the utility realizes its goals) and efficiency (the cost effectiveness of resources used to produce its water services) accompanied with autonomy. They have adopted systematic reporting system utilize incentive-based system to reward good performance and focuses more on capacity building of their staffs.

These organizations outsource mostly non-core functions and retain core ones. They pay greater attention to their customers, work better to meet their needs, solicit their views regarding standards and level of service, prompt answer to their complaints and develop simple system for billing and collection.

Organizational Analysis of KUKL

The present activities of KUKL are divided into two major departments (i) Administration and Finance and (ii) Technical which are asymmetrically distributed. The technical department of KUKL is fully loaded having 7 divisions and service delivery branches.

The performance of KUKL is aggravated by the non-fulfillment of human resources. The unfulfilled human resources are mostly filled by contract and daily wages. There is possibility that these human resources may not be continued in future.

The number of technical human resources are comparatively less than administrative ones. It is generally seen in the technical service industry that there are relatively more number of technical human resources than administrative and accounting personnel.

The personnel retiring within coming 5 years shows that officers (technical level 6 and above) are 26 and officers (administrative level 6 and above) are 30. This will create a gap of experienced and skilled human resources and will hamper the overall performance of KUKL. This scenario is more serious in case of higher level technical staffs.

KUKL has adopted universal system and mechanism without making any differences between well-performer and non-performer, which ultimately de-motivates the performer. Performance based management practice seems urgent as most of the successful organizations have demonstrated positive results through it.

Most employees are doing their jobs other than what they have been recruited for. This practice may help to do job in amateur or ad-hoc basis but could not continue this practice longer. This may erode the professional aptitude.

There is an acute need of strategic plan for KUKL for its future courses of actions. In its absence, the activities will remain mostly towards problem solving without direction for future.

KUKL is uncertain about its working areas. Whether it will be involved in post-Melamchi activities or not. Similarly, it is not clear on operation of new sewerage system constructed by PID. Such uncertainties have created confusion among its employees about their career.

The number of tap connection is increasing at the annual rate of around 2.5%, likewise the demand of water is also increasing whereas the production is normally constant and supply of water has decreased from average 6 to 18 hours per month to 4 to 12 hours per month.

Due to absence of accountability centers, the internal accountability system of KUKL which is responsible in making management and staff accountable for effectiveness and efficiency is lacking. There is also a need for proper reporting mechanism within KUKL for its smooth operation.

Capacity development of staffs is not being paid proper attention in KUKL. Skilled staffs are a critical asset of the company which will inturn improve the overall performance of the organization.

Critical role analysis

As a part of the organizational structure there is existence of roles to perform a function that ultimately contributes to the provision of products or services. All roles deos not have equal value. Some roles are critical, some are professional and some are staff roles.

Water Production, Water Supply, Sewerage, IT, Non-revenue Water, Waste Water, Quality Assurance, Human Resource Management, Customer Relations are critical roles of KUKL. Project Development and Planning are specialist roles and Finance, Legal and General Administration are professional roles.

Post-Melamchi Scenario

First phase of Melamchi project is expected to be completed by 2018 which will supply 170 million liters of water per day in Kathmandu. Construction work of new water treatment plants, reservoirs and installation of of distribution networks are in process. Replacement of 60% of the total existing distribution channels within ring road is expected to be completed in the first phase. For the time being There will be two parallel systems. One will be a traditional which is not driven by new technology and another will be equiped with improved technology.

Post-Melamchi situation will bring changes in the use of existing facilities mostly for water treatment plants, tube wells and attached WTPs. Whether the existing resources will be totally used locally or it will be used upstream of existing reservoirs, the existing water treatment plants will become redundant.

Similarly, after the completion of the assignment, which is expected to be completed in two phases, one in 2020 and another in 2024. The 4 plants are expected to be completed within this time. PID has also made an agreement with the contractor for the operation of the waste water treatment plants for 10 years in Guheshowri and 5 years in other 3 plants.

Proposed Organization Structure

The proposed organization structure is based on **Critical Job and Core Functions Principles, International experiences and Possible Future scope of Activities.**

A hybrid concept considering the service product (water and sanitation) and functions (Engineering, Technical, Administration, Finance) has been applied in the proposed organization structure. It is because these services have distinct features and should have to be looked differently.

KUKL has three major areas (i) Operations (Water and Wastewater) (ii) Planning and Support, and (iii) Administration and Finance. On this basis further divisions of work have been proposed. Production and distribution functions of water and wastewater management have been considered under Operations Department.

Modern corporations has been practicing different nomenclatures than what traditional organization used to follow. The most commonly used term "General Manager (GM) has been replaced by "Chief Executive Officer (CEO)" for the executive head. It is generally agreed that CEO is the person who heads all functional departments of an organization. He/She is the chief decision maker for the organization and all departmental head reports to him/her. Chief/General Manager/Director/Deputy General Manager/Vice President is the departmental head of a respective functional units.

The 'transaction cost approach' in managing its activities has implication upon designing organizational structure. It means dividing the activities in (i) monitoring and evaluation, (ii) direct service delivery, (iii) collaboration with local bodies and (iv) networking with various agencies. In the proposed structure, it is assumed that KUKL will involve mostly in direct service delivery and will make outsourcing and partnership in certain areas of services.

In the proposed organization structure, the Department will be headed by GM (Level 11), Division will be led by (level 10) and as per the need of the organization and Branch/Section/Center will be headed by level 9 or 8.

Human Resources Projection

Human resources projection has been done based on workload analysis. KUKL consists of various employees who are broadly categorized into four types. They are, skilled, semi-skilled and unskilled. Tasks performed by these employees can be categorized into: Structured and Semi-structured. Human resource projection is mostly influenced by technology as it replaces the number of staffs. Most of the current functional activities will become redundant by the introduction of technologies. In order to perform these activities, people with new skills are required. Introduction of electronic ledger maintenance, online payment of bills, monitoring of drinking water supply, etc. may affect the number of junior level staffs involved in accountancy jobs.

The composition of human resources within organization, as it differs according to the new nature will also influence projection of the human resources. In some of the urban water and sanitation organizations, human resources are composed of 30-35% are technical who are related to water and sanitation sector, 30-35% are technical staffs not necessarily related to water and sanitation sector and remaining 30-35% are financial and administrative staffs. However this has not been considered in this study.

Projection of human resource requirements depends on factors like outsourcing, partnership, assets management approaches for crises, contingency plans, future expansion activities and new public management techniques. These techniques are widely practices in international sphere and have produced satisfactory results. In order to improve the efficiency, KUKL is recommended in following such corporate culture.

There are two types of activities in KUKL: (i) Backstopping activities and supportive services carried out in Head office and (ii) Frontline offices responsible for delivering the services to the customers as a function of Branch Offices.

The front-line offices have been divided into ***Large***, ***Medium and Moderate*** on the basis of number of connections. It is assumed that the nature of work would be similar in this frontline offices. However the magnitude and complexity of problem increases with the increase number of customers, hence more number of officers are being placed in large offices than smaller ones.

The most direct customer service delivery points are meter readers and valve operators whose work load analysis has been done on the basis of service-time ratio. Water treatment engineers are placed to those branch offices where there are large treatment plants. Provision of assistant plant operator is proposed for smaller treatment plants. The number of pump operators has been calculated on the assumption that one pump operator handles two pumping stations while the number of assistant pump operators has been calculated on 1:1 basis for small tube wells.

Projection of Human Resource Requirement of KUKL

On the basis of proposed organization structure and considering the factors affecting it, the proposed human resources for KUKL is 1306 mostly suitable up to the year 2024. Some existing posts are proposed to be deleted and some new posts as per demand have been added.

Recruitment Strategy

It is suggested that recruitment strategy has to be developed on the basis of following factors:

1. Strategic and core (such as Engineers, technical personnel, overseers, positions related to effective service delivery such as valve operator, plumber, etc.) shall be recruited first.
2. As per priority setting, non-core but important positions to be recruited secondly (such as meter readers, plumbers, etc.)
3. After recruitment of strategic positions which could have long-term affect on functioning of KUKL needs to be done there after.
4. Recruitment on the basis of "Urgency" should not be granted.
5. Those jobs which cannot be done in most efficient way by internal staffs shall be outsourced.
6. On this basis timelines for recruitment has been recommended.

1. INTRODUCTION

1.1 Background

Kathmandu Upatyaka Khanepani Limited (KUKL), a public company registered under the Company Act 2063, is an outcome of restructuring the Nepal Water Supply Corporation (NWSC) with a view to undertake and management of the water supply and sewerage system of Kathmandu Valley. It carries out the water supply and wastewater services under a License and Lease Agreement with Kathmandu Valley Water Supply Management Board for the period of 30 years.

With an intention to operate in Public Private Partnership, its shareholder composition includes Government, Private Sector Organization represented by different Chamber of Commerce, FNCCI, and Employees Trust. KUKL is governed by board responsible for formulating policies, strategies and to supervise all the activities of the company. On the operational level KUKL is headed by a General Manager and overall activities have been divided into two blocks led by Departmental Heads: (i) Administrative and Financial Department and (ii) Technical Department. The Administration and Finance Department has two divisions namely Administrative Division and Finance Division. The technical department has six divisions namely Sewerage, Water Supply Division, Project Development and Implementation, Planning, Research and Development, Non-Revenue Water and Waste Water Division.

A 'modern' organization is one that effectively and efficiently collects and distribute its products and services at minimum cost and least burden to customers. Being a public company providing drinking water and sewerage services, it has to operate professionally making every unit and individual accountable for their area of concern. While designing the organization it has to choose an organization structure appropriate to its strategy and create conducive environment for implementation of those strategies and plans for achieving its organizational goals. Organization structure is the overall structural elements and the relationships among those elements used in the total organization. The structure should reflect the organizational activities that are divided, grouped and coordinated into relationship with each other. While designing the organization, factors like work specialization, departmentalization, chain of command, span of control, centralization, decentralization and formalization shall be considered. This will affect the working relationship among different actors of the organization.

The present organization is hierarchical one having 11 levels of employees below the General Manager. The criteria for demarcating each levels are most significant in order to get better results. At present, there are 1,205 approved staffs, constituting around 15% in managerial level and rest as support staffs. Out of these staffs, 51.2% are in middle level management positions and 46.2% are technical officers. Engineers positions are mainly vacant. The age profile of KUKL staffs show that most of them are retiring which needs to be fulfilled timely.

It is expected that first phase of Melamchi project will be completed by 2018 and the activities of PID is expected to be completed by 2024. It is generally assumed but not certain that the future functional and operational activities of these projects will be handed over to KUKL. Decision on the responsibility jurisdiction of water production will be given to KUKL is yet to be done. However preparation needs to be done for the management of the new situation.

All the above descriptions such as retirements of experienced personnel, shortage of human resources, gap in technical capacity, foreseeable additional responsibility from PID, post-Melamchi, and their subsequent effects indicate that KUKL is really in a critical juncture. In this respect, various studies including institutional reforms have been carried out. Among all these issues, organization becomes handicapped without appropriate number of human resources. Recruitment for KUKL is going to take relatively longer period as the level and number human resource requirements varies in different time period as per the additional responsibilities it has to take in future.

Organization structure revision is often seen as way to improve efficiency, promote teamwork, create synergy and reduce costs. Structure of an organization is all about people, position, procedures, process, culture, technology and other related elements which comprises in the organization. It defines how all the pieces, parts and processes work together. This structure must be integrated with strategy of the organization to achieve its mission, vision and strategic goals.

An organization has to do many activities in order to accomplish its goals. All the activities done within organization do not have similar contribution in achieving the results. The concept of transaction theory hints for seeking the external support or outsourcing. Outsource the activities if it could efficiently carried out externally rather than organization itself. These organizational activities can be categorized into major, supportive and tertiary, for which the provision has to be made. This will make an organization lean and healthy. Consideration has to be made in this respect for smooth operation of the organization.

1.2 Objectives of the Assignment

The basic objective of this assignment is to develop an organization structure of a water and waste water utility of Kathmandu Valley to make it capable for coming 10 years. It aims to develop a strategic organizational design and form that can provide strategic advantage. It includes present KUKL, PID and post Melamchi activities, which are:

- To develop a recruitment strategy and plans based upon the organization structure.
- To develop recruitment plan for KUKL for its immediate implementation.

1.3 Methodology

The findings of this study were derived from a combination of different sources, including field research, literature review, and discussion with professionals having operational experience. At the outset, review of the available documents related to institutional reform, organization chart, manpower deployment, recruitment status and transition plan towards post Melamchi project conducted for KUKL supported by ADB, JICA and other agencies have been reviewed.

The good practices at urban water management and utility level demonstrated in developed and developing countries especially in reference with organizational structures, division of responsibilities, level of technological usage have been reviewed and based on it a realistic model suited for KUKL in Nepalese context has been designed.

Similary, the study was drawn from literatures in the areas of public sector management with particular focus on the water supply and sanitation sector. Consultations were also carried out with water supply and sanitation experts. Despite the extensive research efforts undertaken, the methodology is not without its limitations. Performance are affected by many elements, more importantly, it is very difficult to fully document subtle and behavioral characteristics of decision makers that often are key determinants of outcomes. For this reason, the study does not present a unified framework for improving performance for public utilities, but identifies important contributing factors.

Interaction with staffs of Melamchi Project and PID had made to assess the progress of Melamchi and PID, their expected timelines and delivery of the infrastructure, design approach and technologies used. Discussion was also held with the staffs of KUKL.

2. INTERNATIONAL EXPERIENCES

2.1 Background

This unit makes an effort to present the selected urban water supply and sanitation organizations operating in different conditions and especially organizational and managerial aspects of those organizations that apply Public-Private Partnership (PPP) model.

Generally, it assumes that urban water supply and sanitation services are commonly to be in the purview of state-owned, monolithic water organizations. A move has started to enter into market-led system during 1980s and 1990s. A new paradigm emerged to transform utilities into more modern service delivery organizations that emphasize operational and financial sustainability.

A new set of organizational modality has emerged out during this period in terms of public-private partnership where both private and public sector could play complementary role to each other in improving the efficiency and in delivering the services. It helps to run organization in professional manner making it autonomous and accountable.

Most of the reforms in utility sector including public sector water utility have been guided by new public management approach, a management approach focusing upon results, performance, efficiency, decentralization and accountability.

The international experiences entails that in many cases, elected officials interfere with utilities to exercise autonomy when setting tariffs. They involve in daily utility operations to the extent that they control the management, replace heads of utilities on political grounds, and control utility staffing. Because many utilities are not allowed to remunerate the professionals at market rates, the quality of their personnel deteriorates.

Transparent government policies on tariffs, service levels, operator performance, and incentives are lacking. Policies are unknown to customers, and tend to aclimatize with the political environment. Without such policies, governments and utilities are not held accountable for their performance in some water utilities, the management of human and financial resources are weak. The lack of skilled human resources in these areas may be due to civil service rules and salaries. Job descriptions are nonexistent in many cases, and promotions are often based on age, length of service, and personal connections and not on merit basis. So, there are very few incentives for staff to perform well.

Interestingly, these institutions have many highly educated technical professionals, but in the climate of low autonomy, accountability, transparency, and indifferent management, their skills largely go untapped. O&M is a poor relation to development in the absence of incentives, and low tariffs do not help sustainability. Valve operators, meter readers, and new-connection teams can often collude with customers to create their own incentives.

2.2 The Institutional Model

Utility is often viewed to be owned and managed by government (central and local) or by public corporation as public companies or statutory bodies or governed by private company law. Further, the public utility has not engaged the private operator beyond a short-term period and has engaged them for very specialized functions only.

The water supply sector includes a wide range of organizational models, most of which involve mix of the public and private involvement. The number and types of organizational models and ownership structures have increased substantially over the years since the introduction of private and public-

private hybrid models.

There are various forms and nature of PPP model. One of the forms is the provision of urban water and sanitation services are delegated by contract to a private operator, which usually takes over the management of an existing utility. Other forms are divestitures (in which infrastructure assets are sold to private investors); concessions(whereby a private operator becomes responsible for both operation and investment);leases-*affermages* (whereby a newly established private utility operates a publicly owned system and collects revenues that it then shares with the public owner, who remains in charge of investment); management contracts (in which the services are provided by a publicly owned utility that is managed by a private operator); and mixed-ownership companies(in which a private investor takes a minority share in a water company and operates it on behalf of the local authorities, sharing the financial gains with the public partner).

