2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The LVNWSB, under the jurisdiction of the MoWI, is the implementing agency for the Project. The KNWSC is in charge of water services on the basis of service provision agreement (SPA) with LVNWSB. The Project implementation system is shown in Figure 2-12.

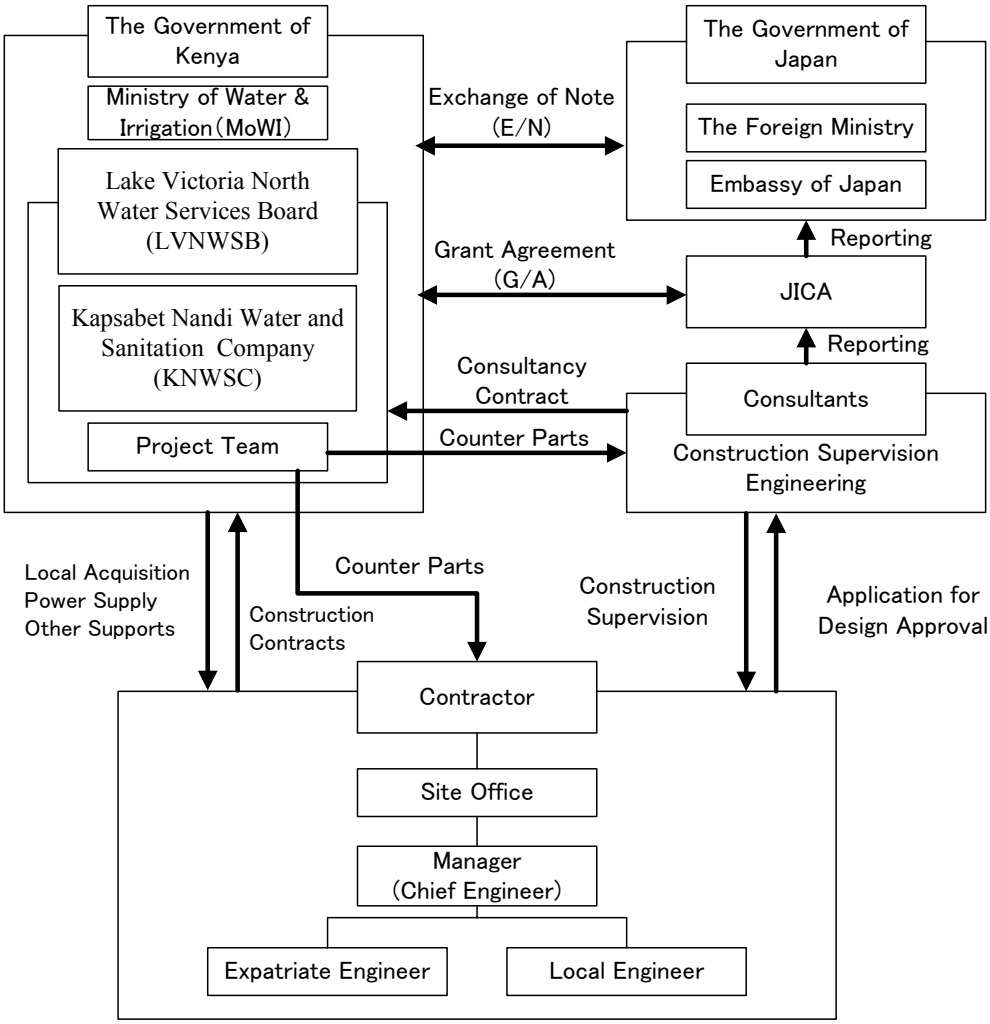


Figure 2-12 Project Implementation System

The Project Team to be organized in LVNWSB and KNWSC will be in charge of the project implementation from the detailed design stage. The project Team will be responsible for the following works.

a. To represent LVNWSB for the project implementation;
b. To liaise and coordinate with the Kenyan Government Agencies;

c. To liaise and coordinate with the external organizations related to the Project;
d. To work as counterparts for consultants in designing and tendering; and
e. To secure manpower for additional study and tests, if required

The selected Japanese Consultants will undertake detailed design, tendering, construction supervision, aiming for project completion within the given time frame. Thus the consultants will dispatch a resident engineer who will supervise construction works on behalf of LVNWSB. The consultants will also dispatch borehole, civil, mechanical and electrical engineers for construction supervision.

As the project consists of civil works, pipe laying works and mechanical/electrical works, it is considered appropriate that a Japanese civil contractor with experience in the similar construction works will undertake the works. The public bidding system will be used for selection of the contractor. The consultants, in consultation with LVNWSC, will prepare bidders' qualification requirement and selection criteria for the Contractor.

During the construction works, the Japanese contractor will dispatch resident engineers at site, and supervise and instruct the local sub-contractors. The construction industry in Kenya is well matured and the local construction companies can work on this project as sub-contractors.

2-2-4-2 Implementation Conditions

The construction works consist of rehabilitation of intake weir, construction of WTP/service reservoir, construction of raw water pipe/transmission pipe and distribution pipe. In addition, mechanic/electric equipment such as pump equipment will be installed in the new WTP. The site office and material storage yard may be set up around the intake weir, the opposite the bank of existing WTP or the adjacent public land beside the KNWSC office. The site office and material storage yard may also be designed within the planned construction area of new service reservoir which has a plenty of vacant space.

If the construction materials and heavy equipment are successfully procured, the construction works can be carried out by local contractors. Therefore, the local contractors shall be employed matching their experience with work requirements.
Conditions for the construction works are classified by general items and safety management as follows.

<u>General Items</u>

a. The five-day work week system (days off on Saturday & Sunday) is firmly fixed in Kenya. It is noteworthy that some Muslims may take leave for several days after the period of id ul-fitr.

b. Kapsabet Town is a major municipality in Nandi prefecture, located at the northwest of Capital Nairobi. It also is located approximately 50km, 69km and 79km respectively from the Eldoret City at northeast side, Kakamega City and Kisumu City at west side. The procurement of laborers and transportation of materials/equipment shall take this matter into consideration,

c. Kenya has standards on vehicle delivery. Though the railway was privatized on November 2006, it serves from Mombasa City till Kisumu City. However, land transportation by truck still occupies 80% shares on transportation service in terms of economy and convenience.

d. For several years now, the annual rainfall in Kapsabet has exceeded 2,100mm on an average. Its climate can be divided into i) long-term rainy season (March - September); ii.) short-term rainy season (October - December); and iii) dry season (January - February). Rain mainly falls from the early evening till night; and there are thunderstorms sometimes during the long-term rainy season. On the other hand, rain generally falls in the daytime during the short-term rainy season, and drizzles are always relatively mild. Construction efficiency may be low during rainy days considering a volume of rain of 10mm/day within the entire rainy season. Furthermore, complete countermeasure on the indispensable mechanical and electrical equipment for the water supply system shall be implemented taking the report by thunderstorm damage into account.

e. Rehabilitation works on the intake facilities and raw water pipeline are planned to be completed by February because of the relatively low rainfall during short-term rainy season. As to other construction works, drain work will be conducted during intensified heavy rainfall during long-term rainy season.

f. Countermeasures against rock excavation on earth works related to the rehabilitation of the intake weir, the installation of raw water pipeline and a part of transmission pipe, and other works in lower area around the Kabutie River shall be considered.

g. As to pipes installed in the steep slope section, protection measures shall be taken to prevent the damage caused by rainfall erosion or vehicle traffic.

h. With regard to the pipe laying works within the urban area, the installation shall be done on the vacant land space outside of the storm water gutter because the laying pipes under a paved road is not authorized. In addition, LVNWSB and KNWSC will have to compensate the use of private land for some sites.

i. Protection measures using the concrete pipes crossing a portion over national highway and/or major roads inside of urban area shall be taken in accordance with the regulations by Road Department.

j. The construction process without closing the national highway must be planned because this road

is the trunk route of inland transportation.

k. Arranging for the plant site for concrete mixing is needed because there are no ready-mixed concrete plants in Kapsabet Town and/or its neighboring towns. Quality control of concrete shall be maintained properly.

l. Pump installation/test run and welding inspection etc. shall be carried out under complete supervision by Japanese experts.

m. As to the part of access road towards the intake weir and/or the section where the roads' condition is expected to be heavily affected by rainfall, secondary haulage by use of tractor shall be utilized.

n. Value-added tax (VAT) and taxes on imports can be exempted by following the designated procedures. However, tax refunds can be applied to locally procured parts.

o. A comprehensive construction plan that takes into environmental concerns into consideration is required even if the EIA for the implementation of the Project has already completed. All the responses on environmental condition such as the restoration of material procurement field, countermeasures on dusts/noise/turbid water treatment, and disposal method of surplus soils, shall be undertaken in accordance with the regulations by National Environment Management Authority (NEMA).

p. Power generators shall be prepared during construction to guard against the frequent power failure because of the weakness of local power infrastructure.

q. Kapsabet Town is beset with frequent water shortages, so water tankers and storage tanks shall be arranged to ensure continuous supply required for the construction.

r. Response on escalating prices will be measured. through i) estimated labor rate with 8%, 8%, 7% and 8% in 2005, 2006, 2007 and 2008 respectively published by the authority concerned; ii) price escalation indexes published by Japanese External Trade Organization (JETRO).

Safety Regards

On-site safety verification study in Kapsabet urban area will be performed according to the information from JICA Kenya Office and Embassy of Japan, and the following safety measures shall be taken.

a. LVNWSB shall act as a counterpart (C/P) and provide advice on a progressive basis for the safe and smooth implementation of the construction works.

b. Close communication with the other donors concerned around Kapsabet Town shall be maintained to share the information on security.

c. There are no large-scale hotels in Kapsabet Town but simple lodging houses can be found which still may be inadequate on the aspects of safety/hygiene/management. There may be several hotels available for foreigners in neighboring major cities (Kisumu, Kakamega and Eldoret

Cities), but risk of accidents or crimes remain high especially when traveling under bad weather or after sunset. Therefore, it may be best to build lodging house for long-staying experts in suitable areas of the town.

d. Work vehicles and machinery shall be marked by logo that indicates that the project is supported by Japanese Government.

e. Basic Operating Guidelines (BOG) shall be publicized to be known to all construction persons concerned against the unforeseen circumstances on security.