2.2.1 The Aqua Production-Trade-Service Enterprise Stock Corporation (AQUA S.A.), Poland

In 1990 AQUA was established under the Code of Commercial Companies as a Public Limited Company. The City of Bielsko-Biala and International Water United Holdings B.V owns 51 and 33.18 percent stake in the company. Financed by commercial banks and multilateral agencies, AQUA works under the private corporate law. Along with supplying water to 16 communities and bulk water to 4 others, it also collects and treats wastewater from 6 communities. The utility has introduced a decreasing block tariffs and prices its products aggressively for sustaining its operation. Management of the utility comprises of two-person Management Board which is overseen by the Supervisory Board. City and a strategic partner appoints each member of the Management Board while five individuals of the supervisory board are appointed by major shareholders. Day to day operations are handled by Management Board while performance evaluation and business proposals are summarized by supervisory board for the annual shareholder meeting and published in annual reports. [1]

2.2.2 Haiphong Water Supply Company , Vietnam

The Haiphong Water Supply Company (HPWSC) is a water utility owned by Haiphong Provincial People's Committee (HPPC). The management of HPWSC is overseen by the Transport, Urban and Public Works Department (TUPWS). Governed by State Owned Enterprise Law of 1996, the HPWSC enjoys an autonomy in its business activities. After the first institutional reform made in 1993, there was a remarkable progress in the performance. The new management focused on changing the corporate culture, capacity building of utility staffs, tariff revisions, and customer oriented business model. By 2003, the unaccounted for water reduced from 70 percent to 32 percent (World Bank, 2006). The turnaround of the utility can be attributed to various factors like good leadership and eagerness of managing director to implement customer oriented model (Phuong model), donor's assistance and supportive owner. Although the performance was remarkable for the utility, there is still room for improvements. [2]

2.2.3 Johannesburg Water, South Africa

Johannesburg Water (JNBW), established in 2001 is a government owned company mandated to provide water and sanitation services to 3 million inhabitants of the city. JNBW is a limited liability company solely owned by city of Johannesburg. The utility buys water from state water resource monopoly, Rand Water in bulk. In order to fund the capital projects, the company is dependent on city of Johannesburg which made it financially handicapped. Shareholders appoint 11 directors as independent board for governing the utility. The management reports to the board on regular basis, and corrective actions are proposed if the company fails to achieve its proposed objectives. A performance management contract was signed for five years with Johannesburg Water Management Company (JOWAM) which is a consortium of operating companies from France and South Africa.

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[1] *Aldo Baietti et. al., World Bank, 2006 p43-48*

[2] *Aldo Baietti et. al., World Bank, 2006 p49-54*

JOWAM is responsible for filling the executive management function of JNBW. The Johannesburg City Council receives surplus for water services revenue after covering the capital and operating expenditure.[3]

2.2.4 National Water and Sewerage Corporation, Uganda

In 1972, National Water and Sewerage Corporation (NWSC) was established as a legal body responsible for delivering water supply and sewerage services in 15 urban centers of Uganda. The Board of Directors are appointed by Ministry of Water, Lands, and Environment where managing director is also a board member. The Board of Directors are responsible for formulating the policies to run the corporation. During the period of 2000 – 2003, NWSC has shown a significant improvement in its service delivery. During the period from 2000-2003, the unaccounted for water was reduced from 43% to 39%. Similarly, there was impressive improvements in billed revenue, water service coverage and percentage of metered accounts. These improvements were the results of innovative measures like management change programs (stretch program) and performance contracts with various operation and service delivery channels.[4]

2.2.5 National Water Supply and Sanitation Company, ONEA, Burkina Faso

The National Water Supply and Sanitation Company in Burkina Faso is a limited liability company under the ownership of the government. Nationalization of utility in 1977 handed over the ownership of the utility to the government. In 1985 it became a national umbrella organization of other municipal water utilities. ONEA was given legal autonomy and got transformed into a state company in 1995. The management of the utility is controlled by government and Board of Directors. Nine members of the board are appointed according to their competencies by the Council of Ministers. The appointment of General Manager is done by the government and has a legal mandate from the Board of Directors. Reforms in urban water sector and increased participation of private sector have transformed ONEA as a well performing utility. [5]

2.2.6 Public Utilities Board, Singapore

The Public Utilities Board (PUB) which operates under the Ministry of Environment is responsible for Singapore's integrated water supply. The board was established as a statutory body under the Public Utilities Act 2001. Minister for Environment selects a Board of Directors comprising of minimum of 5 and maximum of 10 members. Chief Executive Officer is executive head reporting to board. The outstanding performance of PUB makes it one of the best-run utilities of East Asia and the World. The board involves private sector in the provision of water services. With the recent liberalization of water supply, PUB operates as a single wholesale buyer of desalinated water from private desalination plants. [6]

2.2.7 Water Supply and Sanitation Company (SANASA), Campinas, Brazi

"Sociedade de Abastecimento de Agua e Saneamento" (SANASA) is a water supply and sewerage company responsible for distribution of potable water and collection and treatment of sewerage of Campinas City is owned by the government of Brazil. Municipality of Campina is a major shareholder in this joint stock company. Being a joint stock company, SANASA also has an Inspection Council along with the Administrative Council. There are minimum three to maximum of five members who are electedby the shareholders. The team of these members form the Administrative Council. Members are elected on professional experience and political affiliations. Four members executive team appointed every year by the Administrative Council performs day to day management of the utility. Inspection Council which is a consultative body does not possess a decision making authority while Administrative Council sets the direction, approved annual plan and supervises the executive team. Every year during the General Assembly, Inspection Council report their views. [7]

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3 *Aldo Baietti et. al., World Bank, 2006 p55-60*

4 *Aldo Baietti et. al., World Bank, 2006 p61-66*

5 *Aldo Baietti et. al., World Bank, 2006 p96-101*

6 *Aldo Baietti et. al., World Bank, 2006 p67-72*

7 *Aldo Baietti et. al., World Bank, 2006 p78-83*

2.2.8 Scottish Water, Scotland

Scottish Water (SW) was created in 2002 by merging three water authorities operating in Scotland. Although SW is a government owned company it enjoys the autonomy and is answerable to Scottish Parliament (through Scottish Executive). 12-member board including 5 executive and 7 non-executive directors is responsible water and waste water services to approximately 5 million customers in Scotland. Among the executive directors, chief executive is appointed directly by the Scottish Executive and other executive directors are appointed by chairman and the chief executive. The nonexecutives including chairman are appointed by Scottish Executive on the basis of experience and expertise. The utility is structured as managed as private company and operates for full cost recovery. Water Industry Commissioner for Scotland and other independent government bodies regulates the utility. Local Council collects the water and sewerage service charge on behalf of Scottish Water by incorporating these charges as fixed charge into the local council tax bill. [8]

2.2.9 Metropolitan Waterworks Authority, Bangkok, Thailand

The Metropolitan Waterworks Authority (MWA) is responsible for providing treated water supply in Bangkok and two adjacent provinces of Nonthaburi and Samut Prakan. MWA was established through a Metropolitan Waterworks Authority Act in 1967. It is divided into 15 service zones, each handled by separate branch offices which are responsible for handling day-to day operations.

Despite being a state enterprise, MWA enjoys autonomy in operation and management. The Board of Directors are appointed by the Cabinet of Minister and are granted full authority in decision making while managing the enterprise (MWA, 2000). The Authority is regulated by Ministry of Interior (MOI) in terms of budget and investments. The performance is monitored by Ministry of Finance through State Enterprise Performance Appraisal process. [9]

2.2.10 National Water Services Commission, Malaysia

Operation and maintenance of water supply systems are the responsibility of state government in Malaysia. Structural reforms of 1990s changed the entire water service industry. Some were converted to corporations, some fully privatized while dual system of public control was adopted by some states. The National Water Services Commission (SPAN) was established in 2007 through the SPAN Act of 2006. It functions as a regulatory body for various issues in water supply sector. It issues three-year renewal license to operators and contractor to regulate them. Issuance of these license to private companies are subject to the three-year rolling plan and 30-year business plan. [10]

2.2.11 Departamento Municipal de Água e Esgotos, Porto Alegre, Brazil

Poro Alegre is located in the southern part of Brazil. It is a capital and largest city of state of Rio Grande do Sul. Water supply and sewerage is a responsibility of "Departamento Municipal de Água e Esgotos" (DMAE). It is a municipal department responsible for overall operation and maintenance of water supply, sewage collection and treatment.

The DAME is structured into three management bodies namely General Administration, Deliberative Council and Technical Management Council. General Administration of DMAE is headed by Director General, who is appointed by mayor of the city and party. Deliberative Council is a non-political body created for participation of citizens through various organization working in the field of water and sanitation. The Technical Management Council's provide advices and technical information to Deliberative Council. Being an autonomous department DMAE enjoys financial sustainability and have freedom on decision making on various investments. Audit plays a separate de-facto management function.[11]

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[8] *Aldo Baietti et. al., World Bank, 2006 p90-95*

[9] *Mukand Singh Babel and Aldrin A Rivas, Lee Kuan Yew School of Public Policy & ADB, 2012, p11*

[10] *Singaravelloo Kuppusamy and Siew Hooi Tan, Lee Kuan Yew School of Public Policy & ADB, 2012 p127*

[11] *Odete Maria Viero et. al., WaterAid and Tearfund, 2013.*

2.2.12 Phnom Penh Water Supply Authority (PPWSA), Cambodia

Phnom Penh Water Supply Authority (PPWSA) serves 1.3 million population of the capital city of Cambodia. It operates under the commercial law and is owned by the Government. Until 1996, PPWSA was under Municipality and its governor but after the issuance of Socio-economic Development Plan (1996-2000) it was brought under the supervision of Government Ministries.

The General Director is the executive head of the authority who is appointed by the Prime Minister upon the recommendation from the custodian ministries. S/He is appointed for three-year period and can be re-appointed additional terms. S/He is responsible for submitting the annual plan to the Board of Directors. Reform process initiated in 1993 changed the organizational structure. Five-line department reports to the Assistant General Director (AGD) while General Director handles the Inspection Department. Training Department is a separate department within the line of departments. The organization chart has both horizontal and vertical structures. In PPWSA, each department have authority for their own planning and accountability. Each department must produce their own annual plan which in turn in is guided and formulated by the Planning Performance of above mentioned organizations.

The performance of above mentioned organizations in terms of UNW, working ratio and human resource per 1000 connections presented in subsequent table presents interesting pictures. These organizations are not only different in terms of institutional forms but also vary based on income status and its corresponding technological inter alia in the system. [12]

Table 1 : Performances of selected Water Utility Organizations

Country (Population, Year)	Institutional Model	Country income	UNW	Working Ratio %	Human Resources per 1000 connections
AQUA, Poland (239,400, 2002)	Mixed	Middle	42	36	9.5
HPWSC, Vietnam (538,600,2002)	Statutory	Low	32	62	5.66
JNB Water, South Africa (3,489,025, 2003)	Government	Middle	35	53	4.7
NWSC, Uganda (1,315,000, 2003)	Statutory	Lower	39	79	11
ONEA, Burkina Faso	Government	Lower	17	66	8.15
PUB, Singapore (4.9 million, 2002)	Statutory	High	5	58	2.95
PWD, USA (1,672,000, 2002)	Ring-fenced department	High	32	67	4.4
SANASA, Brazil (982,977, 2002)	Mixed	Middle	26	79	4.13
Scottish Water, UK (4.863 million, 2002)	Government	High	42	52	1.9
SIMAPAG, Mexico (141,196, 2002)	Statutory	Middle	18	77	8
SONEDE, Tunisia	Statutory	Middle	20	98	NA
Metropolitan Waterworks Authority, Bangkok, Thailand	Statutory	Upper Middle	NA	NA	2.2 in 2008
National Water Services Commission, Malaysia	NA	Upper	30.2 % in 2008	NA	NA
DMAE, Porto Alegre, Brazil	NA	Middle	NA	NA	NA
Phnom Penh Water Supply Authority (PPWSA), Cambodia(2009)	Statutory	Low Income	Less than 6%	38.41	3.2

(Source: World Bank, 2006)

[12] *Binayak Das et. al., IUCN, 2010*

The working ratios of these organizations are not consistent indicating no relation with level of income and level of technology. On the basis of level of income, it signals that there is a positive relationship between level of income and number of staff per 1000 connections, however in the case of PPWSA, the case does not seem fit. This shows that apart from the income level the reforms made in the system could help to improve the performance of the organization.

2.3 Management Practices

An attempt has been made in the following section to explicit various management and organizational arrangements to improve the performance of utility sector followed by utility organizations.

2.3.1 Accountability and Autonomy

An internal accountability which looks at how management and staffs are held accountable for effectiveness (the degree to which the utility realizes its goals) and efficiency (the cost effectiveness of resources used to produce its water services) accompanied with autonomy is considered as a key ingredient for improving performance in the utility sector.

The internal accountability in a utility includes responsiveness of the Chief Executive to the Board; whether performance targets are well defined and provide incentives, sanctions, or both; whether staff are subject to annual performance evaluations; whether they are also subject to incentives for achieving performance targets; and whether staff are trained to perform well.

2.3.2 Management Reporting Mechanism

Senior management systematically reports to their boards on performance. The frequency of reporting is important, but it is more important to have well-defined objectives, targets, and measurable indicators. Most of the organizations mentioned above have been found that they report to concerned authority every month. Such information is contained in business plans and institutionalized in the management reporting systems, based on good accounting and meaningful information.

2.3.3 Incentive-based System

Most utilities listed above utilize incentive-based systems to reward good performance. In most of the cases, the incentives are only on the positive side, whereas penalties can also be applied to top level management.

Staff members are also subject to rewards and penalties to achieve well-defined performance targets. The annual performance reviews of staff have to be institutionalized—they need to become part of the management and staff performance efficiency assessment system.

2.3.4 Training

There is a need to focus on training for improving skills of staffs. In most utilities, staff skills are regarded as a critical input to improve staff performance. There are many utilities who allocate handsome percentage of operating expenses on training activities for their staffs. Other instruments to improve staff efficiency could include the implementation of external certification to the adherence of International Standardization Organization (ISO) 9001 standards relating to key business processes within the water utility.

2.3.5 Market Orientation

At various levels, utility has to look for opportunities to minimize costs through outsourcing certain functions, gradually making greater use of market forces and the introduction of market-driven incentives within their organizations. In doing so, water utilities have to define the core functions and activities that they prefer to perform by themselves, which is in line with the rationale for the organization of modern market-sensitive corporations.

2.3.6 Outsourcing

Utilities outsource mostly non-core functions and retain the core ones. Outsourcing of non-core functions and activities depends mostly on national procurement rules. Functions which could be outsourced include information technology services, information and telecommunication technology services, engineering designs, and engineering project implementation. The criteria for outsourcing include (a) the highly specialized services which are not under the scope of skills of the professional staffs, (b) non-recurrent nature of the services that could be learnt, but the cost would be too high, as in the case of tariff studies, development of operational manuals etc. (c) specialized maintenance of buildings and equipment; and (d) services related to problematic areas like reading meters, billing and collection, which in some cases can be performed better by private contractors.

2.3.7 Customer Orientation

To what extent do public utilities "listen" to clients, work to better meet their needs, solicit their views regarding standards and level of service, or answer promptly to their complaints? Important measures of customer orientation include friendliness of the customer billing and collection system, orientation toward seeking customers' opinions and views, availability of options for service delivery, timely information to customers on development in relation to water services, and quick response to their complaints.

2.3.8 Billing and Collection Systems

Public water utilities have to develop billing and collection systems that best overcome specific constraints faced by various groups of customers. Public utilities need to offer multiple options for their customers to pay their bills. To a great extent, it is related to the ability of the water utility to use various services provided by commercial banks like electronic and mobile banking. The use of traditional door-to-door collection system can also be another option. I this case collectors could be paid in proportion to collected bill.

2.3.9 Customer Satisfaction Survey

Most of public utilities considered above have been found using customer survey to learn their opinions and views. Many utilities use specially designed customer surveys or point of service surveys to know the opinions and views toward the services. Anonymous opinion polls could also be used occasionally to find out customers satisfaction. Some of them have been using focus group studies, in addition to surveys, to better understand their customers.

2.3.10 Information to Customers

Customers need to be informed about service change or interruptions. Different Communication channels can be used dissiminate the information. Newspapers advertisements are the traditional way of informing customers. As internet have become easily accessible, emails and sms can become the most effective way for communicating with the customers. TV and radio announcements have equal potential as newspapers. Various utilities send flyers or individualized notices to their customers or other communication written on their customers' bills.

2.3.11 Grievance Redress Mechanism

Utilities have to develop effective complaint hadling mechanism. It has to pay attention on how complaints filed by customers are resolved. Utilities have to consider the complaints concerning quality standards. The response time should be pre-specified. Utilities have to set up a customer service department to address complaints and grievances from their customers.

2.3.12 Corporate Culture

Good corporate culture of public water utilities are shaped by the chief executive and top management. This involves moral, social, and behavioral norms that inspire staff and managers to excel. Corporate culture is established through clear mission statements and performance objectives for service quality and coverage. It shapes the beliefs, core values, attitudes, and ability of the staff to set priorities to

achieve their mission objectives.

2.3.13 Mission Statement

Well-defined mission statements provide an internal indicator of good corporate culture. Managers in most public water utilities accept the notion of corporate culture and acknowledge that mission statements guide how employees think, act, and feel regarding their mission. There is a need of well-developed mission statements.

2.3.14 Performance Reviews

In order to develop professional behavior, it is necessary to improve the efficiency. Water utilities have to develop institutionalized performance reviews as the basic criteria for salary determination and promotion. Such systems provide senior management an ability to reward the specific contributions of staffs to the stated goals on objectives. Salary and promotions if based on seniority may not justify to improve the efficiency. Incentives for workers help to stay with the company. Formal certification and education credentials, although important, are less significant determinants of salary and promotions.

2.3.15 Career Opportunities

Utilities should provide ample career opportunities to their staffs and experience low turnover. Water utilities should be careful about staff turnover as a process of retirements of personnel.

2.3.16 Information to Staffs

Staff members are to be informed of management decisions on a need to know basis. Management has to communicate information to various head of departments mostly on a need to know basis.

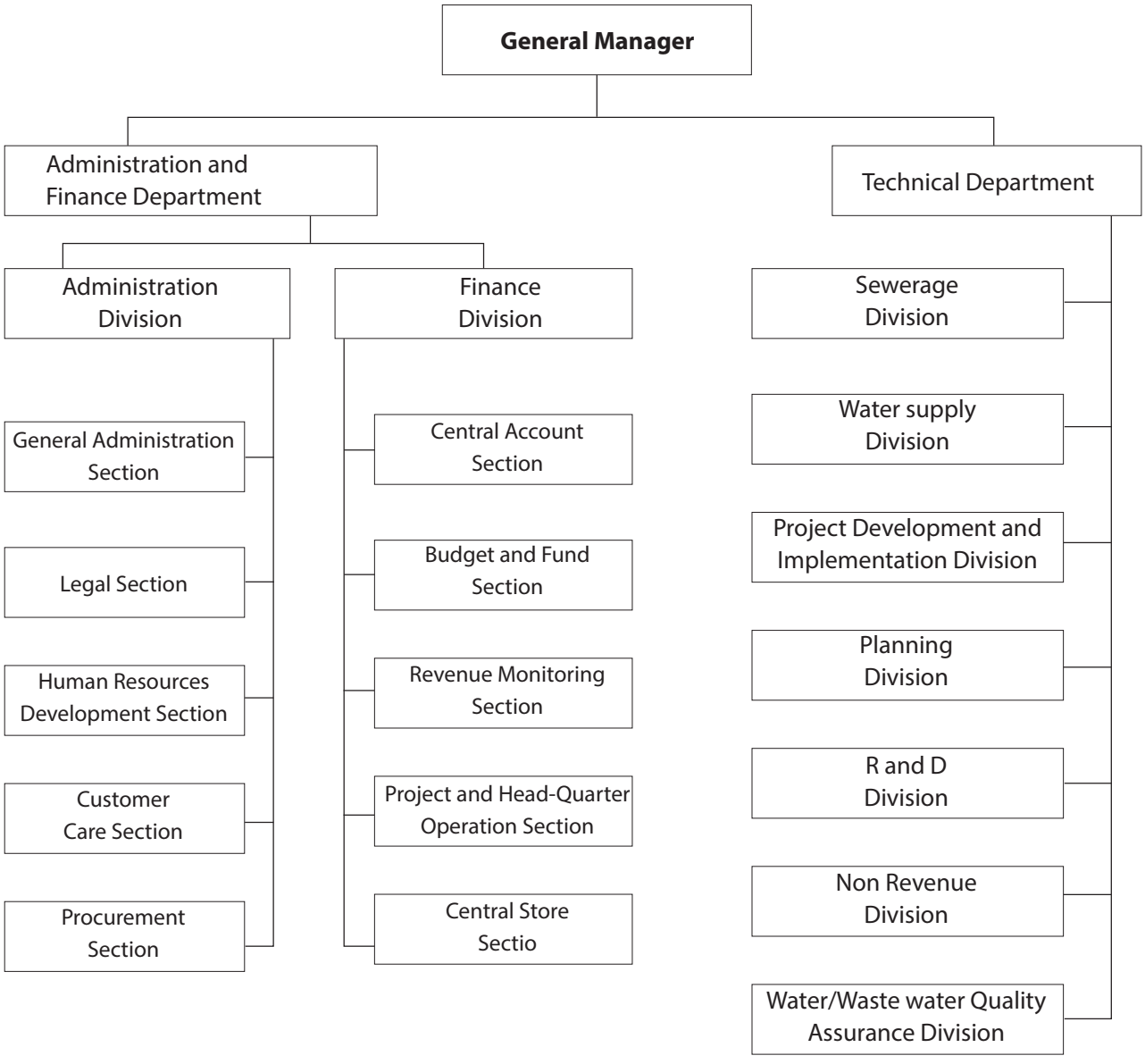
3. ORGANIZATIONAL ANALYSIS OF KUKL

This unit highlights the major organizational loopholes responsible for creating problems for KUKL's smooth operation. Organization's functions become redundant because of uneven distribution of works, conflict of interests, lack of number and quality of human resources, absence of future strategies, ambiguity of responsibility, lack of efficiency improvements, etc. This unit also makes an effort to analyze the critical jobs within KUKL for prioritizing it to be performed as a guideline for framing appropriate organization structure.

3.1 Current Organization Scenario

The current organization structure exhibiting departments and divisions is shown below:

Current Organization Scenario



3.1.1 Conflict of Interest in Present Organization Structure

The present organization structure is headed by General Manager has two major departments focusing upon Administration and Finance in one part and Technical in another. This resembles a conventional organizational structure mostly suitable in initial phase. KUKL being a technical organization responsible for delivering utility services need to be supported by various aspects of technical dimensions. Similarly, it has to be fully equipped with adequate technical human resources.

The present technical department of KUKL is fully loaded having 7 divisions under its purview. Some of these divisions have to function independently and have to play the role of check and balance such as production, supply and quality assurance. Similarly, for the case of drinking water and sanitation which are totally independent functions has to undertake differently.

In the case of administration and finance, these functions are to act as check and balance for each other. Having two divisions in same department could create conflict of interest within organization. These two divisions need to be separated.

3.1.2 Vacancy

Out of the approved number of human resources (1205), 802 permanent staffs are working at present (Annual Report 2072). The unfulfilled human resources are mostly filled by contracts and/or daily wages. This could create a problem for future continuation of their services. With respect to non-officer level, the number of technical human resources are comparatively less than administrative. Generally technical service industry needs relatively more number of technical human resources than administrative and accounting personnel.

3.1.3 Retirement Trend

The personnel retiring within coming 5 years shows that officers (technical above 6 level) are 26 and officers (administrative above 6 level) are 30. There will be a gap of experienced and skilled human resources. This will certainly hamper the overall performance of KUKL. This scenario is more serious in the case of higher technical officers. Vacancies of senior staff and most of the positions create threat to the organization of becoming non-functional. Injecting new incumbent with intensive training for taking over the responsibility and learning from the seniors is a must. Equipping appropriate number of qualified human resources could have a significant meaning in improving the overall organizational performance in terms of returns, customer satisfaction, reduction of wastage, etc.

Table 2 : KUKL Retirement Trend

Level	2073		2074		2075		2076		2077		Total	
	Tech	Adm	Tech	Adm	Tech	Adm	Tech	Adm	Tech	Adm		
11	1	-	-	-	-	-	-	-	-	-	1	-
10	-	-	1	-	-	-	-	-	-	-	1	-
9	1	-	2	-	1	1	-	-	1	1	4	2
8	-	1	-	-	2	1	1	1	3	1	6	3
7	1	1	-	3	1	1	1	1	1	1	4	7
6	2	1	1	1	4	4	3	9	-	3	10	18
5	3	2	3	5	3	11	4	8	-	6	13	32
4	-	2	4	1	4	1	3	4	3	5	14	13
3	1	-	3	4	10	-	8	1	6	1	16	13
2	-	-	-	-	-	-	-	-	-	-	-	-
1	3	7	3	5	4	9	6	7	-	6	16	34
	12	14	17	19	29	28	26	31	14	24		
Total	**26**		**36**		**38**		**56**		**57**			

(Source: KUKL)

3.1.4 No Succession Plan

Absence of succession plan is creating doldrums for way forward.

3.1.5 Non-Introduction of Performance Management

KUKL has adopted universal system and mechanism without making any differences between well-performer and non-performer. This ultimately de-motivates the performer. Performance evaluation and management practice seems urgent as most of the successful organizations have demonstrated its positive results.

3.1.6 Lack of Job Description

Most of the employees are doing other jobs than what they have been recruited for. This practice may help to do job in amateur or ad-hoc basis but could not continue this practice for longer time. This may ultimately erode the professional aptitude.

3.1.7 Need for Strategic Plan

There is an acute need of strategic plan for KUKL for its future course of action. In the absence of strategic plan its activities will be limited in problem solving without knowing its future destination.

3.1.8 Uncertainty about its Work

KUKL is uncertain on its working areas after the completion of Melamchi project. Similarly, responsibility on operation of new sewarage system constructed by PID is still unclear. Such uncertainties has created confusion among employees about their career.

Likewise, employees are not sure about the arrangements made for them after retirement (especially who are/were transferred from the previous Nepal Water Supply Corporation).

3.1.9 Service Deterioration and Efficiency Dropping

The number of water connection is increasing at the annual rate of around 2.5%. The demand of water is also increasing correspondingly, whereas the production is normally constant. Water supply has decreased from average 6 to 18 hours per month to 4 to 12 hours per month. It is paradox that the efficiency in terms of 1000 connection has improved from 6.78 to 5.51 however the volume of supply and number of hours per month is decreasing. (Annex 1)

3.1.10 Accountability Centers

Due to lack of accountability centers, the internal accountability system of KUKL making management and staff accountable for effectiveness and efficiency is lacking.

3.1.11 Management Reporting Mechanism

There is a need of proper reporting mechanism within KUKL for its smooth operation.

3.1.12 Training

Training of staff is not being paid proper attention in KUKL. Skilled staffs are regarded as a critical input to improve staff performance in every organization.

3.1.13 Market Orientation

KUKL has paid attention to look for opportunities at lower costs through outsourcing some its functions. Furthermore, it has to make greater use of market forces and the introduction of market-driver incentives within their organizations.

3.1.14 Customer Orientation

KUKL has to "listen" to its customers, work to meet their needs, solicit their views regarding standards and level of service and quick response to their complaints. A separate section needs to address grievances.

3.1.15 Information to Customers

KUKL should inform its customers about service changes or interruptions. It has to use several communcation means to make their customers aware of service changes or interruption.

3.2 Critical Role Analysis

As a part of organization structure there exist a role to perform functions that ultimately contributes to the provision of organization's products or services. Not all roles are of equal value, so it follows that the people are also not of equal value in terms of their contribution to organizational outcomes.

Core activities are the essential for defining activities of an organization. If the organization outsources those activities, it would be creating a competitor or dissolving itself.

If critical but non-core activities are not performed exceptionally well it will place an organization at a competitive disadvantage. There are many examples of companies' failing to manage their logistics adequately leading to product shortages and loss of market shares. Logistics are critical but non-core activity for a producer, but it is a core activity for a transportation company.

Non-core, non-critical activities supply does not provide competitive advantage. Although they are important but if performed poorly, they are less likely to harm an organization in the short term. Examples include cleaning, catering and security etc.

Critical role is based on analyzing roles according to two dimensions of skills: 1) skill values and (2) skill uniqueness. Critical roles are defined as having skills value (i.e. impact on business outcomes) and higher skills uniqueness.

Valuable skills may minimize costs, increase revenue, contribute to innovation, or enhance internal efficiency of the organization. It may comprise of various key value drivers. Unique skills are organization specific and hard to replace. These skills need to be nurtured over time, given that they are not developed and acquired overnight.

Various roles within an organization can be analyzed and classified according to four possible employment roles.

Critical – high skills value and high skills uniqueness
Professionals, Skilled or Semi-skilled - High skills vale and low skills uniqueness
Doers - Low skills value and low skills uniqueness
Specialist - Low skills value and high skills uniqueness

3.3 Service Level Indicators of Urban Water and Sanitation Organization

3.3.1 Water Supply

- Coverage of Water Supply Connections,
- Per Capita Supply of Water,
- Continuity of Water Supply,
- Quality of Water Supplied,
- Efficiency in Redressal of Customer Complaints,
- Extent of Metering of Water Connections,
- Extent of Non – Revenue Water,
- Cost-Recovery in Water Supply Services,
- Efficiency in Collection of Water Supply Related Charges,

3.3.2 Sewerage

- Coverage of Toilets,
- Coverage of Sewage Network Services,
- Collection Efficiency of Sewage Network,
- Adequacy of Sewage Treatment Capacity,
- Quality of Sewage Treatment,
- Extent of Reuse and Recycling of Sewage,
- Extent of Cost Recovery in Sewage Management,

All organization activities/functions are to be oriented to satisfy these indicators. All roles in these functions within organization do not contribute equally in achieving these indicators so as the skills and competence requirements are also different. These indicators help to identify which one is critical function/activity/role for the organization. This study focuses only upon the critical function/role of KUKL.

Following table presents the KUKL's broad functions are being categorized critical ones.

Table 3 : Critical Functions of KUKL

Functions	Nature of function
General Administration	Professional
Human Resource Management	Critical
Finance	Professional
Legal	Professional
Customer Relation	Critical
Sewerage	Critical
Production	Critical
Water Supply	Critical
Project development	Professional/Specialist
Planning	Professional/Specialist
IT	Critical
Non-revenue	Critical
Water / Waste Water Quality Assurance	Critical

4. POST–MELAMCHI SCENARIO

It is expected that the first phase of Melamchi project will be completed by 2018. It will supply 170 million liters of water per day. According to present provision, this water will be distributed within ring road of Kathmandu and the water demand of outer ring road will be supplied through existing resources. Until second phase of Melamchi, only 85 MLD will be treated by the treatment plant and it will not be enough to fulfill the demands of the people living within ring road. Some additional arrangements shall be made for them.

Construction of new water treatment plant and replacement of distribution network are in process. Replacement of 60% existing distribution network is expected to be completed by first phase. There will be two parallel systems. One will be a traditional which is not driven by new technology while other will be equipped with improved technology. Water for consumers within Kathmandu valley will be supplied by two simulatneous systems. One system developed for supplying Melamchi water and the other is the existing one. The existing sources will not be fully consumed by outer circle of ring road and needs to supply it inside ring road when there will be shortage of water. The skills required for human resource will also be different.

Post-Melamchi situation will change the use of existing facilities mostly water treatment plants, tube wells and its WTPs. If the existing sources will be used for local consumers or will be used upstream of existing reservoirs, the current water treatment plants will become redundant. There are 26 water treatment plants, most are smaller size attached to individual tube wells. It is easily predicted that the water supply only from the first phase of Melamchi will not be able cope with the demand of customers within ring road and if the rest of the demand is to be fulfilled through existing ground water source then the treatment plants having technology to treat the ground water as Mahankal Treatment Plant may need to continue for some years.

The new distribution system is designed in such a way that the water will be supplied from one point i.e. through pipe from the new service reservoirs. This will affect the operation of existing tube wells and attached WTPs. However their efficient operation is still required.

After the completion of PID assignment which is expected to be completed in two phases one is in 2020 and another in 2024. Four new plants are expected to be completed within this time period. PID has made an agreement with contractor to operate the treatment plants up to 10 years in Guheshowri and 5 years for other 3 plants. If these plants are handed over to KUKL, it needs to have adequate human resources. One for monitoring of present plants and another for its operation.

The scenario after the completion of Melamchi is presented briefly in the following table. It attempts to portray expected changes in different dimensions of drinking water and sewerage system within Kathmandu valley. The change is all about the volume of water that is expected to meet the demand. With the operation of new system, the unaccounted-for water is expected to decrease from 35-40% to 15 % by the end of second Phase of Melamchi. This will also help to increase the business volume. The technology used in water and waste water will be transformed from manual to automatic, so as most of the managerial works will also depend on e-management.