Others

a. Procurement of cement

Cement used for ready-mixed concrete that is commonly applied to the concrete structures is monopolized and sold by a private company in Kenya. Cement with low strength (made by a company in Mombasa City) is also distributed in the market, however, sales and deals are only by cash.

b. Procurement of reinforcing bar

Demand for reinforcing bars is high because of the construction rush accompanying the FIFA World Cup to be held in June 2010 in South Africa. Some kinds of reinforcing bar are difficult to import. Also, there is a lag time of three months before goods are received.

c. Procurement of form

The forms shall be procured in Kenya basically. However, it is necessary to take appropriate measures for stable procurement of the forms guaranteed with the specified quality, considering the construction rush mentioned above.

d. Procurement of sand (fine aggregate)

Fine aggregates generated in the course of crushing rock are available in the market with acceptable quality.

e. Transportation cost

Fuel cost has also been increasing under a common price escalation in Kenya. As a result, inland transportation cost coming from trucking will be directly affected. The run-up of fuel cost shall, therefore be taken into consideration.

f. Appreciation of Kenya Shilling (Kshs)

Recently, Kenya shilling (Kshs) went up and such a trend still has a high probability of happening in the future.

2-2-4-3 Scope of Works

Table 2-24 summarizes the scope of works for both Japanese and Kenyan Governments. Similarly, as the general items, the scope of major undertakings to be taken by Japanese and recipient side, which follows the Japanese Grant Aid Scheme is shown in Table 2-25.

Table 2-24 Project Scope for Kenyan and Japanese Governments

Item	Type	Kenya	Japan
Rehabilitation of Intake Weir and Construction of Raw Water Pipeline	Equipment Procurement and Materials		○
	Rehabilitation/Construction Works		○
Construction of WTP, Service Reservoir, Transmission Pipeline and Distribution Pipelines	Equipment Procurement & Materials		○
	Construction Works		○
	Installation		○
	Land Acquisition	○	
	Installation of Fence	○	
	Provision of Power Lines	○	
Common Items	Improvement of Access Road (Outside of Site)	○	
	Acquisition of Approvals and Licenses Required	○	

Table 2-25 Major Undertakings to be taken by Each Government (General)

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	●	
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the building	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) for the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
8	To bear the following commissions to the Japanese bank for banking service based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
10	To accord Japanese nationals, whose service may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contacts		●
12	To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant		●
13	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(Remarks) B/A: Banking Arrangement, A/P: Authorization to Pay

2-2-4-4 Consultant Supervision

After the completion of this basic design study, the project is subject to the cabinet approval of Government of Japan. Upon the cabinet approval, Japanese and Kenya Governments will sign the Exchange of Notes on grant aid for the project.

(1) Detailed Design

Based on the Exchange of Notes, LVNWSB will hire the consultants for detailed design works for the project. After the GOJ verification of the detailed design contract, the consultants will perform detailed site survey and prepare detailed design, cost estimates and tender documents in Japan.

(2) Tendering and Evaluation

All the tender documents are subject to LVNWSB approval. After the approval, the consultants will immediately proceed with tendering.

a. To allow one week for bidders to prepare an application for prequalification
b. To evaluate prequalification submissions from the bidders immediately
c. To allow one and half months for pre-qualified bidders to prepare bidding documents after providing tender documents to each pre-qualified bidder.
d. To recommend the lowest qualified bidder for LVNWSB as a successful bidder and assist LVNWSB in contract negotiation.

(3) Construction Supervision

Construction works include civil works, plumbing works, mechanical/electrical works. Besides a resident civil engineer, the consultants will dispatch civil engineers for plumbing and structures, mechanical and electrical engineers to the construction site in a few occasions, as construction works requires supervision by the above specialists. The consultants will hire local engineers to support their works.

The resident engineer of the consultants will maintain close contact with LVNWSB and the contractors throughout the project implementation. The resident engineer will submit progress reports to the JICA Kenya Office and to the JICA headquarters at the agreed interval.

2-2-4-5 Quality Control Plan

Consultant shall instruct the Contractor to perform the analyses and tests etc. related to the facility construction works as shown in Table 2-26 and these shall reflect results on quality control.

Table 2-26 Test Methods on Quality Control

Work Items	Control Points	Method	Applicable Criteria
Pipe Materials	- Strength/Dimension - Appearance/Dimension	- Verification on Report of Shop Inspection & Tests - Visual Inspection/Dimensional Measurement - Gauge	Criteria of Japan
Plumbing Conditions	- Torque - With or Without Water Leakage - Painting	-Torque Wrench (Tension Wrench) - Hydrostatic Test - film thickness meter/Visual Inspection	Criteria of Japan
Foundation	Ground Bearing Capacity	Plate Bearing Test	Criteria of Japan
Concrete	- Aggregate/Cement/Water - Ready Mixed Concrete - Concrete Strength	- Physical/Chemical Tests - Grain Size Analysis - Slump/Air Content/Chloride Content - Compressive Strength Test	
Reinforcing Steel Bar	Strength	- Tensile Strength - Bar Arrangement (Scheduling) Inspection	Criteria of Japan 440 - 600N/mm^2 Products made in Kenya 545 - 595N/mm^2
Structural Output		Dimension Inspection	
Water Proofing Works	- Material Quality - Coating Film/Adhesive force - Coating Conditions - With or Without Water Leakage	- Verification on Certificate of Quality - Film Thickness Test/Tension Test - Visual Inspection - Stretch Test	Criteria of Japan
Electrical/Mechanic Equipment	- Installation Precision - Capability	- Measurement on Installation Location - Loading Running Test	Criteria of Japan

2-2-4-6 Procurement Plan

(1) Supplier

As to procurement of construction materials and equipment, the countries eligible on Grant Aid shall be the recipient country and/or Japan. Equipment and materials required for the Project shall be procured from the domestic market wherever possible. However, if equipment and materials cannot be procured from the domestic market or if those available in the domestic market cannot meet the quality specification or provide stable terms of purchase or prices, then procurement will be from Japan and/or third country taking the cost-benefit performance, ease in O&M and self-sustainability. Third Countries mean southern African countries near Kenya and/or EU nations.

a. Civil Materials

Among the main civil engineering and building works, common construction materials such as cement, gravel, sand, brick, timber (squared timber & board), petrol and oil etc. can be procured in Kenya. However, it is necessary to take appropriate measures for stable procurement of the forms guaranteed with the specified quality

b. Pipe Materials

Ductile iron pipe has been produced in Kenya before, however, it can be judged that there are currently no available products being distributed to meet the required quality. Ductile iron pipe will be mostly used for piping work of new WTP which requires a lot of fittings. Therefore, ductile iron pipes shall be better to be procur from Japan than from the third countries because of reliability of quality and easiness of procurement.

As for steel pipes, several local manufacturers are currently producing the pipes with coating on inside and outside. uPVC pipes for water works are also available in Nairobi. Therefore, such pipes shall be procured in Kenya. However, the high pressure steel pipe for transmission pipe shall be procured from Japan.

c. Mechanical/Electrical Equipment

Mechanical/electrical equipment is required without few troubles in the Project. In addition, such equipment for the facilities of new WTP is so particular with a limited quantity. Therefore Japanese mechanical/electrical equipment with higher reliability shall be adopted from the viewpoint of product reliability in comparison with procurement form the third countries.

d. Filter Sand

Filter sand to be used for rapid sand filter of WTP is required with high-level specification in terms of effective size, specific gravity and coefficient of uniformity. During the field study, it was confirmed that filter media being supplied in Kenya can be utilized, since such filter media is without any issues in term of quality.

e. Construction Machinery

There are some unknown factors regarding the failure and/or breakdown of numerical quantity available in construction machinery in the lease market in Kenya, however, domestic field procurement is applicable to general construction machinery.

Table 2-27 summarizes the procurement category on construction equipment and materials.

Table 2-27 Procurement Plan

Construction Equipment & Materials		Expected Country of Origin		
Category	Item	Kenya	Japan	3rd Country
Materials for Civil Engineering Works	Cement	○		
	Reinforcing Steel Bar	○		
	Form	○		
	Sand, Gravel, Brick	○		
	Diesel Oil and Petrol etc.	○		
Piping Materials	Ductile Iron Pipe		○	
	Steel Pipe	○		
	uPVC Pipe	○		
Mechanic/Electrical Equipment and Others	Pumps		○	
	Chlorine Feeding Facilities		○	
	Filtering Sand	○		
Construction Machinery (by Lease)	Construction Equipment	○		

(2) Delivery and Storage Yard

The delivery and storage site for procured materials shall be set up as a field base within Kapsabet Town.

2-2-4-7 Operational Guidance Plan

Prior to turn-over of the facilities, the start-up and commissioning program will be carried out in order to verify the function and operation of the equipment such as pump equipment and chemicals dosing equipment installed at the WTP and others. In this program, the Contractor will provide the required guidance/trainings mainly for operation method and trouble shooting of the relevant equipment to the technical staff of KNWSC as an initial operational guidance.

Table 2-28 Initial Operational Guidance

Facility	Contents	Remarks
WTP	Surface wash pump: Function test, ON-OFF operation, Set-up of pumping rate, Daily check Transmission pump: Function test, ON-OFF operation, Set-up of operational water levels of the reservoir, Daily check, Emergency measures Chemicals dosing equipment: Set-up of dosing rates, Hand mixer operation, Daily check	
Service reservoirs	Water level indicator: Function test, Daily check	
Raw Water / transmission/distribution pipelines	Valves: Function test, valve operation, Daily check	
Intake weir	Gate/valves: Function test, operation, Daily check	

2-2-4-8 Soft Component Plan

In order to enhance the performance of business operation of water services and maintain the sustainability, the KNWSC has to carry out appropriate O&M and business management with strengthening the

organization. Considering the current status of Kenya, however, it is considered not easy for KNWSC to recruit personnel who possess the required knowledge and skills. To achieve the above objectives, it is decided that a strong engineering and management support would be effective and the following soft component program was planned. (Details are referred to Appendix 6).

1) Engineering Training

- Training for O&M of Water Supply Facilities
- Training for water leakage prevention and water meter management

2) Management Training

- Training for business operation
- Training for billing/accounting system operation
- Training for public education

2-2-4-9 Implementation Schedule

With regard to implementation period, it is anticipated that 22.5 months will be required for the construction works and 4.5 months for the detailed design. In addition to this, the period for carrying out the soft component program will be needed. Therefore, a total of 33.5 months is required for the project implementation. In the construction works, the longest period will be needed for construction of water treatment plant, which is estimated to be at least 19 months. It is appropriate that the Project be implemented by Japanese Government Bonds, and approximately three years will be assumed from the detailed design up to the completion. Figure 2-13 represents the proposed implementation schedule of the Project.

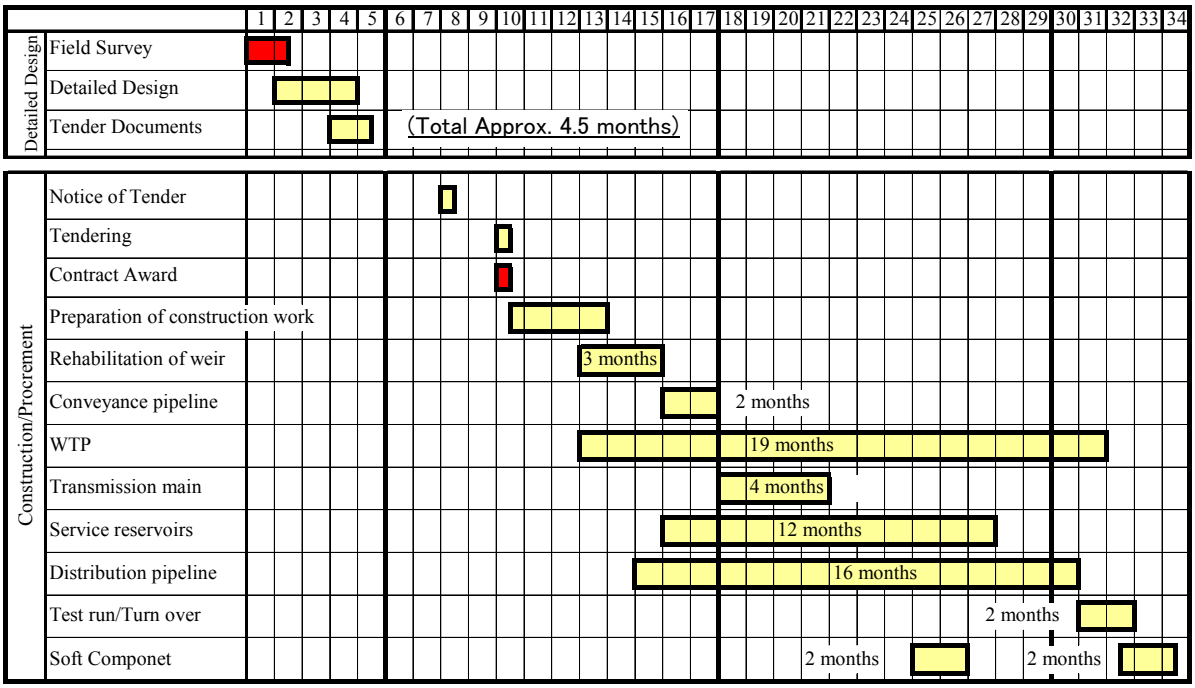


Figure 2-13 Implementation Schedule

2-3 Obligations of Recipient Country

The Government of Kenya and LVNWSB will undertake the works described in Sub-section 2-2-4-3 for the completion of the Project. Those works are listed below in details.

a. Land Acquisition

- Water Treatment Plant: 1 site
- Service Reservoir: 1 site
- Raw Water/Transmission/Distribution Pipelines

b. Fencing

- Water Treatment Plant: 1 site
- Service Reservoirs: 2 sites

c. Power Lines

- Water Treatment Plant: 1 site
- Service Reservoirs: 2 sites

d. Access Road outside of Construction Sites

e. Installation of Water Meters

- Installation of Water Meters: 6,300 units

f. Installation of Service Pipe

- Installation of Service Pipe: 5,700 sites

g. Others

- Provision of the land for site office, storage yard and lodging house for resident engineer of the Contractor
- Vehicle (for soft component)

2-4 Project Operation Plan

(1) Proposed Organization of KNWSC

At present, KNWSC has a total of 12 personnel including three staff in charge of O&M of the WTP, one staff in charge of meter reading, three staff in charge of pipeline inspection. According to the records, there are 338 service connections including 46 with water meter as of July 2007. Billing and tariff collection works are carried out by hand writing only.

With the implementation of the Project, water supply capacity is augmented from the existing 620m^3/day to 3,600m^3/day and also the number of service connections is assumed to increase up to 6,500. In addition, the existing billing and accounting work is to be improved by introducing computerized billing/accounting system. Therefore, without an increase of the personnel of both engineering and business field, KNWSC cannot operate and manage water services in Kapsabet Town. The organization of KNWSC is proposed as shown in Figure 2-14 taking the current situation of KNWSC and the case of Meru City into account. The number of personnel is proposed to be 39 in total.

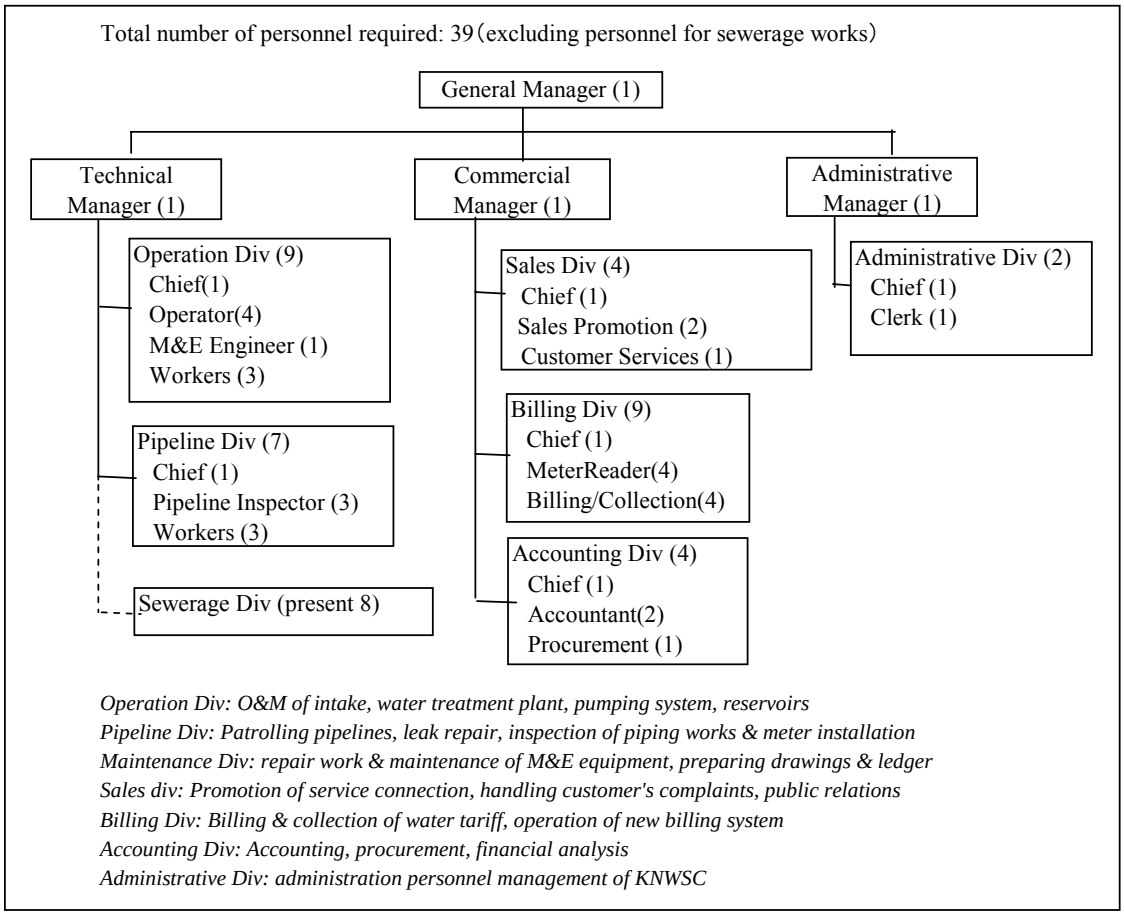


Figure 2-14　Proposed Organization of KNWSC for Target Year (Draft)

(2) Proposed Number of Personnel from Commencement of Construction Works until Target Year

Table 2-29 summarizes the proposed number of personnel by job field from commencement of the construction works until the target year. At first, the assignment of the personnel responsible for engineering is required by the time of commencement of the construction works.

Then, by the time of completion of the construction works, strengthening manpower will be required not only for operation of new WTP but meter readings, operation of computerized billing/accounting system and customer services. Therefore, it is strongly proposed that KNWSC increase the number of personnel from existing 12 to 29. Finally, additional personnel will again be required to reach a total of 39 staff until the target year as the number of service connections and water consumption increase.

Table 2-29 Proposed Numbers of Personnel until Target Year

Position	2007	2009	2010	2011	2012	2013	2014	2015
	Present	Start		Completion				Target Year
General manager	1	1	1	1	1	1	1	1
Administarative/sales manager				2	2	2	2	2
Technical manager		1	1	1	1	1	1	1
Administration officer				1	1	2	2	2
Meter readers	1	1	1	2	3	3	4	4
Data operators (Billing/colection)	2	2	2	3	3	4	5	5
Accountants			1	2	2	3	3	3
Procurement officer				1	1	1	1	1
Customer services officer				2	2	3	3	4
Facility operators	5	5	5	9	9	9	9	9
Pipe fitter/patroller	3	3	3	5	5	6	6	7
Total	12	13	14	29	30	35	37	39
（Installation of Service Connections）								
Nos. of service connection	338	400	400	1,620	2,840	4,060	5,280	6,500
Nos. of water meters	46	400	400	800	1,125	1,450	1,775	2,100
Water supply (m^3/day)	550	550	550	900	1,570	2,250	2,920	3,600

2-5 Project Cost Estimation

2-5-1 Initial cost Estimation

(1) Project Cost Estimates by Government of Kenya

The project cost to be born by the Government of Kenya is shown as below.