Since the old system will still be in place for certain period, until then both systems will be in simulatenous operation. This will have affect in human resource composition and its numbers. Household connection is increasing at a rate of 2.5% per year and is assumed to continue. Based on this assumption, the number of connections will increase from around 200 thousand to 240 thousand by 2022. Required number of human resources is calculated on the basis of a general norm i.e. per thousand connections. The international experience (Table 1) shows that as intensity of use of improved technology increases, the number of human resources per thousand connection decreases. It shows that the countries using automatic technology the number of human resources per thousand

connections goes up to 2.2 (Table 1). At present, the number of human resources per thousand connections in Nepal is around 6 (Annex 1) and can be assumed that this trend will continue till 2018. In a liberal manner it is estimated to be 3 per thousand connections in the case of Nepal when it will adopt advanced technology by 2024. In an average of 4.5 human resources per thousand connections is estimated. The number of connections in these periods has been considered as a basis to estimate the number of human resources requirements.

Table 4 : Pre-and Post Melamchi Scenario

(Based on discussion with concerned authorities)

Particulars	At Present (2016)	After First phase of Melamchi (2018	After Second Phase (2024)
Increase in volume of water (MLD)	119 in average	119+170=289	289+340=629
Unaccounted for water	35-40% (KUKL estimates)		15%
Demand MLD	375		
Technology	Manual	SCADA within Ring road, Manual in Rest of others	All in SCADA
E-management	Some electronic base such as Accounts keeping	Most	All
MIS	Few	Most	All
Number of connections (Increased at the rate of 2.5%)	199416	210000	240000
Number of valves	1100 (around)	Inside Ring road- 700 Outside 400	SCADA but some manual work will be required
Expected human resources per 1000 connection	6	4.5	3
Projection of no. of staff requirement	1200	945	720

5. PROPOSED ORGANIZATION STRUCTURE

The proposed organization structure is based upon following assumptions.

5.1 Critical Job and Core Functions Principles

According to KUKL's Articles of Association, it has the objective to undertake and manage the water supply and sanitation system of the Kathmandu Valley which was previously operated by NWSC and to provide a quantitative, qualitative and reliable service to its customers at affordable price. Hence, activities concerning to regular supply of fair amount of quality water are core activities of KUKL. Based upon it, organization structure has been framed. Three major areas (1) Operation of water and wastewater (2) Planning and Support and (3) Administration and Finance have been identified for KUKL.

5.2 International Experiences

In most of the urban drinking water and sanitation organizations irrespective of their nature and institutional forms separate water and sanitation as their core functions. In some cases production and distribution are within same department and in some separates it. Commercial management is also considered a core function. Planning and technical functions are in the same department. Finance and administration are divided as two in most of the organizations. These evidence shows that there are no consistencies in organization structure based on functionality. These organizations gives the notion that design of organization structure depends on its operational environment. It is difficult to design organization structure only on the basis functions. Hence, this study proposes hybrid organization structure.

5.3 Application of Hybrid Model

A hybrid concept considering the service or product (water and sanitation) and functions (Engineering, Technical, Administration, Finance) has been applied in the proposed organization structure. It is because these services have distinct features and should have to be looked differently.

KUKL has three major areas (i) Operations (Water and Wastewater); (ii) Planning & Support; and (iii) Administration and Finance and on this basis the divisions of work and have been proposed. Production and distribution of water and wastewater management is under Operations Department. Planning and Support includes functions which provide technical backstopping and is watchdog of operation activities. Two departments namely (i) Electro-Mechanical and (ii) Planning and Research is suggested to look after the common elements of both water and sanitation sectors. Finance and Administration includes the administrative and financial support.

5.4 Possible Future Scope of Activities

Some of the activities might be added in the existing one after completion of Melamchi project. if the production function is handed over to KUKL operation of headwork, tunnel and treatment plants becomes the major function. It is also considered in the proposed organization structure.

5.5 Addressing Existing Organizational Issues

Those organizational issues as mentioned in Unit 3 such as conflict of interest, succession planning, etc. are also considered in the proposed organizational structure.

5.6 Adopting Contemporary Corporate Organization Nomenclature

Modern corporations are practicing different nomenclatures than what traditional organization used to follow. Traditional organization follows nomenclature on the basis of their assumed responsibilities. "Chief Executive Officer (CEO)" for executive head has replaced previously called term "General Manager". The CEO is the person who heads all functional departments of an organization. He/She is the chief decision maker for the organization and all departmental heads reports to him/her. Chief of concerned Department / Director / Deputy General Manager / Vice President are the departmental heads of functional units. "Head" may generally be assigned to a strategic unit (SU) such as Quality or Planning. Manager is mid / senior level professionals. They are in charge of handling sub-functional groups in a specific functional unit. They may have Assistant Managers reporting to them and are responsible for planning and executing organizational strategies in their scope.

5.7 Alternative Organization Structures

Being a service delivering organization, KUKL needs to have a stronghold in center as well as in field levels. Its organization structure should manifest the competencies in both levels. There are various basis for designing organizational structures. KUKL can have organizational structure based on functional, products, services, geographical areas and customers. All these bases have their own implications.

Undoubtedly, the head or central office is assumed to play major roles in policy formulation, resource allocation, monitoring and control of the activities of different units. More than this the modern knowledge-intensive situation demands new responsibility for managing KUKL. It also need to build capability in this direction. Field offices shall focus on activities like coordination, supervision, avoid redundancy of works, and economizing the costs. On the basis of their interdependencies, some of the branches are proposed to be merged. In the proposed organization structure the two branches Chhetrapati and Kamaladi have been recommended to be merged. This can be extended in larger scale such as 3-4 major large service delivery areas (Eastern, Northern, Western and Southern) could be established with the support from centers. This is not considered in the proposed organization structure.

5.8 Managerial Approach

The decision on 'transaction cost approach' in managing its activities has also implication upon designing organizational structure. It means dividing the activities in (i) supervision and monitoring; (ii) direct service delivery; (iii) collaboration with local bodies; and (iv)networking with other agencies. In the proposed structure, it is assumed that KUKL will mostly involve in direct service delivery and will outsource certain service area partially or fully.

5.9 Hierarchy in KUKL

In the proposed organization structure, department will be headed by GM (Level 11), Divisions will be led by level 10 and Branch / Section / Center will be led by level 8 or 9. Units will be led by level 7.

The details of organization structure are as follows (See detail organization structure of department and division in Annex 4).

5.10 Proposed Organization Chart

The following chart exhibits the pictorial view of the proposed organization structure. The straight line denotes direct and dotted line exhibits the potential relationships. KUKL is headed by Board or directors and operational activities of KUKL handled by CEO supported by three departments namely administration and finance, planning and support and operations department which are headed by Chief of respected department or DGMs. Each department is supported by divisions. Administration and finance department is composed of Finance division and administration and human resources division. Planning and support department is supported by support division and planning & monitoring division. Operation department is supported by water operation division and waste water operation division. Under operation department a dotted line expresses that production division is proposed on the condition if KUKL receives responsibility of handling the pre-distribution activities of Melamchi water or in these two scenarios two different organizations structure will appear as presented in the charts below.

Chart 1 : Existing Organization Structure of KUKL

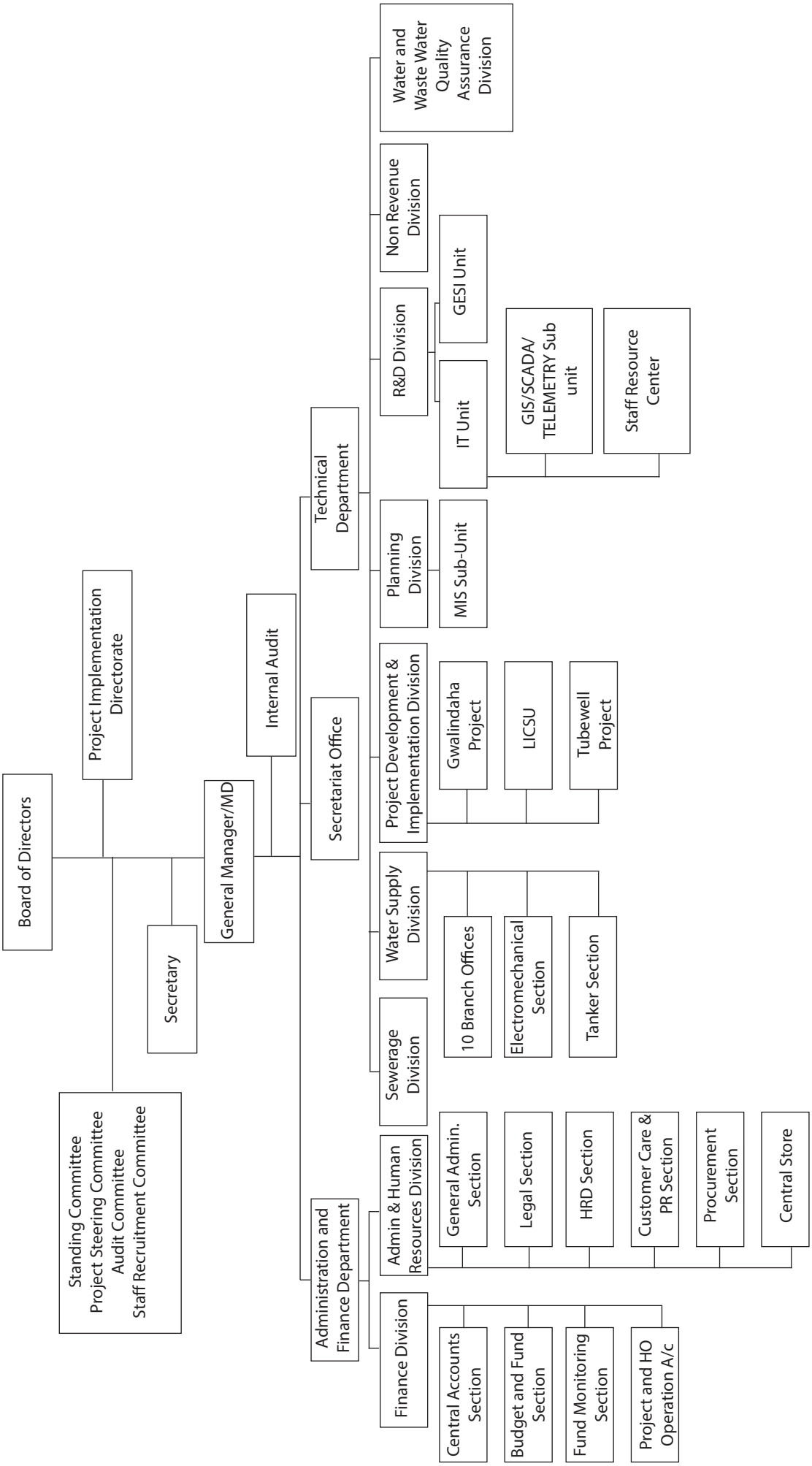


Chart 2 : Proposed Organization Structure of KUKL (Scenario 1)

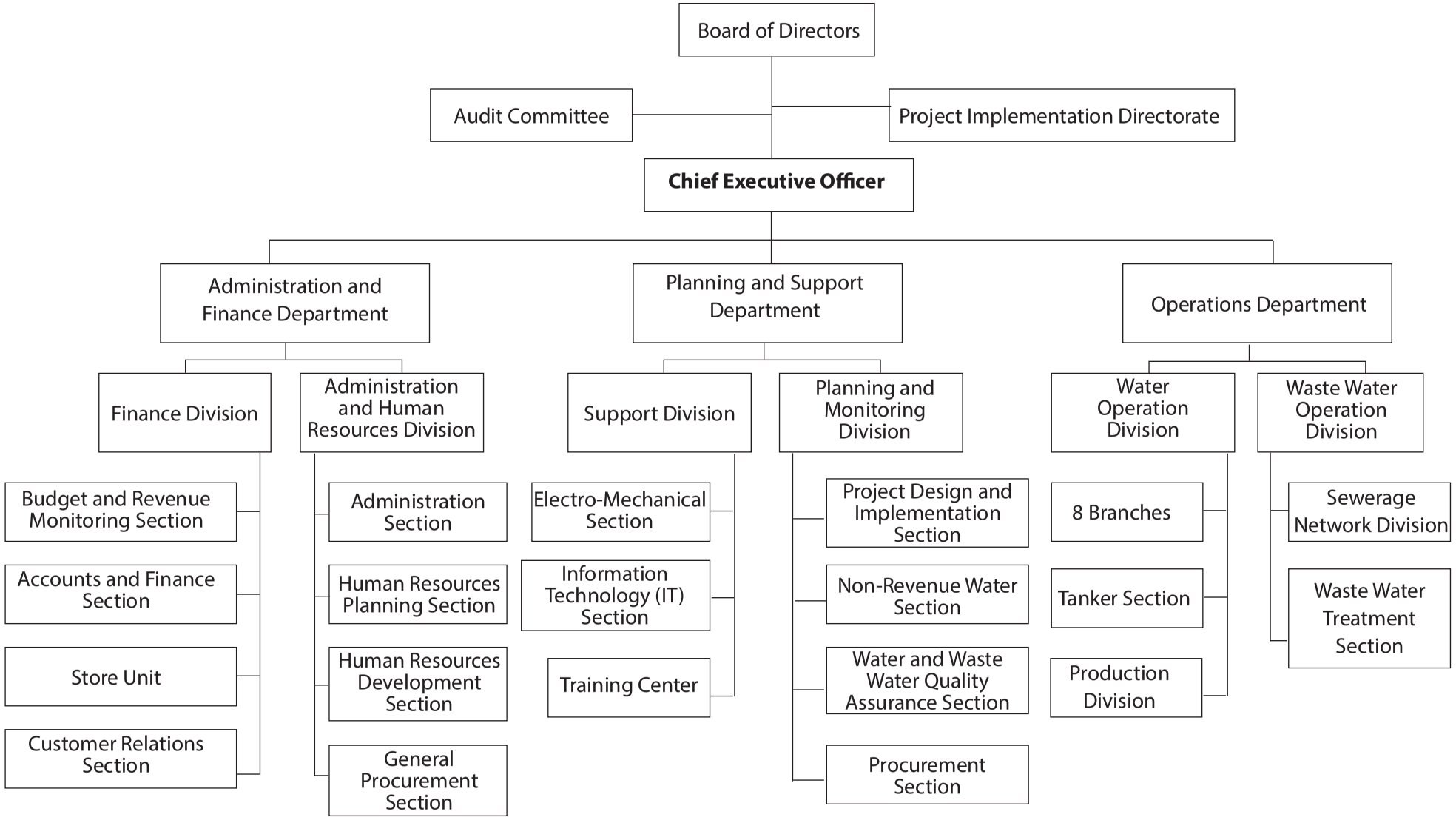


Chart 3 : Proposed Organization Structure of KUKL (Scenario 2)