1) Fencing for new water treatment plant（1site）	1,203 thousand Kshs (Approx. 2.16 million Yen)
for new service reservoirs（2 sites）	1,495 thousand Kshs (Approx.2.68 million Yen)
2) Power line for new water treatment plant（1site）	266 thousand Kshs (Approx. 0.48 million Yen)
for new service reservoirs（2sites）	683 thousand Kshs (Approx. 1.23 million Yen)
3) Installation of water meters（400 units）	1,167 thousand Kshs (Approx. 2.09 million Yen)
4) Preparation of access road outside of construction sites（500m）	2,133 thousand Kshs (Approx. 3.83 million Yen)
5) Land acquisition	2,000 thousand Kshs (Approx. 3.59 million Yen)
6) Vehicle（for soft component）	3,473 thousand Kshs (Approx. 6.23 million Yen)
7) Installation of service pipes	76,932 thousand Kshs (Approx. 138.01 million Yen)
8) Bank charge	581 thousand Kshs (Approx. 1.04 million Yen)
Total	89,933 thousand Kshs (Approx. 161.34million Yen)

2-5-2 Operation and Maintenance Cost

(1) Operation and Maintenance Cost

The operation and maintenance costs by the implementation of the project are calculated for personnel, chemicals, electricity and repair costs. Aside from this, the additional costs required for sludge disposal, communication and maintenance costs for billing/accounting system are considered.

In estimating O&M Costs, the price escalations up to the target year were assumed as follow.

- Personnel costs: 15,000 Kshs/month/person (2008), 5%r escalation annually (2008-2015)
- Power tariffs: 24% escalation (2007-2008), 5% escalation annually (2008-2015)
- Others (chemicals, communication, system management, sludge disposal, office supplies, etc.): 5 % escalation annually (2007-2015)

Finally, the O&M costs for the target year will be estimated to be 27.53 million Kshs as shown in Table 5-2, which is 6.8 times of the current O&M costs.

Table2-30 O&M Cost by the Project

Item	Calculation	O&M Cost (Kshs/yr)	
		2015 (Assumed)	2007 (Actual)
Personnel	・39 persons in total 21,000Kshs/M/M×12 months×39 persons＝8,985,600 Kshs/yr	8,985,600	1,576,939
Chemicals	・Aluminum (ave. feeding ratio):30ppm 42Kshs/kg×114kg/day×365days＝1,747,600 Kshs/yr ・Soda Ash (ave. feeding ratio):5ppm 36Kshs/kg×19kg/day×365days＝249,700 Kshs/yr ・Chlorine (ave. feeding ratio as effective chlorine): 1ppm 350Kshs/kg×6.3kg/day×365days＝804,800 Kshs/yr	2,802,100	543,176
Electric power	・Water Treatment Plant 179.9kW×0.8(demand factor)×24hr×365days＝1,260,739 kWh Basic charge:950Kshs/month×12months＝11,400 Kshs/yr Extra charges:8.20 Kshs/month×1,260,739kWh＝10,338,100 Kshs/yr 11,400 Kshs/yr＋10,338,190 Kshs/yr＝10,349,500 Kshs/yr ・Distribution Reservoir 0.5kW×0.8(demand factor)×24hr ×365days＝3,504 kWh Basic charge:240Kshs/month×12months＝2,880 Kshs/yr Extra charges:10.65 Kshs/month×3,504kWh＝37,300 Kshs/yr (2,880 Kshs/yr＋37,300 Kshs/yr)×3 sites＝120,540 Kshs/yr	10,470,000	1,625,665
Communication	・Water Treatment Plant Initial cost (1st year only) 12,000 Kshs 60 counters/day (less than one minute, automatic transmission/30minutes, reconfirmed reception with 12counters) 60 counters×7 Kshs＝420Kshs/day 420 Kshs/day×365days＝153,300 Kshs/yr	153,300	
System management	・Maintenance costs on hardware & software of billing/accounting system 280,000 Kshs/yr	280,000	
Sludge disposal	・Dry sludge amount: 65m^3(90days)×2t/m^3 = 130 tons Tractor-trailer:4 t, 130 t/4t = 33 counters, 2,800 Kshs/counter 2,800 Kshs/counter×33 counters×4= 369,600 kshs/yr	369,600	
Repairing	Repairing cost = assumed 10% of Total expenses 27,530,800 ×0.1=2,717,580 Kshs/yr	2,753,080	288,000
Office supplies, etc.	Assumed 20% of personnel cost 8,985,600×0.2=1,797,120 Kshs/yr	1,797,120	
	Total	27,530,800	4,033,780

(2) Tentative Calculation on Tariff Revenue

Tariff revenue is estimated based upon the water consumption, number of service connections and water meters for the target year of 2015.

- Water consumption: 2,880 m^3/day (excluding 20% of water supply as water losses);

- Population served: 32,500 (5 persons/household);
- Number of service connections: 6,500

  2,100 for High and medium class housing, 4,400 for Low class housing
- Monthly water consumption per household:

  High and medium class housing: 17m^3/month, commercial/institutional: 565m^3/month, 25m^3/month in average

  Low class housing: 8m^3/month
- Estimated water tariff (applying current tariff schedule):

  High and medium class housing: 600Kshs/month×2,100×12months = 15,120,000 Kshs/yr

  Low class housing: 200Kshs/month×4,400×12months = 10,560,000 Kshs/yr

  Total 25,680,000 Kshs/yr

Tariff revenue is calculated as 23,112,000 Kshs/yr taking the current collection efficiency of 90% into account. Table 2-32 shows the O&M cost and tariff revenue until 2015 base on the proposed plan. Compared to the required O&M costs, the deficit of 4.2 - 4.8 million Kshs/yr will be anticipated from the completion year until the target year.

Table2-31 O&M Cost and Tariff Revenue Based on the Proposed Plan

(Unit: million Kshs)

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
a. O&M cost	4.0	4.7	5.5	5.7	11.7	15.2	19.8	23.7	27.5
b. Tariff revenue	2.2	2.2	2.2	2.2	7.0	11.0	15.0	19.1	23.1
Balance (b-a)	-1.8	-2.5	-3.3	-3.5	-4.7	-4.2	-4.8	-4.6	-4.4

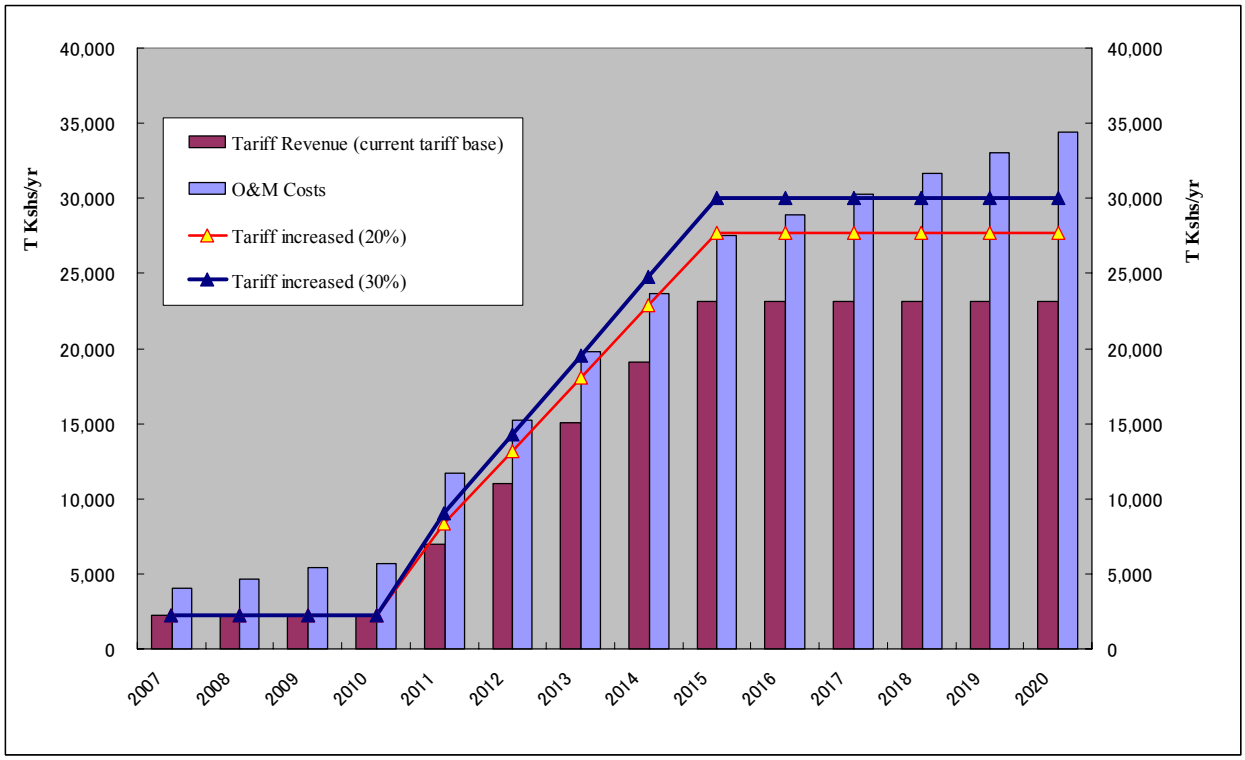


Figure 2-15 Comparison of O&M Costs and Tariff Revenue (1)

On the other hand, LVNWSB has a plan for accelerating installation of service connections. Based on this plan, O&M cost and tariff revenue will be assumed as shown in Table 2-32 and Figure 2-15. Compared to those in the proposed plan, the deficits in the intermediate years are reduced. However, these test calculations show approximately 4.4 million Kshs of deficit under the current tariff base in the target year. Therefore it is considered that around 20% of tariff increase will be needed for cost recovery.