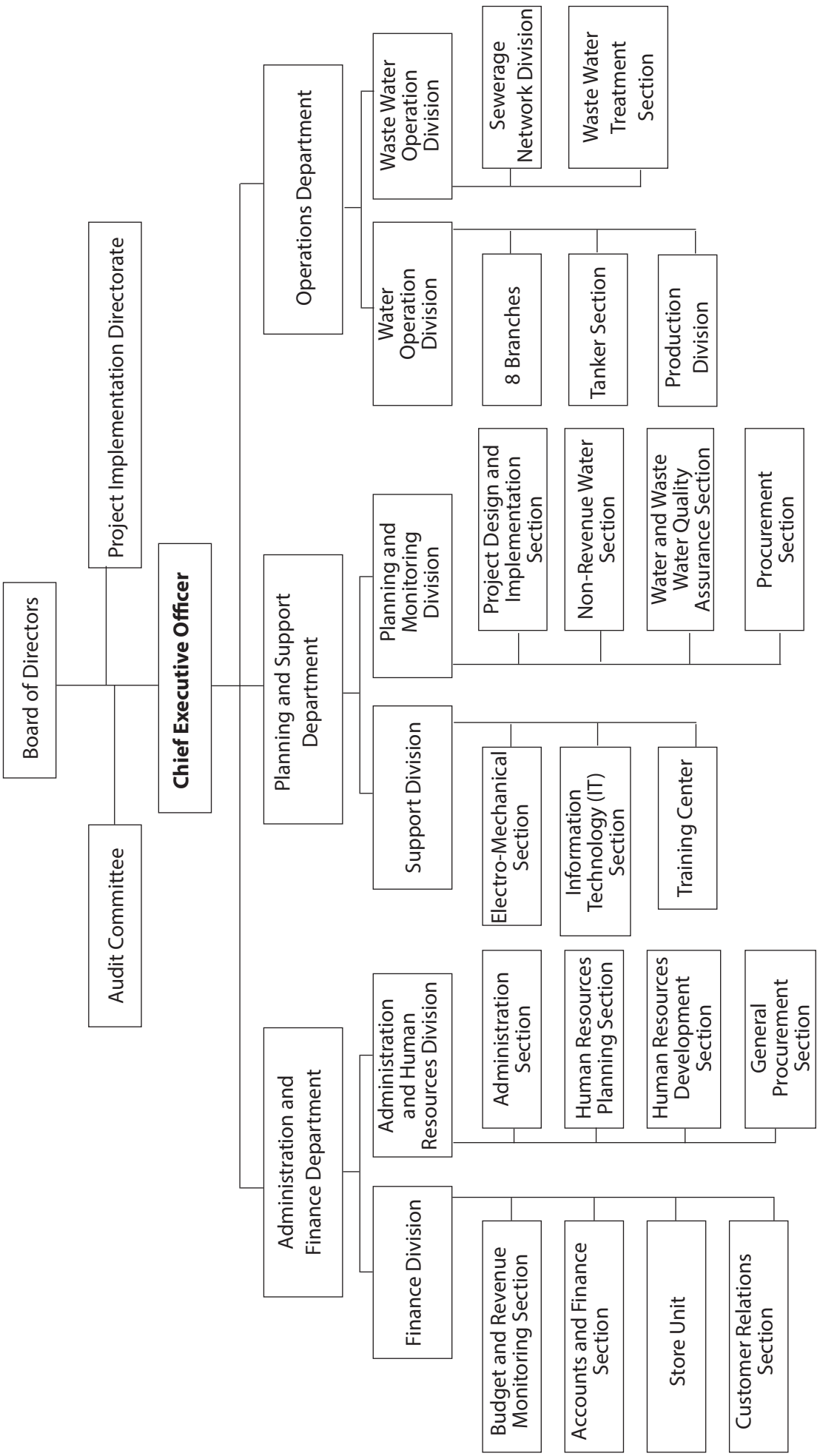


Chart 4 : Proposed Organization Structure of Operations Department

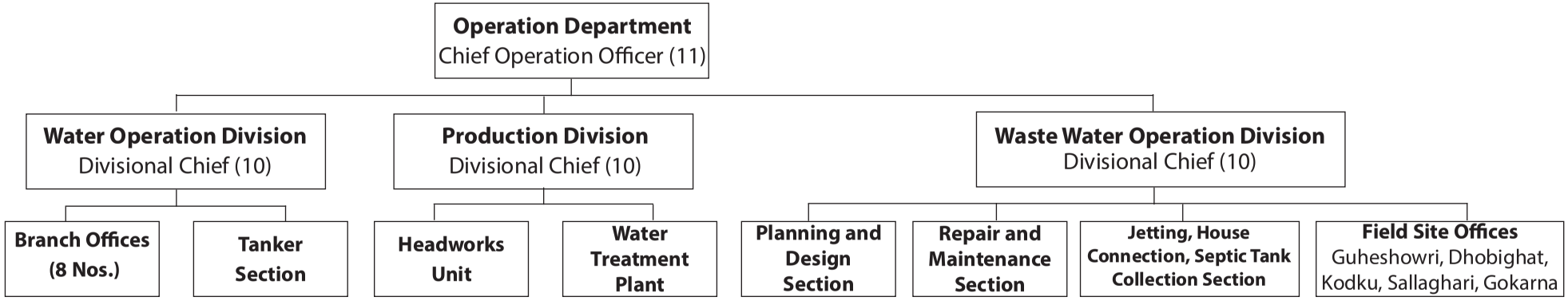


Chart 5 : Organization Structure of Planning and Support Department

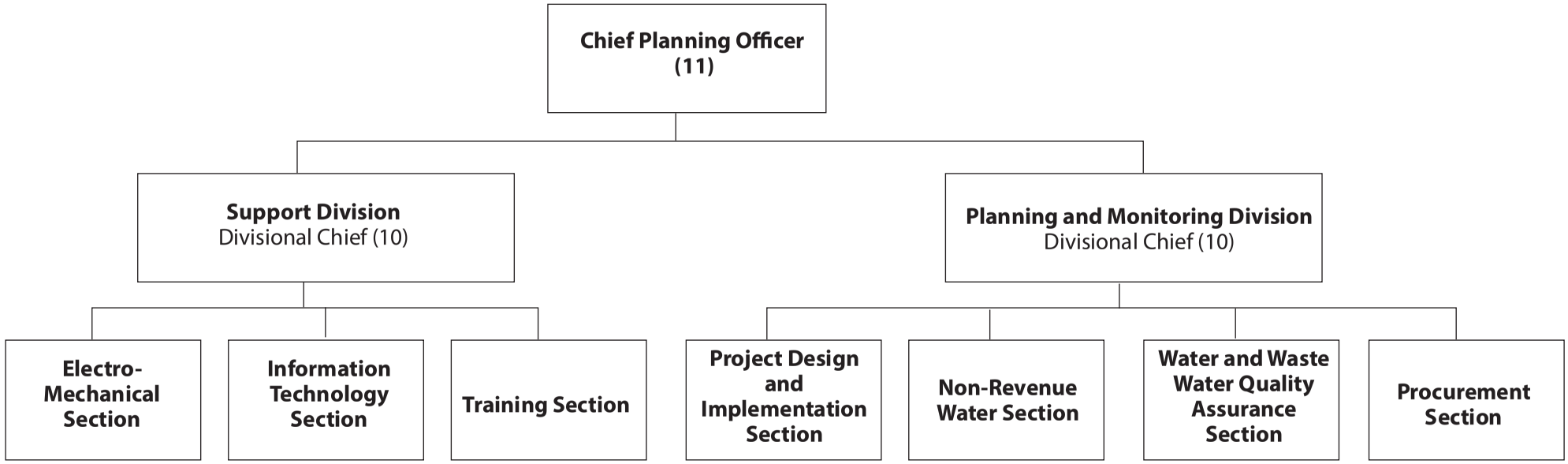
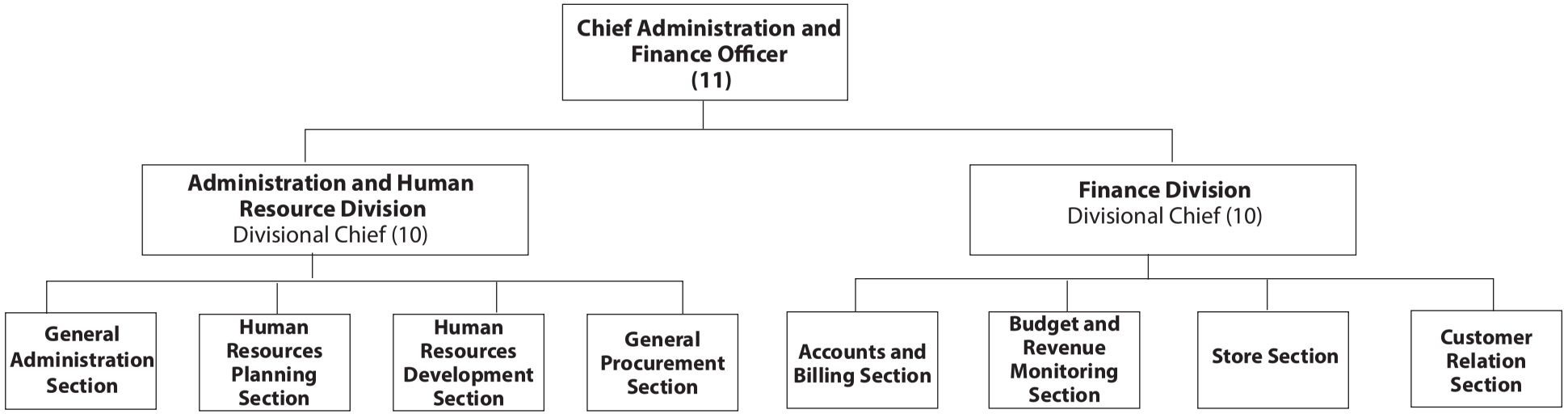


Chart 6 : Organization Structure of Administration and Finance Department



Roles and Responsibilities of Administration and Finance Department	Roles and Responsibilities of Operation Department	Roles and Responsibilities of Planning and Support Department
• General Administration and administrative matters • Human Resource Planning • Human resource development • Customer Relations • Keeping day to day transaction • General procurement and store • Cash flow management • Revenue projection and tracking • Preparing budget, annual financial statement	• Producing potable water from raw water • Distribution of water via networks • Providing distribution related services to customers • Management and treatment of waste water	• Responsible for all planning, procurement and projects • Extending electro-mechanical support to concerned department • Managing information management • Conducting technical training to employees • Managing activities related to non-revenue water • Assuring quality of water and waste water

6. HUMAN RESOURCES PROJECTION

Human resources projection identifies future human resources need of an organization to achieve its goals. It includes retention, absence management, flexibility, talent management strategy and succession planning.

Theoretically, there are four major methods for projecting human resources requirement for an organization. They are Need-based, utilization or demand-based, human resources to population ratios based, and the target-setting approach. In the need-based approach, the number and type of water and wastewater services to be delivered are estimated based on the water demand and wastewater volume. In the target-setting approach, the number and types of services are set by concerned authorities as specific targets. The utilization-based approach usually takes the current level of water and wastewater services utilization as appropriate to meet the needs and projects the future requirement. The common parameter found in the international experiences in the case of water and wastewater delivery organizations is the number of connections that are mostly resembled to need-based and utilization based approaches. This has been taken into consideration for projecting the human resources in KUKL.

6.1 Workload Analysis

Workload analysis is a systematic method to determine the time, effort and resources required to carry out the organization's operations. It aims to identify the organization's actual need of human resources both in terms of quality and quantity. It also develop capacity of human resources to achieve goals and strategies that an organization wants to achieve.

KUKL consists of various type of employees who are broadly categorized into four. This categorization is based on nature of jobs in which they are involved and the skills required for it. Human resources can also be classified on their skills ability as highly skilled, skilled, semi-skilled and unskilled. Unskilled labor, when measured by education, refers to jobs that require a high school diploma only, or could even be filled by a high school dropout. Skilled labor requires additional particular skills or education. Professionals fall under the category of highly skilled workers, along with the degree these workers also should have special competence and supervisory abilities. Skilled employees are those who have capablity of working independently and efficiently. Semi-skilled employee is one who has sufficient knowledge of the particular trade to do the simple job with the help of simple tools and machines. Un-skilled employees are those people who does not possess special training and whose work involves the performance of the simple duties which does not require independent judgment or past experience. Although familiarity with the occupational environment is necessary. peons, guards, watchmen, cleaners, sweepers, loaders, helpers, and gardners falls in unskilled category. Assistant operator, assistant electrician, gardener with technical skills, etc. falls under semi-skilled category

Tasks performed by organizational members can be categorized into: Structured, Semi-structured and Unstructured. A structured task is well defined and has clear and explicit goals. Such tasks can be accomplished by predefined procedures. An unstructured task is ill-defined, have ambiguous goals, vague procedures that can assure successful completion of the task. Workload analysis becomes linear when the task is structured and can apply it in universal manner. It becomes complex and unpredictable when tasks are unstructured. Similarly, KUKL's tasks can be categorized into structured, semi-structured and unstructured. Those tasks which have Standard Operating Procedures (SOP) are structured which workload analysis becomes easier.

The tasks performed mostly by semi-skilled category are mostly structured and workload of these groups can be estimated or assessed. For higher technical jobs, SOP can be prepared but it becomes difficult to calculate the workload.

6.2 Technology and Human Resources Projection

Human resources projection is mostly influenced by use of modern techniques and information technology. These technologies will replace the work done by humans. Activities which are currently functioning actively becomes redundant with its introduction and new activities with new skills are required. In the case of KUKL, electronic ledger maintenance, payment of bills, monitoring of water supply, etc. may affect the number of junior staffs involved in accountancy jobs.

6.3 Composition of Human Resources and Human Resource Projection

The composition of human resources differs according to organization. It also influences projection of the human resources. It is seen in some of the urban water and sanitation organizations that 30-35% are technical personnel related to water and sanitation, 30-35% are technical personnel not necessariy related to water and sanitation sector and remaining 30-35% are for finance and administration personnels. It is not considered in the present study.

6.4 Factors affecting for Human Resource Projection

Human resource requirements are affected by factors of new public management techniques like outsourcing, partnership with other institutions, approaches for assets management, crises managment, strategic plans and future expansion activities. These techniques are practiced widely in international sphere and have produced satisfactory results. Adoption of corporate culture is recommended for KUKL in order to improve its efficiency.

KUKL can adopt these approaches fully or partially as an entry point in these activities as mentioned below:

Table 5 : Alternative Ways of Activities.

Alternatives	Activities	Impact upon Human Resource Requirement
Outsourcing	Meter reading, Repair and Maintenance, Construction, and Information technology	Less number of Human resources in organization (Variable costs will vary; long term liabilities will reduce)
Partnership with Banks	Bills collection	(Easy to monitor)
Partnership with local bodies	NRW, Line men	(Easy to monitor)
Introduction of Computer and IT	Accounting	(Variable costs will vary; long term liabilities will reduce)
Supervision, Monitoring, Scheduling	Management of redundant but strategic assets for crisis such as well, water treatment plant, reservoirs	reduce number of human resources (Variable costs will reduce

6.5 Basis for Human Resources Projection for KUKL

KUKL's activities are divided into two fronts: (i) Backstopping activities carried out in Head Office and supportive services and (ii) Frontline officers responsible for delivering the services to citizens. Activities in head office consists of formulating policies, rules and regulations, framing strategic direction, providing guidelines and direction to frontline offices, coordinating and linking with different stakeholders and agencies, monitoring the activities and other supportive activities. Supportive services provide supports for flawless delivery of standard of services. Backstopping and supportive services are mostly run by professionals, and specialized groups. Human resource requirements are estimated on this basis.

The front-line offices have to deal directly with customers hence the proposed human resource requirement in these offices are estimated based on clientele-focus assuming that delivery of services are their prime responsibility. In KUKL the number of connections, has been considered for estimating the number of human resource requirements. However there are several other factors affecting the operation of front line offices. The number of connections reported in Annual Report of 2072 B.S. has been taken into consideration for dividing the offices. The front-line offices have been divided into: Large, Medium and Moderate on the basis of number of connections. Large offices denote for those offices which has more than 40,000 connections; Medium office include those which have more than 20,000 and less than 40,000 connections and Moderate offices are those which deal with less than 20,000 connections.

Table 6 : Categories of Branch Offices

Types	Branches
A	Maharajgunj [45894] (Merging Chettrapati Branch) Lalitpur [40711]
B	Mahankalchaur [32119] Baneshwor [32403] (Merging Kamaladi Branch) Tripureshwor [20927]
C	Thimi [8487] Bhaktapur [10792] Kirtipur [8128]

The number and type of staffs in existing branches are shown in Annex 3. It is assumed that the nature of work would be similar in these front tine offices, however the magnitude of problem and complexity do increases as per the number of customers, hence more number of officers are being placed in large offices. For clerical works, such as collection, account keeping and record keeping and maintenance, it is assumed that the use of computer which has already been started and will improve in coming days. The number of human resources requirement will be reduced significantly. With respect to field level direct service delivery position or point, an estimated time for serving a customer has been taken into consideration.

6.5.1 Direct Customer Service Delivery Work Load Analysis

The most direct customer service delivery points are meter readers. Instead of reading the meter monthly, KUKL can introduce intermitent meter reading based on customer classification. One there will be regularity in water supply, work load of valve operators will be significantly reduced .

Similarly, while determining the number of valve operators, it is assumed that one valve operator can manage 6 valves on an average day. On this assumption 180 valve operators are needed to operate 1100 valves within Kathmandu Valley. It means the number of valve operators will not exceed 180. In case of span of control of Senior Meter Reader and Junior Meter 1:6 have been proposed.

6.5.2 Meter Reader

It can roughly be estimated that a meter reader usually spends 5 minutes on an average in meter reading activity per connection. In flexible way, it can be estimated that there are 24 working days in a month and 6.30 hours (390 minutes) per day, the total time available in a month will be 7680 minutes which can be said appropriate for 2500 clients. It can be estimated that there is a need 80 meter readers in the present context (it is around 200,000 connections as per Annual Report 2072 (2015/16).

Table 7 : Projection of Meter Readers

Branch Offices	Number of connections	Number of Meter Reader
Maharajgunj	45849	18
Mahankal Chour	32119	13
Lalitpur	40711	16
Baneshwor	32403	13
Tripureshwor	20927	8
Thimi	8487	3
Kirtipur	8128	3
Bhaktapur	10792	4
Total		**78**

6.5.3 Provision of Water Treatment Engineers and Assistant Plant Operator

Water Treatment Engineers are being placed to those Branch Offices where there are Large WTP.

Provision of Assistant Plant Operator is proposed for those offices where there are small water treatment plants.

Table 8 : Projection of Plant Operator and Assistant Plant Operator

Branch Offices	Small WTP	Large WTP
Maharajgunj	3+1 Chettrapati)	1
Mahankal Chour	2	2
Lalitpur	3	1
Baneshwor	2	1
Tripureshwor	5	
Thimi	1	1
Bhaktapur	1	1
Total	**18**	**7**

6.5.4 Provision of Pump Operator and Assistant Pump Operator

The number of Pump Operator has been calculated on the basis that one pump operator handles 2 pumping stations. The number of Assistant Pump Operator has been calculated on the basis of 1:1 for small tube wells.

Table 9 : Projection of Pump Operator and Assistant Pump Operator

Branch Offices	Pumping Stations	Pump operator	Tube well	Assistant Pump Operator
Maharajgunj	4	2	16+Chettrapati 3	19
Mahankal Chour	6	3	10	10
Lalitpur	8	4	7	7
Baneshwor	2	1	5	5
Tripureshwor	5	3	5	5
Thimi	2	1	8	8
Kirtipur	2	1	1	1
Bhaktapur			4	4
Total	**29**	**15**	**59**	**59**

There are 35 surface sources and 83 ground water sources having pump operators. It is assumed that after the operation of Melamchi water, all these tubes well need not to be operated. Some of these wells will be closed or abandoned and some will be kept for emergencies. To manage such wells during emergencies, scheduled monitoring and maintenance could be introduced which will help to reduce the human resource requirements.

6.6 Administrative and Financial workload estimation

The ratio of Senior Assistant to Administrative Assistant to Administrative Assistant and Senior Accountant to Assistant Accountant is proposed as follows on the assumption that e-filing and e-accounting system will be introduced by KUKL very shortly.

Table 10 : Administrative and Financial Workload

Positions	Large	Medium	Moderate	Assumption of introducing e-filing and e-accounting
Senior Administrative Assistant: Administrative Assistant: Junior Administrative Assistant:	1:1.5:1.5	1:2:1.5	1:1.5:1.5	Introduction of e-filing and related technique will reduce the supportive staff
Senior Accounts Assistant: Assistant Accountant:	1:1	1: 1	1:0.5	Introduction of Computerized Accounts Keeping and related technique will reduce the need of supportive staff

6.6.1 Assumptions regarding working atmosphere

KUKL is in transition at present. It is expected that water supply from Melamchi will start by 2018. Many infrastructure and technological system are under-construction, till then it has to operate the old and tradition system. The present system is mostly manual, hence it has to continue the involvement of human involvements. In this juncture, it has to retain the human resources suitable for manual works and plan to recruit new human resources who capable for handling the improvised system. In this situation, the number of human resource requirement increases. The manual work is mostly related to service delivery rounds in lower echelon mostly level 1staffs, the number of human resources required for this level goes up sharply.

The present projection of human resource requirement for KUKL covers for extended period up to 2024. The number of office assistant could be flexible on the nature and number of offices, branches and units.

6.6.2 Managerial Approach for right-sizing the human resources

With respect to these customer-based services, the number of human resources vary. Jobs related to customer services could be outsourced. The experience shows that by introducing performance based incentives, the efficiency of employees have doubled. If the customer services are outsourced then the numbers of meter readers can be limited to 90. Likewise, the number of senior meter reader will also be reduced. This is assumed in the estimation of human resource requirement that KUKL will introduce Performance –based incentive system in meter reading activities. This could be applied for valve operator if the schedule of water supply is appropriately managed. The efficiency could improve by 50% and also shows that the number of valve operator in the present context would be 120.

6.7 Projection of Human Resource Requirement of KUKL

On the basis of proposed organization structure and considering above mentioned factors, following table presents the projection of human resource requirements for KUKL (See in Annex 5 for details)

Table 11 : Projection of Human Resource Requirements of KUKL

Position	Area	Level	Proposed
CEO			1
Chief/Senior Manager/DGM		11	3
Manager	Tech	10	5
Manager	Administration	10	3
Deputy Manager (Tech/Civil/Quality)	Tech	9	13
Deputy Manager	Administration / Accounts	9	4
Assistant Manager	Civil/EM/Quality	8	15
Assistant Manager	Administration/Accounts	8	7
Engineer	Tech/Civil/EM	7	38
Microbiologist	Tech	7	1
Technical Officer	Tech/EM	7	11
Water Treatment Engineer	Tech	7	6
Hydrologist	Tech	7	1
Sociologist	Administration /Specialist	7	1
Legal officer	Administration /Specialist	7	1
Administration Officer	Administration	7	13
Accounts Officer	Accounts	7	12
Chemist	Tech/ Quality	7	1
Computer officer	Tech	7	
Assistant/Junior Tech Officer	Tech/Civil/EM/Quality	6	29
Plant officer	Tech	6	
Assistant Accounts officer	Administration/Accounts	6	25
Assistant Administration Officer	Administration	6	31
Assistant Legal Officer	Administration	6	1
Head Driver	Administration	6	
Assistant Lab Technician	Tech	6	1
Assistant Microbiologist	Tech	6	3
Computer Officer	Administration/Specialist	6	1
Overseer/Supervisor	Tech/Civil/EM	5	64

Position	Area	Level	Proposed
Assistant Plant Superintendent	Tech/Civil/EM	5	
Senior Administration Assistant	Administration	5	49
Senior Accounts Assistant	Administration/Accounts	5	34
Senior Computer Operator	Administration	5	14
Senior Lab Technician	Tech/ Quality	5	3
Senior Technician	Tech	5	4
Senior Legal Assistant	Administration/Legal	5	
Heavy Equipment Driver	Administration	5	11
Pump Operator	Tech/EM	4	16
Computer Operator	Administration	4	5
Plant Operator	Tech/Quality	4	11
Machine Operator	Tech/ EM	4	7
Meter Mechanics	Tech/ EM	4	5
Senior Mechanics	Tech/ EM	4	1
Lab Technician	Tech/Quality	4	2
Tap Inspector	Tech/Civil	4	10
Assistant Administration	Administration	4	73
Assistant Accounts	Administration/Accounts	4	17
Senior Meter Reader	Administration	4	15
Senior Plumber	Tech/ Civil	4	18
Electrician	Tech/EM	4	1
Heavy Driver	Administration	4	5
Light Driver	Administration	3	38
Assistant Pump Operator	Tech/EM	3	59
Plant Attendant	Tech/Quality	3	
Junior Plumber	Tech/Civil	3	33
Meter Reader	Administration	3	78
Lab Assistant/Boy	Tech/Quality	3	4
Junior Administration Assistant	Administration	3	21
Sampler	Tech/Quality	3	14
Junior Mechanics	Tech/EM	3	14
Junior Electrician	Tech/EM	3	3
Helper/Safe Guard	Tech/EM	2	44
Valve operator	Tech/Civil	1	176
Guards / Watchman	Administration/Security	1	89
Lab Cleaner	Administration	1	3
Sweeper	Administration/Security	1	17
Office Assistant	Administration/Security	1	45
Labor	Tech/Civil	1	67
Total			**1327**

6.8 Human Resources in Head office and Different Departments

The distribution of proposed number of human resources in head office and different departments including in divisions, branches, sections, centers and unit is described as following:

Table 12 : Proposed Human Resources in CEO Office

Title	Level	Nos.
CEO		1
Officer (Administration)	7	1
Senior Assistant	5	1
Light Driver	3	1
Office Assistant (Peon)	1	2
Total		**6**

Table 13 : Human Resources in Internal Audit

Title	Level	Nos.
Manager (Accounts)	10	1
Deputy Manager (Administration)	9	1
Accounts Officer	7	2
Assistant Accounts Officer	6	4
Senior Accounts. Assistant	5	1
Light Driver	1	1
Office Assistant (Peon)	1	1
Total		**11**

Table 14 : Proposed Human Resources in Operation Department

Title	Level	Nos.
Chief (Technical)	11	1
Technical Officer	7	1
Assistant Administration Officer	6	1
Senior Assistant Administration	5	1
Light Driver	3	1
Office Assistant (Peon)	1	1
Total		**6**

Table 15 : Proposed Human Resources for Water Operation Division

Title	Level	Nos.
Manager (Technical)	10	1
Engineer (Civil)	7	1
Assistant Officer (Tech.)	6	1
Senior Assistant (Administration)	5	1
Assistant (Administration)	4	1
Light Driver	3	1
Office Assistant (Peon)	1	1
Total		**7**

Table 16 (a) : Human Resources in Branches

Position	Level	Nos.
Deputy Manager Civil	8	5
Assistant Manager Civil	7	3
Engineer	7	7
Water Treatment Engineer	7	6
Technical Officer	7	8
Section Officer	7	5
Account Officer	7	5
Assistant Technical Officer Civil	6	13
Assistant Accounts Officer	6	10
Assistant Administration Officer	6	10
Overseer	5	26
Overseer (E/M)	5	6
Senior Assistant Administration	5	20
Senior Assistant (Accounts)	5	20
Senior Computer Operator	5	2
Computer Operator	4	3
Pump Operator	4	16
Plant Operator	4	11
Machine Operator/Tech Assistant	4	1
Meter Mechanics	4	5
Tap Inspector	4	10
Administration Assistant	4	33
Accounts Assistant	4	17
Senior Meter Reader	4	15
Senior Plumber	4	15
Heavy Driver	4	3
Junior Assistant (Administration)	3	51
Light Driver	3	15
Assistant Pump Operator	3	59
Junior Plumber	3	33
Meter Reader	3	78
Junior Mechanics	3	3
Valve Operator	1	176
Peon	1	21
Sweeper	1	17
Labor	1	67
Watchman	1	89
Total		**884**

Table 16 (b) : Distribution of Human Resources in Branches

Level	Position	Maharajgunj	Mahankalchaur	Lalitpur	Baneshwor	Tripureshwor	Thimi	Kirtipur	Bhaktapur	Total
9	Deputy Manager Civil	1	1	1	1	1				5
8	Assistant Manager Civil						1	1	1	3
7	Engineer	1	2	2	1	1				7
7	Technical Officer	1	1	1	1	1	1	1	1	8
7	Section officer	1	1	1	1	1				5
7	Account Officer	1	1	1	1	1				5
6	Assistant Technical Officer Civil	3	2	2	2	2	1	1	1	13
6	Assistant Accounts Officer	1	2	2	1	1	1	1	1	10
6	Assistant Administration Officer	1	2	2	1	1	1	1	1	10
5	Overseer	4	5	5	4	2	2	2	2	26
5	Overseer (E/M)	1	1	1	1		1		1	6
5	Senior Assistant Administration	2	4	4	2	2	2	2	2	20
5	Senior Assistant (Accounts)	2	4	4	2	2	2	2	2	20
5	Senior Computer Operator		1	1						2
4	Computer Operator	1			1	1				3
4	Pump Operator	2	3	4	1	3	1	1	1	16
4	Plant Operator	2	1	2	1	3	1	1		11
4	Machine Operator			1						1
4	Meter Mechanics	1	1	1	1	1				5
4	Inspector	1	2	2	1	1	1	1	1	10
4	Administration Assistant	4	6	6	4	4	3	3	3	33
4	Accounts Assistant	2	4	4	2	2	1	1	1	17
4	Senior Meter Reader	2	3	3	2	2	1	1	1	15
4	Senior Plumber	2	3	3	2	2	1	1	1	15
4	Heavy Driver	1		1		1				3
4	Light Driver	3	2	2	3	2	1	1	1	15
3	Assistant Pump Operator	19	10	7	5	5	8	1	4	59
3	Junior Plumber	7	4	6	5	3	2	3	3	33
3	Meter Reader	18	13	9	6	6	5	5	5	51
3	Junior Assistant (Administration)	6	9				1	1	1	3
3	Junior Mechanics									
3	Peon	4	3	3	3	2	2	2	2	21
1	Valve Operator									
1	Sweeper									
7	Water Treatment Engineer	1	1	1		1	1		1	6
	Labor									67
	Watchman									89
	Total	**94**	**92**	**98**	**68**	**62**	**45**	**37**	**42**	**888**

Table 17 : Human Resources in Tanker Section

Title	Level	Nos.
Assistant Manager (Technical)	8	1
Technical Officer	7	1
Assistant Officer (Administration)	6	2
Overseer/Supervisor	5	1
Senior Assistant (Administration)	5	1
Technical Assistant	4	2
Assistant Administration	4	18
Junior Technical Assistant	3	1
Helper	2	15
Office Assistant	1	2
Total		**44**

Table 18 : Human Resources in Production Division

Title	Level	Nos.
Manager (Technical)	10	1
Assistant Officer (Administration)	6	1
Senior Administration Assistant	5	1
Assistant Administration	4	1
Light Driver	3	1
Office Assistant (Peon)	1	1
Total		**6**

Table 19 : Human Resources in Water Treatment Plant

Title	Level	Nos.
Assistant Manager (Civil)	8	1
Elect. Engineer	7	1
Hydro-Mechanical Engineer	7	1
Light Driver	3	1
Helper in Unit Stations	2	9
Safe Guard	2	1
Office Assistant (Peon)	1	1
Guards (Headwork)		3
Total		**18**

Table 20 : Human Resources in Waste Water Division

Title	Level	Nos.
Manager (Technical)	10	1
Deputy Manager (Waste Water Engineer)	9	1
Assistant Manager (Waste Water Engineer)	8	2
Engineer (Technical)	7	6
Engineer (Environment)	7	1
Sociologist	7	1
Officer (Administration)	7	1
Assistant Officer (Technician) (including supervision and monitoring of sites)	6	5
Assistant Officer (Administration)	6	1
Overseer/ Technical	5	15
Senior Administration Assistant	5	6
Senior Computer Assistant	5	5
Assistant Administration	4	6
Light Driver	3	2
Office Assistant (Peon), Helpers	1	6
Total		**59**

Table 21 : Proposed Human Resources in Planning and Support Department

Title	Level	Nos.
Chief (Technical)	11	1
Assistant Officer (Administration)	6	1
Senior Assistant	5	1
Light Driver	3	1
Office Assistant	1	2
Total		**6**

Table 22 : Human Resources in Support Division

Title	Level	Nos.
Manager (Electro-Mechanical)	10	1
Engineer(Electro-Mechanical)	7	1
Hydrologist	7	1
Assistant Officer (Technical)	6	1
Assistant Administration Officer	6	1
Assistant Officer (Administration)	5	1
Light Driver	3	1
Peon / Office Assistant	1	2
Total		**9**

Table 23 : Human Resources in Electro-Mechanical Section

Title	Level	Nos.
Deputy Manager (Electro-Mechanical)	9	1
Assistant Manager (Electro-Mechanical)	8	1
Engineer(Electro-Mechanical) Electrical, Mechanical, Auto Mechanical	7	3
Assistant Officer (Technical)	6	3
Assistant Officer (Administration)	6	2
Senior Technician	5	4
Senior Administration Assistant	5	2
Senior Account Assistant	5	1
Senior Computer Assistant	5	1
Junior Technician	4	4
Heavy Equipment Driver	4	5
Administration Assistant	4	3
Computer Operator	4	2
Technical Assistant	3	8
Light Driver	3	2
Helper for Heavy Vehicles - 4 & Pump Repair Helper	2	10
Peon / Office Assistant	1	2
Total		**54**

Table 24 : Human Resources in Information Technology (IT) Section

Title	Level	Nos.
Deputy Manager (Technical)	9	1
Assistant Manager (Electro - Mechanical)	8	1
Engineer (Civil/ Elec/ Mechanical)	7	2
Assistant Officer (Accounts)	6	1
Assistant Officer (Administration)	6	1
Overseers (Civil/Electro-Mechanical)	5	3
Senior Assistant (Administration)	5	1
Senior Accounts Officer	5	1
Administration Assistant	4	2
Light Driver	3	1
Junior Assistant	3	2
Office Assistant	1	1
Total		**17**

Table 25 : Human Resources in Training Center

Title	Level	Nos.
Deputy Manager (Technical)	9	1
Assistant Manager (Electro - Mechanical)	8	1
Engineer (Civil/ Elec/ Mechanical)	7	2
Assistant Officer (Accounts)	6	1
Assistant Officer (Administration)	6	1
Overseers (Civil/Electro-Mechanical)	5	3
Senior Assistant (Administration)	5	1
Senior Accounts	5	1
Administration Assistant	4	2
Light Driver	3	1
Junior Assistant	3	2
Office Assistant	1	1
Total		**17**