Table2-32 O&M Cost and Tariff Revenue Based on LVNWSB Plan

(Unit: million Kshs)

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
a. Service connections (nos.)	338	443	900	2,900	4,200	5,200	6,000	6,500	6,500
b. Water production (m^3/day)	550	550	550	550	2,700	3,000	3,300	3,600	3,600
c. O&M cost	4.0	4.7	5.5	5.7	19.1	21.1	24.1	26.5	27.5
d. Tariff revenue	2.2	2.2	2.2	2.2	18.1	20.3	22.0	23.1	23.1
Balance (d-c)	-1.8	-2.5	-3.3	-3.5	-1.0	-0.8	-2.1	-3.4	-4.4

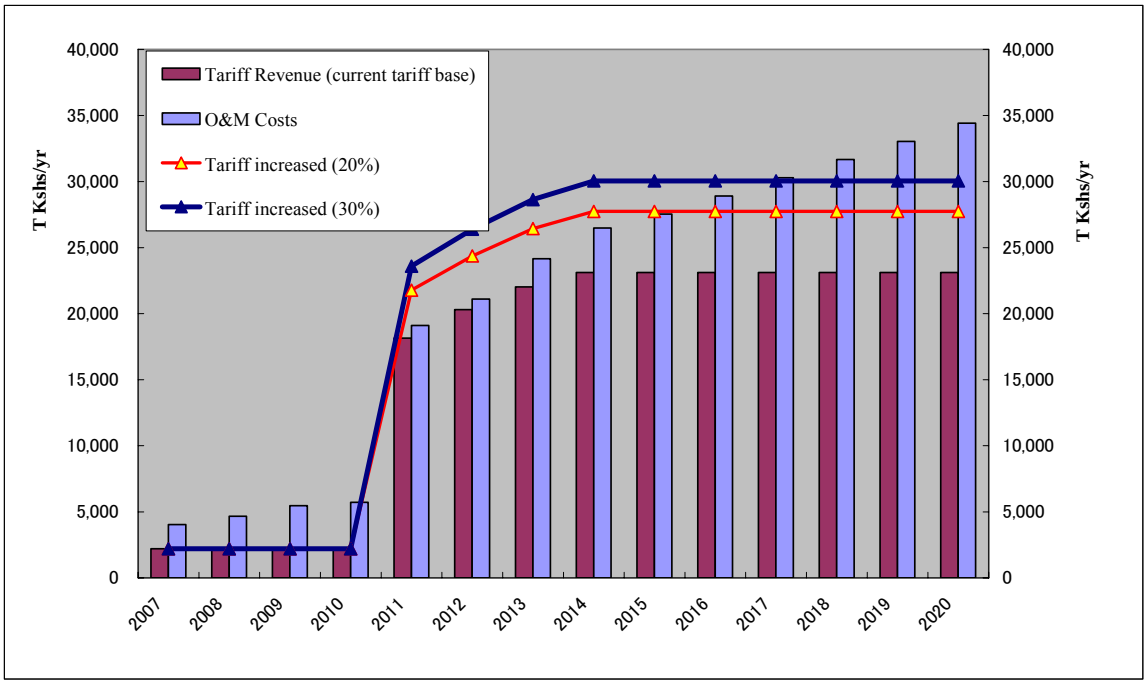


Figure 2-16 Comparison of O&M Costs and Tariff Revenue (2)

If the tariff was raised by 20%, the revised water bill will be calculated to be 450 Kshs/month in average for high and medium class housing and 240Kshs/month for low class housing, respectively. Then, tariff revenue is expected as 27.7 million Kshs resulting in surplus taking the current collection efficiency (90%) into account. As for family income and Willingness to Pay of the residents of Kapsabet Town, Table 2-34 shows the result of the social condition survey conducted during the field study period. Compared to the result, the water bills for high and medium class housing correspond to 2.3 - 4.5% of family income, which is considered within affordable level of 5% generally reported. As for low class housing, the survey result shows 300 Kshs/month for Willingness to Pay. Therefore, it is considered that such a tariff increase

will be acceptable for the beneficiaries.

In addition, since the deficit has been compensated by LVNWSB to date, it is considered that the required O&M cost can be also secured until the time when the current tariff system is revised.

Table2-33 Result of Social Condition Survey

Area	Township	Namgoi	Kamobo	Kamurguiywa
Number of sample	50	30	10	10
(using water supply)	(21)	(13)	(0)	(0)
Average Income (Kshs/month)	10,000	20,000	6,000	3,000
Willingness to Pay (Kshs/month)	300	300	300	300

In the current tariff system, there is no difference in the basic charge by diameter of water meters as well as water use (domestic, commercial, institutional). In revision of the tariff system, it is recommendable to introduce different basic charges based on diameter of water meter, water use wise and others. Furthermore, it is recommended that installation of water meters be accelerated to avoid worsening the business operation arising from wasting water due to flat rate billing.

(3) Renewal Period of the Facilities

The renewal cycle of the facilities is stipulated in the technical standards of Kenya as shown below.

Structures: 30 years

Pipes: 30 years

Mechanical and Electrical Equipment: 10 years

2-6 Other Relevant Issues

2-6-1 Existing Transmission Pipeline

Upon completion of the water supply facilities under the Project, the existing pipeline (Steel pipe, Diameter 100 mm) will be utilized as a distribution pipe to supply water from the existing Kapsabet High School Reservoir to the area near to the Kabutie River. Since the capacity of the pipe is rather large for water demand in the area, appropriate valve control will be needed. In addition, it is necessary to pay attention for water leakage because the pipe is aged.

2-6-2 Disinfection

Provision of safe water is essential for water works. Although disinfection has been practiced at the existing WTP, the current dosing rate is considered to be not appropriate. The chlorine dosing equipment

will be installed by this project for new WTP and disinfection of supply water should be conducted everyday. To practice disinfection with the proper dosing rate, water quality should be examined periodically.

3 Project Evaluation and Recommendations

3-1 Project Effect

The implementation of this project will bring about several improvements affecting the water supply facilities that would benefit the lives of the residents in Kapsabet Town.

Table3-1 Project Effect

	Status & Issues	Countermeasure by the Project	Effect by the Project Implementation
Direct Effect	- Water supply capacity is extremely short for water demand. - Number of people who access to water supply is 5,000 only.	- To construct new WTP in order to increase design capacity from existing 620m^3/day up to 3,600m^3/day	- Water supply capacity willl be increased up to 3,600m^3/day - Water supply to 32,500 people (service coverage: present 15% to 78.5%) will be possible.
	- Average water service hours are always unstable below 12 hours due to insufficient water pressure and depletion/water suspension in existing - Water quality management is not properly done.	- To newly construct service reservoir and distribution main to strengthen water supply/distribution system - To support adequate O&M of facilities by soft component program	- 24-hours water supply will be practiced and safe drinking water quality will be secured.
	- Existing water service business is operated at a deficit due to insufficient tariff revenue arising from very few actual service connections (340 incl. 46 metererd) in spite of 1,120 of registered numbers.	- To provide water meter (incl. service connection materials) - To support the acceleration of service connection by soft component program	- Number of service connection will be expected to increase to 6,500 with increase of tariff revenue. - Sound business operation will beexpected through proper billing due to acceleration of water meter
	- It is obviously anticipated that that current water tariff billing method will become an impediment to the future business operation.	- To establish the billing/accounting system by equipment provision - To support operation of billing/accounting system by soft component program	- Establishment of billing/accounting system will make bnusiness operation efficiently.
Indirect Benefits	- Waterborne disease occurred because safe drinking water supply cannot be secured or become short.	-	- Safe and stable water supply will contribute to reduce water borne diseases (diarrhea & cholera etc.) .
	- Women and children are obliged to employ the water fetching labour.	-	- Piped water system will mitigate women and children from burden of fetching water.

3-2 Recommendations

It is strongly recommended that Kenyan side be proactive in undertaking the measures to derive the maximum project benefits and thereby achieve the project goals.

(1) Before the Project Implementation

- To secure the budget required for the obligations of the Kenyan side (land acquisition for the WTPt and service reservoir, fencing works around WTP and service reservoir, and installation of water meters and service connections and others) and disburse as required in conformity with the project implementation schedule.
- To secure the required budget for organizing the Project Team and recruit the personnel for the Project. (Such activities shall also be carried out during Project operation period up to the completion of the Project.)
- To obtain the approvals and other licenses required for constructing the facilities so as not to delay or affect the timely implementation of the project.

(2) Project Operation Period

- To organize the Project Team from the detailed design stage and to manage efforts for the substantial comprehension of the Project and learning technical matters.
- To positively participate in the soft component program and make full use of learned skills to properly operate and manage the water services.
- To properly carry out the installation of water meters which are to be provided by the Project.

(3) After the Project Implementation

- Carry out the installation of water meters and service connections using the materials to be provided by the Project up to the target year of 2015.
- To properly collect the water tariff required for the business operation.

Appendices

Appendix 1

Member List of the Study Team

Appendices

Appendix 1 Member List of the Study Team

No.1: Basic Design Study

Name	Assignment	Position
Mr. Yoshiki OMURA	Team Leader	Senior Advisor, JICA
Mr. Hiromu INOUE	Planning Management	Project Study division, Grant Aid and Loan Support Dep., JICA
Mr. Nobuki ABE	Chief Consultant/Water Supply Planning/Operation & Mmaintenance	NJS Consultants Co., Ltd.
Mr. Masanobu ISHIOKA	Water Treatment Planning	NJS Consultants Co., Ltd.
Mr. Masami TSUYUKI	Distribution Planning/Pipeline Designing	OPC Co., Ltd.
Mr. Nobuhiro JINNO	Mechamical & Electrical Equipment Planning	NJS Consultants Co., Ltd.
Mr. Taketoshi ANDO	Cost Estimation/Procurement Planning	NJS Consultants Co., Ltd.

No.2: Explanation on Draft Report

Name	Assignment	Position
Mr. Yoshiki OMURA	Team Leader	Senior Advisor, JICA
Mr. Hiromu INOUE	Planning Management	Project Study division, Grant Aid and Loan Support Dep., JICA
Mr. Nobuki ABE	Chief Consultant/Water Supply Planning/Operation & Mmaintenance	NJS Consultants Co., Ltd.
Mr. Masanobu ISHIOKA	Water Treatment Planning	NJS Consultants Co., Ltd.
Mr. Taketoshi ANDO	Cost Estimation/Procurement Planning	NJS Consultants Co., Ltd.