Table 26 : Human Resources in Planning and Monitoring Division

Title	Level	Nos.
Manager (Technical)	10	1
Assistant Manager(Tech)	8	1
Engineer (Tech)	7	2
Assistant Officer (Tech)	6	1
Assistant Officer (Administration)	6	1
Senior Computer Operator	5	1
Light Driver	3	1
Office Assistant /Peon	1	1
Total		**9**

Table 27 : Human Resources in Project Design and Implementation Section

Title	Level	Nos.
Deputy Manager (Technical)	9	1
Assistant Manager (Tech)	8	2
Engineer	7	6
Assistant Officer (Accounts)	7	1
Assistant Officer (Administration)	7	1
Junior Technical Officer	6	1
Junior Accounts officer	6	1
Junior Administration Officer	6	1
Overseer	5	2
Senior Assistant (Administration)	5	1
Senior Assistant (Accounts)	5	2
Assistants	4	1
Light Driver	3	1
Office Assistant /Peon	1	2
Total		**23**

Table 28 : Human Resources in Non – Revenue Water Section

Title	Level	Nos.
Deputy Manager (Technical)	9	1
Engineer	7	3
Assistant Officer (Technical)	6	3
Assistant Officer (Accounts)	6	1
Assistant Officer (Administration)	6	1
Overseer / Supervisor	5	3
Draftsman (CAD Operator)	5	1
Senior Assistant (Administration)	5	2
Heavy Driver	5	2
Senior Plumber/Junior	4	3
Assistant Administration	4	2
Light Driver	3	2
Helper for Tanker and Plumber	2	5
Office Assistant	1	1
Total		**30**

Table 29 : Human Resources in Procurement Section

Title	Level	Nos.
Deputy Manager (Technical)	9	1
Assistant Manager (Electro-Mechanical)	8	1
Engineer (Civil/ Electro-Mechanical)	7	2
Overseers (Civil/Electro-Mechanical)	5	2
Senior Assistant (Administration)	5	1
Senior Accounts	5	1
Light Driver	3	1
Office Assistant	1	1
Total		**10**

Table 30 : Human Resources in Water and Waste Water Quality Assurance Section

Title	Level	Nos.
Deputy Manager (Technical)	9	1
Assistant Officer (Administration)	6	1
Assistant Officer (Accounts)	6	1
Senior Computer Operator	5	1
Senior Assistant(Administration)	5	1
Heavy Equipment Driver	5	5
Office Assistant /Peon	1	1
Total		**11**

Table 31 : Human Resources in Central Laboratory

Title	Level	Nos.
Assistant Manager (Technical)	8	1
Microbiologist	7	1
Chemist	7	1
Assistant Laboratory Officer	6	1
Assistant Microbiologist	6	1
Senior Laboratory Technician	5	2
Lab Technician	4	2
Lab. Assistant	3	1
Samplers	3	8
Heavy Driver	5	1
Helpers	2	2
Cleaner	1	1
Office Assistant /Peon	1	1
Total		**23**

Table 32 : Human Resources in Bansbari Unit

Title	Level	Nos.
Assistant Microbiologist	6	1
Laboratory Assistant	3	1
Sampler	3	2
Lab Cleaner	1	1
Total		**5**

Table 33 : Human Resources in Bode Unit

Title	Level	Nos.
Assistant Microbiologist	6	1
Laboratory Assistant	3	1
Sampler	3	2
Lab Cleaner	1	1
Total		**5**

Table 34 : Human Resources in Sainbu Unit

Title	Level	Nos.
Senior Lab Technician	5	1
Laboratory Assistant	3	1
Sampler	3	2
Total		**4**

Table 35 : Human Resources in Administration and Finance Department

Title	Level	Nos.
Chief(Administration)	11	1
Assistant Officer (Administration.)	6	1
Senior Assistant	5	1
Light Driver	3	1
Office Assistant (Peon)	1	1
Total		**5**

Table 36 : Human Resources in General Administration Section

Title	Level	Nos.
Deputy Manager (Administration)	9	1
Section/Administration Officer	7	1
Assistant Administration Officer	6	2
Assistant (Administration)	4	1
Office Assistant	1	1
Total		**6**

Table 37 : Human Resources in Finance Division

Title	Level	Nos.
Manager (Finance /Accounts)	10	1
Officer (Accounts)	7	1
Senior Computer Operator	5	1
Light Driver	3	1
Office Assistant	1	1
Total		**5**

Table 38 : Human Resources in Accounts and Billing Section

Title	Level	Nos.
Deputy Manager (Accounts.)	9	1
Assistant Manager (Accounts	8	1
Accounts Officer	7	2
Assistant Accounts Officer	6	2
Senior Assistant (Accounts)	5	5
Office Assistant	1	2
Total		**13**

Table 39 : Human Resources in Budget and Revenue Monitoring Section

Title	Level	Nos.
Deputy Manager (Accounts)	9	1
Assistant Manager (Accounts)	8	1
Accounts officer	7	1
Assistant Accounts Officer	6	2
Senior Assistant (Accounts)	5	2
Office Assistant	1	1
Total		**8**

Table 40 : Human Resources in Customer Relation Section

Title	Level	Nos.
Assistant Manager (Tech)	8	1
Technical Officer	7	1
Assistant Officer (Administration.)	6	1
Overseer	5	2
Senior Assistant(Administration)	5	1
Office Assistant	1	1
Total		**7**

Table 41 : Human Resources in Planning Section

Title	Level	Nos.
Deputy Manager (Administration)	9	1
Assistant Manager (Administration)	8	1
Section Officer	7	1
Officer (Administration)	6	2
Computer Officer	6	1
Senior Computer Assistant	5	2
Senior Assistant (Administration)	5	1
Light Driver	3	1
Office Assistant	1	1
Total		**11**

Table 42 : Human Resources in Administrative and HR Development Division

Title	Level	Nos.
Manager (Administration)	10	1
Assistant Manager (Administration)	8	1
Legal Officer	7	1
Administration Officer	6	1
Junior Legal Officer	6	1
Assistant (Administration)	5	2
Senior Computer Operator	5	1
Light Driver	3	1
Office Assistant	1	1
Total		**10**

Table 43 : Human Resources in Store Unit

Title	Level	Nos.
Section Officer (Administration)	7	1
Officer (Accounts)	6	1
Assistant (Administration)	4	2
Electrician	4	1
Office Assistant	1	1
Total		**6**

Table 44 : General Procurement Section

Title	Level	Nos.
Assistant Manager (Administration)	8	1
Section Officer (Administration)	7	1
Officer (Administration)	6	1
Senior Assistant (Administration)	5	1
Office Assistant	1	1
Total		**5**

6.9 Differences in the Existing Approved, Presently working and Proposed Human Resources

The differences in the composition and number of human resources among the existing approved, presently working (as per record up to Chaitra, 2072) and proposed are as follows.

Table 45 : Difference Between Existing, Approved, Presently Working and Proposed Human Resources.

Position	Area	Level	Approved	Presently Working	Proposed
CEO			1	1	1
Chief / Senior Manager/DGM		11	3	1	3
Manager	Tech	10	7	2	5
Manager	Administration	10	3		3
Deputy Manager	Tech / Civil / Quality	9	14	7	13
Deputy Manager	Administration / Accounts	9	6	3	4
Assistant Manager	Civil/EM/Quality	8	16	7	15
Assistant Manager	Administration / Accounts	8	7	3	7
Engineer	Tech/Civil/EM	7	15	7	38
Microbiologist	Tech	7	1		1
Technical Officer	Tech/EM	7	8	4	11
Water Treatment Engineer	Tech	7			6
Hydrologist	Tech	7			1
Sociologist	Administration/Specialist	7			1
Legal Officer	Administration/Specialist	7			1
Administration Officer	Administration	7	7	6	13
Accounts Officer	Accounts	7	11	10	12
Chemist	Tech/ Quality	7	1	1	1
Computer officer	Tech	7	1		
Assistant/Junior Tech Officer	Tech/Civil/EM/Quality	6	18	15	29
Plant Officer	Tech	6	3		
Assistant Accounts Officer	Administration/Accounts	6	30	18	25
Assistant Administration Officer	Administration	6	26	21	31
Assistant Legal Officer	Administration	6	1	1	1
Head Driver	Administration	6			
Assistant Lab Technician	Tech	6			1
Assistant Microbiologist	Tech	6			3
Computer Officer	Administration/Specialist	6			1
Overseer/Supervisor	Tech/Civil/EM	5	41	23	64
Assistant Plant Superintendent	Tech/Quality	5	1		
Senior Administration Assistant	Administration	5	50	42	49
Senior Accounts Assistant	Administration/Accounts	5	66	50	34

Position	Area	Level	Approved	Presently Working	Proposed
Senior Computer Operator	Administration	5	7	7	14
Senior Lab Technician	Tech/ Quality	5	2	1	3
Senior Technician	Tech	5			4
Senior Legal Assistant	Administration/Legal	5	1		
Heavy Equipment Driver	Administration	5	8	5	11
Pump Operator	Tech/EM	4	15	9	16
Computer Operator	Administration	4	6	4	5
Plant Operator	Tech/Quality	4	8	5	11
Machine Operator	Tech/ EM	4	3	3	7
Meter Mechanics	Tech/ EM	4	5	5	5
Senior Mechanics	Tech/ EM	4	1		1
Lab Technician	Tech/Quality	4	2	1	2
Tap Inspector	Tech/Civil	4	6	5	10
Assistant Administration	Administration	4	50	33	73
Assistant Accounts	Administration/Accounts	4	42	26	17
Senior Meter Reader	Administration	4	35	30	15
Senior Plumber	Tech/ Civil	4	16	13	18
Electrician	Tech/EM	4	4	3	1
Heavy Driver	Administration	4	17	12	5
Light Driver	Administration	3	33	18	38
Assistant Pump Operator	Tech/EM	3	108	94	59
Plant Attendant	Tech/Quality	3	1		
Junior Plumber	Tech/Civil	3	31	22	33
Meter Reader	Administration.	3	80	48	78
Lab Assistant /Boy	Tech/Quality	3	2		4
Junior Administration Assistant	Administration	3	98	52	51
Sampler	Tech/Quality	3	2		14
Junior Mechanics	Tech/EM	3	7	7	14
Junior Electrician	Tech/EM	2	3		3
Helper/Safe Guard	Tech/EM	2	16	10	44
Valve Operator	Tech/Civil	1	74	15	176
Guards/ Watchman	Administration/Security	1	81	42	89
Lab Cleaner	Administration	1			3
Sweeper	Administration/Security	1	16	10	17
Office Assistant	Administration/Security	1	41	19	45
Labor	Tech/Civil	1	47	35	67
Total			**1205**	**756**	**1327**

The following posts are proposed to be deleted from the existing approved human resources

Table 46 : Proposed Deleted Posts in Existing Approved Posts

Position	Area	Level	Nos.
Computer Officer	Tech	7	1
Plant Officer	Tech	6	3
Assistant Plant Superintendent	Tech	5	1
Senior Lab Technician	Tech / Quality	5	2
Senior Legal Assistant	Administration /Legal	5	1
Senior Mechanics	Electro-Mechanical	4	1
Lab Technician	Tech/Quality	4	2
Plant Attendant	Quality	3	1
Junior Electrician	Electro-Mechanical	3	3

The following posts are proposed in new structure.

Table 47 : Proposed Created Positions

Level	Position	Numbers
7	Water Treatment Engineer	6
7	Hydrologist	1
7	Sociologist	1
7	Legal Officer	1
6	Assistant Lab Technician	1
6	Assistant Microbiologist	3
6	Computer Officer	1
5	Senior Lab Technician	3
5	Senior Technician	4
5	Draftsman(CAD-Operator)	1
4	Lab Technician	2
1	Lab Cleaner	3

6.9.1 Gap between Presently Working and Proposed human resources in KUKL

Following table shows the major positions where there are differences in number between currently working and proposed human resources.

Table 48 : Differences between Existing Approved and Projected Human Resources (Vacancies to be filled)

Position	Area	Level	Presently Working	Proposed	Vacant Seats
CEO			1	1	0
Chief/Senior Manager/DGM		11	2	3	2
Manager	Tech	10	2	5	3
Manager	Administration	10		3	3

Position	Area	Level	Presently Working	Proposed	Vacant Seats
Deputy Manager (Tech/Civil/Quality)	Tech	9	7	13	6
Deputy Manager	Administration /Accounts	9	3	4	1
Assistant Manager	Civil/EM/Quality	8	7	15	8
Assistant Manager	Administration /Accounts	8	3	7	4
Engineer	Tech/Civil/EM	7	7	38	31
Microbiologist	Tech	7		1	1
Technical Officer	Tech/EM	7	4	11	7
Water Treatment Engineer	Tech	7		6	6
Hydrologist	Tech	7		1	1
Sociologist	Administration /Specialist	7		1	1
Legal Officer	Administration /Specialist	7		1	1
Administration Officer	Administration	7	6	13	7
Account Officer	Accounts	7	10	12	2
Chemist	Tech/quality	7	1	1	0
Computer Officer	Tech	7			0
Assistant/Junior Technical Officer	Tech/Civil/EM/Quality	6	15	29	14
Plant Officer	Tech	6			0
Assistant Account Officer	Administration /Accounts	6	18	25	7
Assistant Administration Officer	Administration	6	21	31	10
Assistant Legal Officer	Administration	6	1	1	0
Head Driver	Administration	6			0
Asst. Lab Technician	Tech	6		1	1
Assistant Microbiologist	Tech	6		3	3
Computer Officer	Administration /Specialist	6		1	1
Overseer / Supervisor	Tech/Civil/EM	5	23	64	41
Assistant Plant Superintendent	Tech/Quality	5			0
Senior Administration Assistant	Administration	5	42	49	7
Senior Account Assistant	Administration /Accounts	5	50	34	-16
Senior Computer Operator	Administration	5	7	14	7
Senior Lab Technician	Tech/ Quality	5	1	3	2
Senior Technician	Tech	5		4	4
Senior Legal Assistant	Administration/Legal	5			0
Heavy Equipment Driver	Administration	5	5	11	6
Pump Operator	Tech/EM	4	9	16	7
Computer Operator	Administration	4	4	5	1
Plant Operator	Tech/Quality	4	5	11	6
Machine Operator	Tech/ EM	4	3	7	4
Meter Mechanics	Tech/ EM	4	5	5	0
Senior Mechanics	Tech/ EM	4		1	1
Lab Technician	Tech/Quality	4	1	2	1
Tap Inspector	Tech/Civil	4	5	10	5
Assistant Administration Officer	Administration	4	33	73	40

Position	Area	Level	Presently Working	Proposed	Vacant Seats
Assistant Accounts Officer	Administration /Accounts	4	26	17	-9
Senior Meter Reader	Administration	4	30	15	-15
Senior Plumber	Tech/ Civil	4	13	18	5
Electrician	Tech/EM	4	3	1	-2
Heavy Driver	Administration	4	12	5	-7
Light Driver	Administration	3	18	38	20
Assistant Pump Operator	Tech/EM	3	94	59	-35
Plant Attendant	Tech/Quality	3			0
Junior Plumber	Tech/Civil	3	22	33	11
Meter Reader	Administration.	3	48	78	30
Lab Assistant /Boy	Tech/Quality	3		4	4
Junior Administration Assistant	Administration	3	52	51	-1
Sampler	Tech/Quality	3		14	14
Junior Mechanics	Tech/EM	3	7	14	7
Junior Electrician	Tech/EM	3		3	3
Helper / Safe Guard	Tech/EM	2	10	44	34
Valve operator	Tech/Civil	1	15	176	161
Guards / Watchman	Administration /Security	1	42	89	47
Lab Cleaner	Administration	1		3	3
Sweeper	Administration /Security	1	10	14	7
Office Assistant	Administration /Security	1	19	45	26
Labor	Tech/Civil	1	35	67	32
Total			**756**	**1327**	**571**

A huge gap between the number of proposed and presently working human resources has been noticed. The number of presently working human resources represents only those staffs working on permanent basis in KUKL. At present there are about 300 lower level employees mostly working in contract and daily wages.

Following posts are proposed to be deleted from the presently involving. Some of them are suggested to transfer in similar position having similar nature of work such as plant officers to technical officers. Some positions are upgraded such as Junior Electrician from level 3 to level 4.

Table 49 : Proposed Deletion of Posts

Position	Area	Level	Nos.
Computer Officer	Tech	7	
Plant Officer	Tech	6	3
Main Driver	Administration	6	
Senior Legal Assistant	Administration	5	
Overseer (GIS)	Tech	5	
Senior Mechanics	Tech	4	
Plant Attendant	Tech	3	1
Junior Electrician	Tech	3	2

The major changes in the proposed human resource requirement is addition of two General Managers (previously designated as senior manager). The number of engineers, junior technical officers, overseers, senior computer assistants administrative assistants, helpers, office assistants and valve operators has been increased while the number of human resources associated with accounts has been decreased. With the introduction of computerized accounting system, most of the accounting functions will be done in computers.

In the proposed human resource requirements, current utilities and assets will be managed by by KUKL. Once the Melamchi's water will be supplied, some of the tube wells, water treatment plants and some of other utilities will not operate as present. In this situation, all the human resources associated with the management of these utilities will not have enough workload or will be redundant. Human resources shall be adjusted according to the operation scenario of number of tubewells and associated WTPs.

7. RECRUITMENT STRATEGY

Absence of appropriate number of quality staff jeopardizes the image, trust and identity of the organization. To function organization dynamically, efficiently and effectively to achieve its goal and to be suited with the demand requires new energy, spirit and entrepreneurship. The gap between proposed human resources requirement and the existing number of staff as presented table 48 shows alarming situation. The present number of human resources working covers only 60% of total requirement. The vacant positions need to be fulfilled quickly in order to run organization efficiently.

7.1 Strategies for Recruitment

The upsetting scenario created by the gap between total staffs required and presently working becomes more frustrating once the retirement figure and picture is being considered. The retirement table that already presented shows that the trend of retirement is very sharp. These vacancies should be be fulfilled either externally or internally according to the personnel rules and regulation 2064. Due consideration is required on how the experienced people having deep institutional memory are to be substituted. A dove-tailed approach may be suitable to apply for managing this situation.

The cursory look upon the gap of the staff reveals the current number of vacancies of the organization. The retirement trend also shows that there will be more vacancies in coming years creating more gap of human resources within the organization.

While making the critical job analysis as presented in Unit 3, jobs within organization can be categorized into (i) critical vs non-critical and (ii) core vs non-core jobs according to their direct impinging effects upon organizational success and performance. It is suggested that involving in non-core and non-critical jobs and activities could hamper the organization's performance thus it is better to outsource it. It is also recommended that jobs need to be analyzed on the basis of strategy and internal competency. Based on the analysis from this study, KUKL shall follow recruitment strategy as mentioned below:

1. Firstly, recruit those positions which have strategic importance and core function (such as engineers, technical personnel, overseers, plumbers, valve operators, etc.)
2. Secondly, non-core but important positions to be recruited on priority basis. (such as meter readers, etc.)
3. After that recruit those strategic positions which could have long-term functioning of KUKL.
4. Do not recruit people on the basis of urgency.
5. Outsource jobs which cannot be done efficiently by internal capacity.

While doing fresh recruitment, all backlog works which are being initiated already (such as those jobs for which recruitment work was initiated and partly completed) should be completed.

Each position is unique and demands different personal qualities and characteristics especially when it is technical in nature. They must be separated such as in KUKL it is Overseer/Supervisor. Overseer a professional post required to complete a formal academic course is different from Supervisor.
Before recruitment, a detail job description based upon job analysis is required.

7.2 Recruitment Schedule

Based upon above mentioned strategies along with a view to equip KUKL to handle the new situation likely needed to be addressed due to following factors are considered for framing the recruitment schedule for KUKL.The present utilities are to be utilized to its fullest extent.

The first phase of Melamchi is expected to be completed in 2018. This will create two types of system one (i) mostly computerized and partly manual within ring road and (ii) mostly manual and partly computerized outside the ring road. Human resources required to deal with both of these systems will increase the number of required. At the same time, human resource requirement is affected by Kathmandu Valley Water Supply Management Board's decision on handing over the production function

of Melamchi water. If production is handed over to KUKL then it requires separate water production division within the proposed organization structure.

The first phase of sewerage system by PID is expected to be completed during 2020. This will create new set activities demanding more staffs. All the systems constructed by PID are to be operated by the contractors for the period of 5 to 10 years. Although the operation of waste water treatment plants and sewerge system is the contractor's responsibility, KUKL shall prepare itself adequately in terms of human resource and capacity building to take over once the operation period is over.

The last phase of Melamchi is expected to be completed by 2024. Required number of staffs shall be be fulfilled by then. Hence, the recruitment schedule have been divided into three slots: the first one is before 2018, second one is before 2020 and third one is before 2024.

Table 50 : Proposed Recruitment Schedule for Vacant Posts

Position	Area	Level	Vacant Seats	Immediate	Up to 2018	Up to 2020
CEO			0			
Chief/Senior Manager/ DGM		11	2	2		
Manager	Tech	10	3	2	1*	
Manager	Administration	10	3	3		
Deputy Manager (Tech/Civil/Quality)	Tech	9	6	6		
Deputy Manager	Administration / Accounts	9	1	1		
Assistant Manager	Civil/EM/Quality	8	8	6	2	
Assistant Manager	Administration / Accounts	8	4	4		
Engineer	Tech/Civil/EM	7	31	25	6	
Microbiologist	Tech	7	1	1		
Tech Officer	Tech/EM	7	7	4	3	
Water Treatment Engineer	Tech	7	6		2	4
Hydrologist	Tech	7	1		1	
Sociologist	Administration / Specialist	7	1		1	
Legal Officer	Administration / Specialist	7	1		1	
Administration Officer	Administration	7	7	5	2	
Account Officer	Accounts	7	2	2		
Chemist	Tech / Quality	7	0			
Computer Officer	Tech	7	0			
Assistant/Junior Tech Officer	Tech/Civil/EM/ Quality	6	14	8	6	
Plant officer	Tech	6	0			
Assistant Account Officer	Administration / Accounts	6	7	5	2	
Assistant Administration Officer	Administration	6	10	8	2	
Assistant Legal Officer	Administration	6	0			
Head Driver	Administration	6	0			
Asst. Lab Technician	Tech	6	1	1		
Assistant Microbiologist	Tech	6	3	2	1	
Computer Officer	Administration / Specialist	6	1	1		
Overseer/Supervisor	Tech/Civil/EM	5	41	30	11	
Assistant. Plant Superintendent	Tech/Quality	5	0			

Position	Area	Level	Vacant Seats	Immediate	Up to 2018	Up to 2020
Senior Administration Assistant.	Administration	5	7	5	2	
Senior Accounts Assistant	Administration / Accounts	5	-16			
Senior Computer Operator	Administration	5	7	7		
Senior Lab Technician	Tech / Quality	5	2	2		
Senior Technician	Tech	5	4	3	1	
Senior Legal Assistant.	Administration / Legal	5	0			
Heavy Equipment Driver	Administration	5	6	2	4	
Pump Operator	Tech/EM	4	4	5	2	
Computer Operator	Administration	4	1	1		
Plant Operator	Tech / Quality	4	6	6		
Machine Operator	Tech / EM	4	4	4		
Meter Mechanics	Tech / EM	4	0			
Senior Mechanics	Tech / ME	4	1	1		
Lab Technician	Tech / Quality	4	1	1		
Tap Inspector	Tech / Civil	4	5	5		
Assistant Administration Officer	Administration	4	-40	30	10	
Assistant Accounts	Administration / Accounts	4	-9			
Senior Meter Reader	Administration	4	-15			
Senior Plumber	Tech / Civil	4	5	5		
Electrician	Tech / EM	4	-2			
Heavy Driver	Administration	4	-7			
Light Driver	Administration	3	20	15	5	
Assistant Pump Operator	Tech / EM	3	-35			
Plant Attendant	Tech / Quality	3	0			
Junior Plumber	Tech / Civil	3	11			
Meter Reader	Administration	3	30			
Lab Assistant /Boy	Tech / Quality	3	4			
Junior Administration Assistant	Administration	3	-1			
Sampler	Tech / Quality	3	14			
Junior Mechanics	Tech / EM	3	7			
Junior Electrician	Tech / EM	3	3			
Helper/Safe Guard	Tech / EM	2	34			
Valve Operator	Tech / Civil	1	161			
Guards/watchman	Administration / Security	1	47			
Lab Cleaner	Administration	1	3			
Sweeper	Administration / Security	1	7			
Office Assistant	Administration / Security	1	26			
Labor	Tech / Civil	1	32			
Total			**571**			

* Production Division

There are 592 vacant posts to be filled up. Most of them are required for continuity of the operation of existing utilities and some are for preparation to cope with new arrangements (after Melamchi). Some of the position such department heads and other related with production may not be required if the production function is not handed over to KUKL. The above recruitment schedule has been proposed for up to level 3. It is suggested that the filling of rest of the levels should be flexible and to be decided by management as per the requirement depending on the work load.

7.3 Strategies for Readjustment and Realignment

There are some posts that become redundant due to automation are required to be realigned or readjusted to other forms. The posts which are under these categories are follows:

Table 51 : Employees of Different Positions to be Re-Adjusted

Position	Category	Level	Number
Senior Accounts Assistant	Administration /Accounts	5	17
Accounts Assistant	Administration /Accounts	4	9
Heavy Driver	Administration	4	6
Senior Meter Reader	Administration	4	15
Assistant Pump Operator	Tech/EM	3	35
Junior Administration Assistant	Administration	3	1
Sweeper	Administration /Security	1	9
Total			**92**

7.3.1 Need vs Surplus of human resources between Proposed and Existing availability

The following table presents the need and surplus of different levels in comparison with proposed human resource requirements. Hence, the total picture will be as follows:

Table 52 : Need and Surplus Employees

Particular	Number
Continuation of the present Employees	673
Re-Alignment /adjustment	92
New Posts to be filled up	545
Total	**1310**

7.4 Flexibility in Personnel Rules and regulations

KUKL is in a state of organizationally, structurally and jurisdictionally in transition. During such fluid situation, its human resource management aspects need to be flexible not based upon static. Human resources that may continue for certain period i.e. may be up to first phase of Melamchi will be redundant. Similarly, those employees who are going to retire within few year and these posts or positions may not require for long period, for such situation the principle of dropping out of such position and number need to be part of personnel rules and regulations. Similarly, those jobs that are being decided for outsourcing or networking or partnership, some flexible rules must be introduced.

Performance based incentive package seems urgent to introduce in some of the jobs or activities of KUKL in order to improve efficiency and streamlining the demands of job, for this there must be clear personnel as well as compensatory policies and rules.

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ANNEXES

Annex 1 (a) : Number of Water Connections in Branches

Branches	2069	2071	2072
Mahankalchaur	29,483	31,339	32,119
Maharajgunj	29,731	31,209	31,875
Baneshwor	25,080	25,796	26,445
Kamaladi	5,881	5,940	5,958
Chhetrapati	12,352	13,894	13,974
Tripureshwor	20,449	20,766	20,927
Bhaktapur	9,794	10,496	10,792
Madhyapur Thimi	7,210	7,962	8,487
Lalitpur	37,800	3,9692	40,711
Kirtipur	6,940	7,629	8,128
	184,720	**194,718**	**199,416**

Annex 1 (b) : Water Demand. Production and Supply

Description	2069	2071	2072
Demand (MLD)	350	370	375
Production			
Minimum production	84	86	91
Maximum Production	144	144	147
Supply (20% real losses)			
Dry Season	67	68	73
Wet Season	115	115	118
Demand per connection	0.001895	0.0019	0.00188
Average (50% dry+ 50% Wet Seasons)	0.000493	0.000472	0.000479
Demand Fulfillment %	26	25	25

Annex 1 (c) : Performance Indicators

S.N.	2010/11	2011/12	2012/13	2013/14	2014/15
Fiscal Year	067/68	068/69	069/70	070/071	071/72
Staff per 1000 connection	6.78	6.51	6.11	5.75	5.51
Demand		0.001895		0.0019	0.00188
Supply per connection (% of demand)		26		25	25
Supply Duration	1-3 hrs in five alternative day	1-3 hrs in five alternative day	1-3 hrs in 3 to 8 alternative day	1-3 hrs in 3 to 8 alternative day	1-3 hrs in 3 to 12 alternative day
Per month	6-18 hrs	6-18 hrs	5.5-16.5 hrs	5.5-16.5 hrs	4-12 hrs
Collection ratio%	67	73	74	71	74
Current ratio	0.89	0.78	0.69		

Annex 2 : Level and Positions Descriptions

Level	Administrative	Technical
Level 1	Guard, Office Cleaner, Office Assistant, Gardener	General labor, Valve operator
Level 2	Helper	
Level 3	Junior Electrician, Junior Mechanics, Sampler, Lab boy, Junior Plumber, Line men, Plant Attendance, Assistant Pump Operator	Junior Assistant, Meter Reader, Light driver
Level 4	Electrician, Senior Plumber, Tap Inspector, Lab technician, Meter mechanics, machine Operator, Plant operator, Pump Operator	Heavy Driver, Senior Meter Reader, Accounts Assistant, Assistant, Computer operator
Level 5	Senior Plant Operator, Senior Lab Technician, Overseer /Supervisor (Mechanics), Overseer /Supervisor (Civil),	Heavy Engine Driver, Senior Legal Assistant, Senior Computer Operator, Senior account Assistant, Senior Assistant,
Level 6	Assistant Technical Officer (Chemist), Plant Officer, Assistant Tech officer (Civil),	Assistant Legal Officer, Assistant Administration Officer, Assistant Account Officer, Assistant Administration Officer,
Level 7	Chemist, Technical Officer (Electric/Mech.), Engineer (tech), Engineer(Electrical), Engineer (Mechanical), Engineer (Civil), Section Officer (legal)	Accounts Officer, Administration Officer
Level 8	Assistant Manager (Quality), Assistant Manager (Electrical/Mechanical)	Assistant Manager (Accounts), Assistant Manager (Administration)
Level 9	Deputy manager (Quality), Deputy manager (Electrician/Mechanical)	Deputy Manager (Accounts), Deputy Manager (Administration)
Level 10	Manager (Electrician/ Mechanical)	Manager
Level 11	Chief/ GM/ Senior Manager (Technical)	Chief/GM/Senior Manager (Administration)

Annex 3 : Current Number of Staffs in Existing Branches

Level	Positions	Maharajgunj	Mahankal chaur	Lalitpur	Baneshwor	Tripureshwor	Chettrapati	Thimi	Kamaladi	Kirtipur	Bhaktapur	Total
9	Deputy Manager Civil	1	1	1	1	1						5
8	Assistant Manager Civil						1	1	1	1	1	5
7	Engineer	1	1	1	1	1	1					6
	Technical Officer	1	1	1	1	1	1	1	1	1	1	10
7	Section officer	1	1	1								3
7	Account Officer	1	1	1								3
6	Assistant Technical Officer Civil	1	1	1	1	1	1	1	1	1	1	10
	Plant Officer	1	1	1								3
6	Assistant Accounts Officer	2	2	2	1	1	1	1	1	1	1	13
6	Assistant Administration Officer	1	1	1	1	1	1	1	1	1	1	10
5	Overseer	3	3	4	3	2	2	1	1		2	21
	Overseer (E/M)	1	1	1				1	1		1	6
	Senior Assistant Administration	4	4	4	4	4	4	2	2	2	2	32
5	Senior Assistant (Accounts)	6	6	6	6	6	3	2	2	2	3	42
	Chemist							1				1
5	Senior Computer Operator	1	1	1								3
4	Pump Operator	2	4	4		1	1	1		1	1	15
	Computer Operator	1	1	1	1		1					5
4	Plant Operator	1	1	2		1		1		1	1	8
	Machine Operator			1								1
4	Meter mechanics	1	1	1	1	1	1					6
	Inspector	1	1	2	1						1	6
	Administration	3	3	3	3	2	2	2	1	2	2	23

Level	Positions	Maharajgunj	Mahankal chaur	Lalitpur	Baneshwor	Tripureshwor	Chettrapati	Thimi	Kamaladi	Kirtipur	Bhaktapur	Total
	Accounts	10	10	10	10	4	4	4	2	2	4	60
4	Senior Meter Reader	5	5	6	5	5	3	1	1	1	1	33
	Senior Plumber	2	2	3	2	2	1	1	1	1	1	16
	Heavy Driver	1		1		1						3
3	Light Driver	2	2	2	2	2	1	1	1	1	1	15
3	Assistant Pump Operator	30	34	15	3	6	1	14	1	9	3	116
3	Junior Plumber	5	4	6	3	3	2	2	2	3	3	33
2	Meter Reader	15	13	15	8	5	7	4	3	4	6	80
2	Junior Assistant	15	15	15	13	6	9	3	2	8	8	94
	Junior Mechanics							1	1	1	1	4
1	Peon	3	3	3	3	2	2	2	2	2	2	42
1	Valve Operator	36	25	52	21	12	7	6	5	20	7	164
	Sweeper						1	1	1	1	1	5
Total		**158**	**149**	**141**	**95**	**71**	**58**	**56**	**34**	**67**	**56**	**885**