Appendix 2

Study Schedule

Appendix 2 Study Schedule

No.1: Basic Design Study

No.	Month/Date		Activities
1	8/25	Sat	Move (Japan-Dubai
2	8/26	Sun	- Nairobi)
3	8/27	Mon	Discussion with JICA Kenya Office/MoWI
4	8/28	Tue	Data collection in Nairobi
5	8/29	Wed	Move to Kakamega
6	8/30	Thu	Discussion with LVNWSB
7	8/31	Fri	Data collection/Field survey, etc.
8	9/1	Sat	Data collection/Field survey, etc.
9	9/2	Sun	Holiday
10	9/3	Mon	Data collection/Field survey, etc.
11	9/4	Tue	Data collection/Field survey, etc.
12	9/5	Wed	Data collection/Field survey, etc. (JICA officials visit JICA/EOJ/MoWI)
13	9/6	Thu	Data collection/Field survey, etc.
14	9/7	Fri	Data collection/Field survey, etc.
15	9/8	Sat	Data collection/Field survey, etc.
16	9/9	Sun	Holiday
17	9/10	Mon	Data collection/Field survey, etc.
18	9/11	Tue	Data collection/Field survey, etc.
19	9/12	Wed	Data collection/Field survey, etc. (JICA officials: M/D signing)
20	9/13	Thu	Data collection/Field survey, etc. (JICA officials: report to JICA/EOJ)
21	9/14	Fri	Data collection/Field survey, etc.
22	9/15	Sat	Data collection/Field survey, etc.
23	9/16	Sun	Holiday
24	9/17	Mon	Data collection/Field survey, etc.
25	9/18	Tue	Data collection/Field survey, etc.
26	9/19	Wed	Data collection/Field survey, etc.
27	9/20	Thu	Data collection/Field survey, etc.
28	9/21	Fri	Data collection/Field survey, etc.
29	9/22	Sat	Data collection/Field survey, etc.
30	9/23	Sun	Holiday
31	9/24	Mon	Data collection/Field survey, etc.
32	9/25	Tue	Technical notes signing
33	9/26	Wed	Report to JICA Kenya Office/EOJ
34	9/27	Thu	Report to EOJ/ Move (Nairobi-Dubai-)/ Tsuyuki continued field study
35	9/28	Fri	-Japan)/
36	9/29	Sat	Data collection/Field survey, etc.
37	9/30	Sun	Data collection/Field survey, etc.
38	10/1	Mon	Data collection/Field survey, etc.
39	10/2	Tue	Move (Kapsabet-Nairobi)
40	10/3	Wed	Move (Nairobi-Dubai-
41	10/4	Thu	-Japan)

No.2: Explanation on Draft Report

No.	Month/Date		Activities
1	7/8	Tue	Move (Japan-Dubai
2	7/9	Wed	-Nairobi)
3	7/10	Thu	Discussion with JICA Kenya office/MoWI
4	7/11	Fri	Discuusion with MoWI
5	7/12	Sat	Internal meeting
6	7/13	Sun	Holiday
7	7/14	Mon	Discussion with JICA Kenya office/EOJ/MoWI
8	7/15	Tue	Discuusion with MoWI
9	7/16	Wed	M/D signing, Report to JICA Kenya office/EOJ
10	7/17	Thu	Move (Nairobi-Dubai
11	7/18	Fri	-Japan)

Appendix 3

Lists of Parties Concerned in the Recipient Country

Appendix 3 List pf Parties Concerned in the Recipient Country

Organization	Name	Position	Notes
Ministry of Water and Irrigation (MoWI)	Eng. David Stower, CBS	Permanent Secretary	
	Eng. Robert N. Gakubia	Director, Water Services	
	Eng. Peter O. Mangiti	Deputy Director, Donor Coordination	
	Eng. Tom O. Ogalo	Deputy Director, Planning/Design	
	Eng. I. G. Kimani	Desk Officer (JICA)	
	Eng. Chepysgon Chemeril	Staff in Charge of LNVWSB	
	Mr. Hideyuki Wakasa	JICA Expert	
Lake Victoria North Water Services Board (LVNWSB)	Eng. Diru Magomere	Chief Executive Officer	
	Eng. David M. Kimingi	Technical Manager	
	Mr. Bonface Wanyonyi	Finance and Administaration Manager	
	Eng. Claude K. Busieney	Assistant Development Manager	
	Eng, Elkawa Coech	Commissioner, External Finance	
Ministry of Finance (MoF)	Mr. Charles M. Mutiso	Asia and Pacific Desk, External Resources Department	
Kapsabet Nandi Water and Sanitation Company (KNWSC)	Mr. Gilbert Rotich	Acting General Manager	
Embassy of Japan	Mr. Onaka Kosaku	Second Secretary	
JICA Kenya Office	Mr. Takahashi Yoshiyuki	Resident Representative	
	Mr. Tokuhashi Kazuhiko	Deputy Resident Representative	
	Mr. Inamura Jiro	Deputy Resident Representative	
	Mr. Inoue Yoichi	Assistant Resident Representative	
	Ms. Ezaki Chie	Assistant Resident Representative	
	Mr. John N. Ngugi	Senior Program Officer	

Appendix 4

Minutes of Discussions

Appendix 4 Minutes of Discussions

(1) M/D: Basic Design Study

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON "THE PROJECT FOR AUGMENTATION OF WATER SUPPLY SYSTEM IN KAPSABET TOWN" IN THE REPUBLIC OF KENYA

In response to a request from the Government of the Republic of Kenya (hereinafter referred to as "Kenya"), the Government of Japan decided to conduct a Basic Design Study (hereinafter referred to as "the Study") on the Project for Rehabilitation and Extension of Water Supply System for Kapsabet Town (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Kenya a Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshiki OMURA, Senior Advisor, Institute for International Cooperation, JICA, and is scheduled to stay in the country from August 26 to October3, 2007.

The Team held series of discussions with the officials concerned of the Government of Kenya and conducted a field survey in the study area.

In the course of discussions and field survey, both parties confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Nairobi, September 12, 2007

Eng. Mahboub M. Maalim, CBS
'ermanent Secretary,
Ministry of Water and Irrigation

Eng. Yoshiki Omura
Leader,
Basic Design Study Team,
Japan International Cooperation Agency (JICA)

Eng. Diru Magomere
Chief Executive Officer,
Lake Victoria North Water Services Board

Eng. Robert N. Gakubia, HSC
Director Water Services,
Ministry of Water and Irrigation

ATTACHMENT

1. Purpose of the Project

The purpose of the project is to improve the living conditions of the target area by providing potable water through procurement of equipment and construction of water supply facilities in Kapsabet Town.

2. Target Area of the Project

The target area of the project is Kapsabet Town (Kapsabet Township and its surrounding area) as shown in Annex-1.

3. Responsible and Implementing Organizations

(1) The Responsible organization is the Ministry of Water and Irrigation.
(2) The Implementing organization is the Lake Victoria North Water Services Board (hereinafter referred to as "LVNWSB"). LVNWSB has contracted with the Kapsabet Nandi Water and Sanitation Co. Ltd. (hereinafter referred to as "KNWSC") for providing water supply services in the area.
(3) Organization charts of LVNWSB and KNWSC are shown in Annex-2.

4. Requested Components of the Project

Through discussions between the Kenyan side and the Japanese side, the Kenyan side finally confirmed the project components as described in Annex-3.

5. Japan's Grant Aid Scheme

(1) The Kenyan side understood the Japan's Grant Aid Scheme explained by the Team, as described in Annex-4.
(2) The Kenyan side also understood the necessary measures and budget allocation which are described in Annex-5, for smooth implementation of the Project.

6. Schedule of the Study

(1) The consultant members of the Team will proceed to further studies in the country until October 3, 2007.
(2) JICA will prepare the draft basic design report in English and dispatch a mission in order to explain its contents around February 2008.
(3) In case that the contents of the report are accepted in principle by the Kenyan side, JICA will finalize the report and send it to the Kenyan side around April 2008.
(4) The Kenyan side understood that execution of the Study did not imply the

Japanese Government's commitment of the project implementation.

7. Other Relevant Issues

(1) Change of the Project Title:

Both sides agreed to change the project title from "Rehabilitation and Extension of Water Supply System for Kapsabet Town" to "Augmentation of Water Supply System in Kapsabet Town".

(2) Changes from the original request

a) Rehabilitation of the existing water treatment plant

Both sides agreed that the existing water treatment plant would not be rehabilitated in view of cost-effectiveness and efficiency of plant operation. Instead, a new water treatment plant of about 3,800m3/d capacity will be constructed.

b) Procurement of equipment and construction of small office

The Kenyan side requested the Japanese side to procure computers and software for customer services such as water rate calculation, issuing water bill and so on. Moreover the Kenyan side requested the Japanese side to construct a new service office building in order to provide better services to customers since the existing office has only one service counter and is in a dilapidated state.

The Japanese side noted the request.

(3) Fair Implementation of the Project

The Team explained that some information of both the draft and the final reports of the Study should be dealt with confidentially until the tender is closed, since disclosure of the information will affect fairness of tender procedure when the project proceeds to actual implementation stage.

The Kenyan side understood and agreed on careful handling of the reports and achieving fair tendering.

(4) Undertaking of the Kenyan side

Though general undertakings of the Kenyan side are shown in Annex-5, the Japanese side emphasized responsibilities of the Kenyan side to execute following matters and the Kenyan side agreed that.

a) Land acquisition.

The Team came to know that some part of the planned land for raw water main

transmission main and distribution reservoirs are privately owned and requested the Kenyan side to secure the land in equitable manner and inform JICA of the result in writing.

b) Recruitment of technical/administrative staff of KNWSC
The Team explained that capability of operation and maintenance is one of the conditions for implementation and approval of the Project and recommended the Kenyan side to recruit some technical/administrative staff for KNWSC in order to strengthen the structure, business administration and sustainability of KNWSC.

c) Tax Payment
The Japanese side explained that Value Added Tax, customs duties and any other taxes and fiscal levy charges in Kenya arisen from the Project activities should be borne by beneficiary organizations as occasion arises. The Kenyan side understood that and made a commitment to secure some budget for refund of these taxes, if any.

Besides, the Kenyan side confirmed that the Government of Kenya shall accord privileges, exemptions and other benefits to the Team in accordance with the Agreement on technical cooperation between the Government of Japan and the Government of Kenya signed on April 30, 2004.

(5)Design period of the project
The Japanese side explained that as a general practice of Japan's Grant Aid Projects, the maximum design period might be around 2-3years after completion of the Project.
The Kenyan side requested that although Japan's Grant Aid projects provide for short emergency periods such as mentioned, this design should make provision for 10 to 20 years corresponding to the "future" and "ultimate" years of projection in accordance with the "Practice Manual for Water Supply Services" (2005); indicating in phases what components should be constructed and when during implementation of projects. Even though the Kenyan side understood that the current Japan's Grant Aid application can implement the components that are within the scope of the Aid, the Kenyan side emphasized it is difficult to change the infrastructure every 5 or so years.
After deliberation, the Kenyan side requested that provision be made in the design of the distribution mains so that the mains can cope with the demand beyond 2015 to avoid duplication of the pipeline in the immediate future.
The Japanese side agreed to convey the request to JICA Headquarters.

(6)Application of experience and lessons of similar project

The Japanese side referred to "The Project for Meru Water Supply" as a good example for capacity development and recommended the Kenyan side to utilize experience and lessons of the Meru project in order to improve the capability of operation & maintenance of KNWSC.

The Kenyan side agreed to utilize the experience of the project for Meru Water Supply and other Japan's ODA Projects.

(7) Soft component (Capacity Building)

The Kenyan side requested soft component such as training of operators and administrative staff for sustainable operation of water supply services.

The Japanese side also recognized importance of such training and agreed to convey the request to JICA Headquarters.

Annex-1: Target Area of the Project

Annex-2: Organization Chart of the Lake Victoria North Water Services Board and the Kapsabet Nandi Water and Sanitation Co. Ltd.

Annex-3: Requested Components of the Project

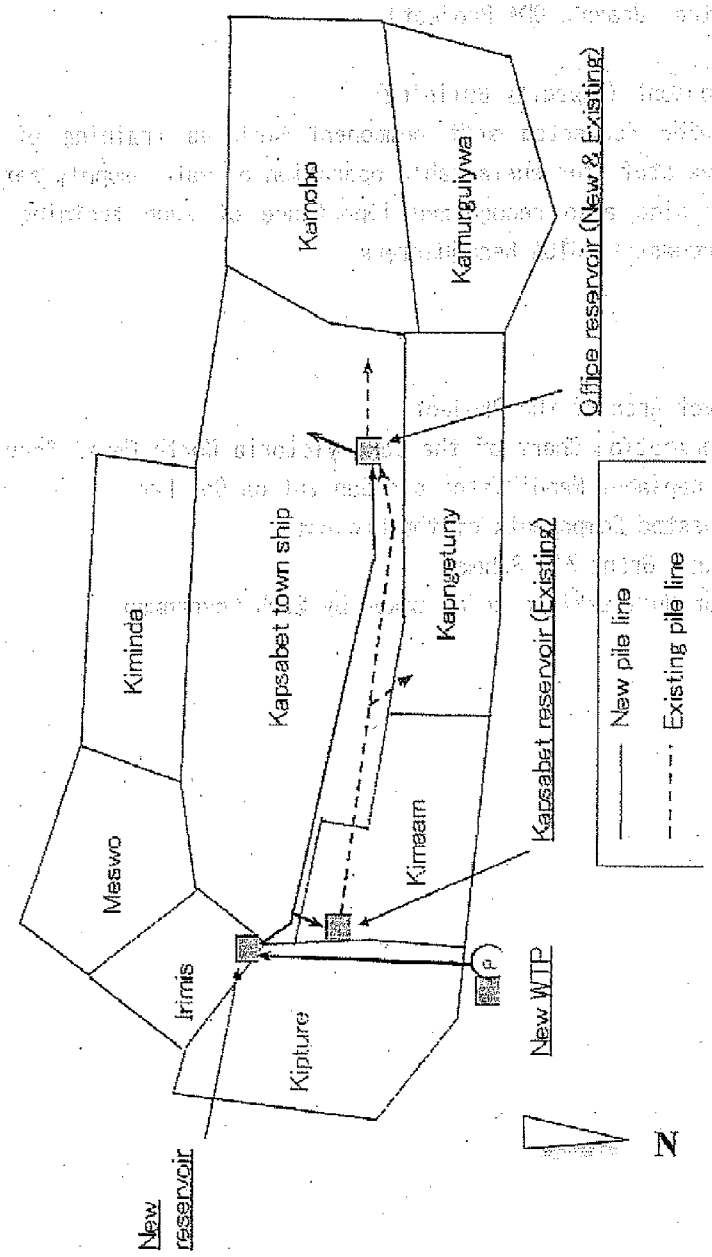
Annex-4: Japan's Grant Aid Scheme

Annex-5: Major Undertakings to be taken by Each Government

End

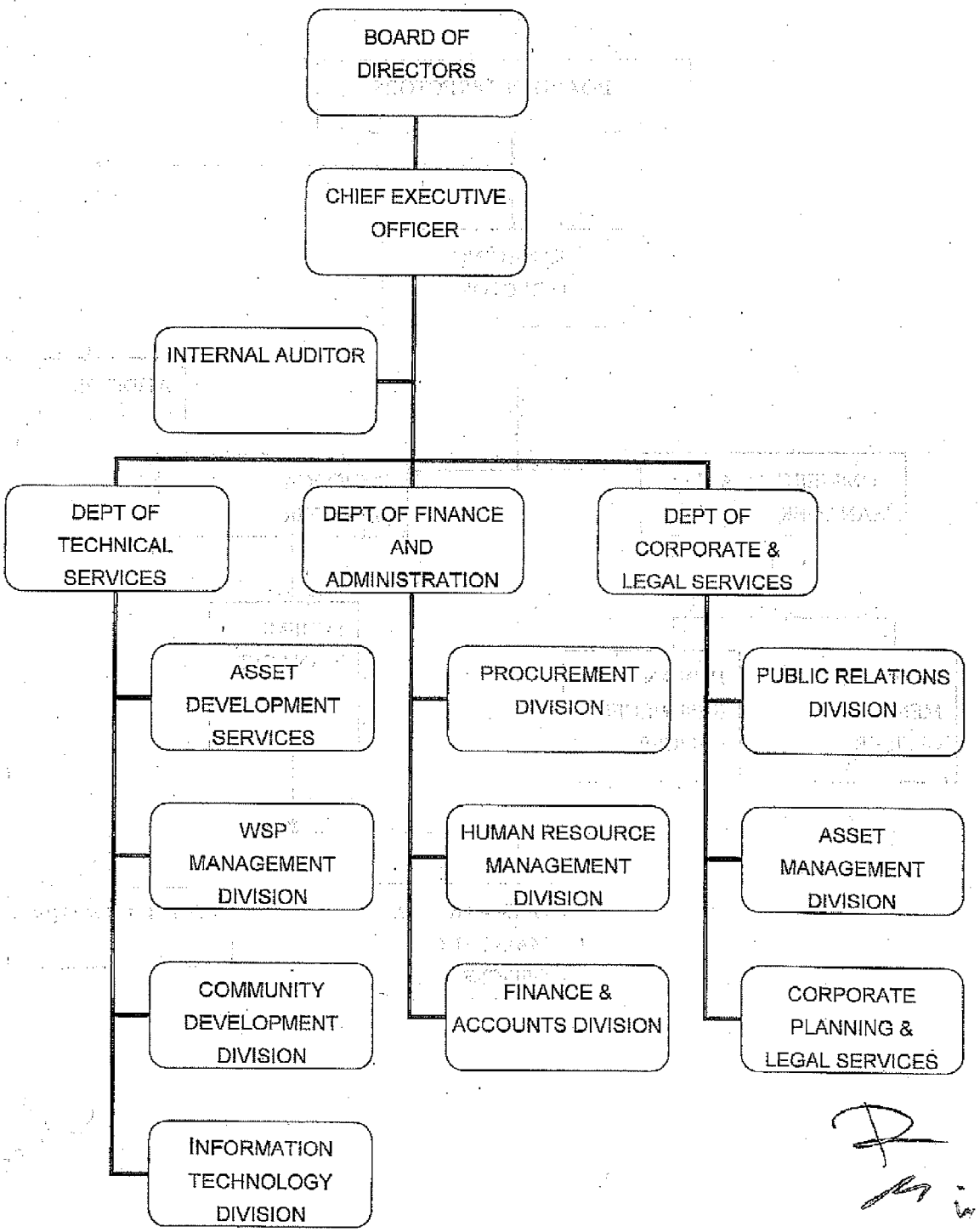
Annex-1

Target Area of the Project (Concept Study)



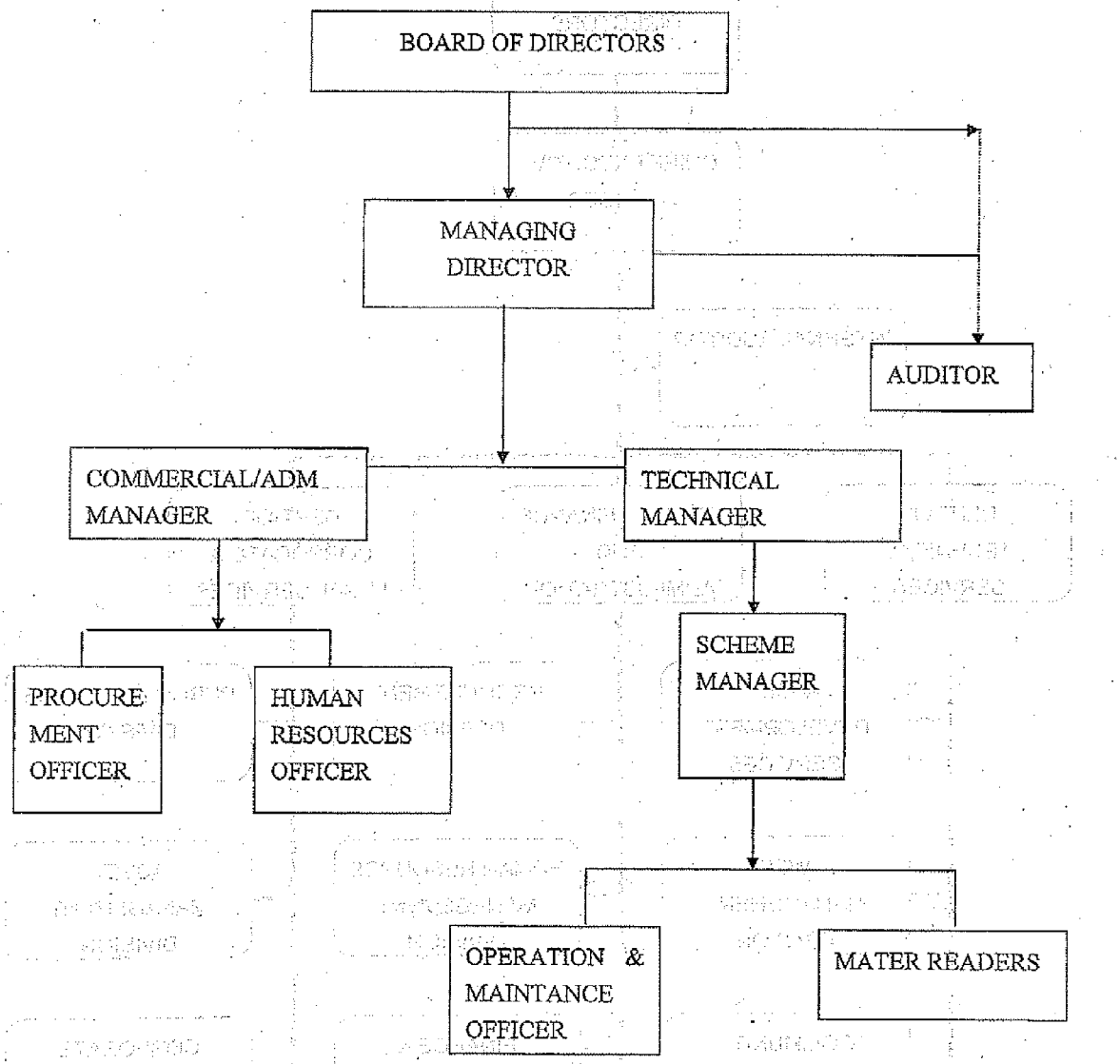
Annex-2

ORGANIZATION STRUCTURE FOR THE LAKE VICTORIA NORTH WATER SERVICES BOARD (LVNWSB)



Annex-2

KAPSABET NANDI WATER AND SANITATION COMPANY
ORGANISATION CHART



Annex-3

Requested Components of the Project

1. Construction
- Improvement of intake facilities
- Construction of water treatment plant
- Installation of raw water main,
- Installation of transmission pumps and pipelines
- Construction of distribution reservoirs
- Installation of distribution pipelines
- Construction of laboratory and store
- Construction of office cum warehouse

2. Equipment
- Water Meters
- Meter testing equipment
- Water Quality Analysis Equipment (for residual chlorine, pH, turbidity and jar testing)
- Tools Kits
- Spare Parts
- Computers and software for customer services

Note: Details of each component will be examined through further studies in Japan.

Annex-4

The Japan's Grant Aid Scheme

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(1) Grant Aid Procedure

Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Mission to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

(2) Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
d) preparation of a basic design of the Project; and
e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant

Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses a registered consulting firm selected through its own procedure (competitive proposal). The selected firm participates in the Study and prepares for a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country in order to maintain the technical consistency.

(3) Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for.

Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

5) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

a) to secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction;
b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites;
c) to ensure all expenses and prompt execution for unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
d) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;

6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

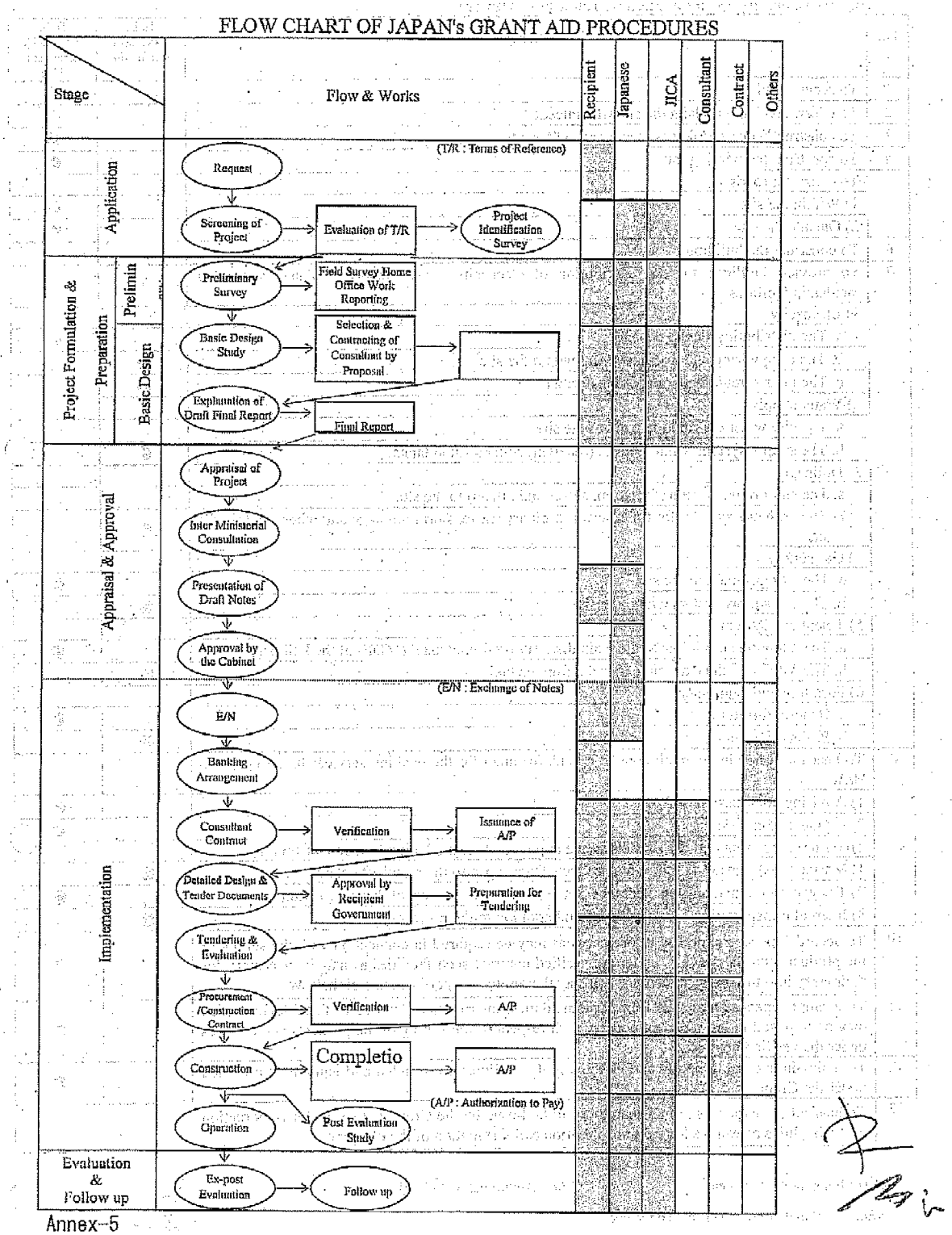
8) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.


FLOW CHART OF JAPAN's GRANT AID PROCEDURES
Stage
Flow & Works
Recipient
Japanese
JICA
Consultant
Contract
Others
Application
Project Formulation & Preparation
Preliminary
Basic Design
Appraisal & Approval
Implementation
Evaluation & Follow up
(T/R : Terms of Reference)
Request
Screening of Project
Evaluation of T/R
Project Identification Survey
Preliminary Survey
Field Survey Home Office Work Reporting
Basic Design Study
Selection & Contracting of Consultant by Proposal
Explanation of Draft Final Report
Final Report
Appraisal of Project
Inter Ministerial Consultation
Presentation of Draft Notes
Approval by the Cabinet
(E/N : Exchange of Notes)
E/N
Banking Arrangement
Consultant Contract
Verification
Issuance of A/P
Detailed Design & Tender Documents
Approval by Recipient Government
Preparation for Tendering
Tendering & Evaluation
Procurement /Construction Contract
Verification
A/P
Construction
Completio
A/P
(A/P : Authorization to Pay)
Operation
Post Evaluation Study
Ex-post Evaluation
Follow up

Annex-5

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To Clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot		●
5	To construct roads		
	1) Within the site		●
	2) Outside the site		●
6	To construct the buildings	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water supply		
	a. The city water distribution main to the site		—
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone system		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project Equipment	●	
8	To bear the following commissions to a bank in Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from port of disembarkation to the project site	●	
10	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract.		●
12	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant		●
13	To bear all the expenses , other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A: Banking Arrangement) (A/P: Authorization to Pay)

Note: Gas Supply (No. 7-4) is not applicable.

(2) M/D: Explanation on Draft Basic Design

MINUTES OF DISCUSSIONS
on
The Basic Design Study on
the Project for Augmentation of Water Supply System in Kapsabet Town
(Explanation of Draft Final Report)

In August 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Augmentation of Water Supply System in Kapsabet Town (hereinafter referred to as "the Project") to Republic of Kenya (hereinafter referred to as "Kenya"), and through discussion, field survey, and technical examination of the results of the survey in Japan, JICA prepared a Draft Final Report of the Basic Design study.

In order to explain and to consult with the Government of Kenya on the components of the Draft Final Report, JICA sent to Kenya the Draft Final Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. OMURA Yoshiki, Senior Advisor, Institute for International Cooperation, JICA, from July 8 to 18, 2008.

As a result of discussions, both sides confirmed the main items described on the attached sheets.

Nairobi July 16, 2008

Eng. OMURA Yoshiki
Leader,
Basic Design Study Team,
Japan International Cooperation Agency (JICA)

Eng. David Stower, CBS
Permanent Secretary,
Ministry of Water and Irrigation

Eng. Diru Magomere
Chief Executive Officer,
Lake Victoria North Water Services Board

Eng. Robert N. Gakubia, HSC
Director of Water Services,
Ministry of Water and Irrigation

ATTACHMENT

1. Components of the Draft Final Report

The Kenyan side agreed and accepted in principle the components of the Draft Final Report explained by the Team.

2. Japan's Grant Aid scheme

The Kenyan side understood the Japan's Grant Aid Scheme and would take the necessary measures and allocate necessary budget properly for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented. The Grant Aid Scheme and necessary measures were described in the Annex 4 and Annex 5 of the Minutes of Discussions signed by both sides on September 12, 2007 (hereinafter refereed to as "the Previous M/D").

3. Responsible and Implementing Agency

(1) The Responsible organization is the Ministry of Water and Irrigation.

(2) The Implementing organization is the Lake Victoria North Water Services Board (hereinafter referred to as "LVNWSB"). LVNWSB has contracted the Kapsabet Nandi Water and Sanitation Co. Ltd. (hereinafter referred to as "KNWSC") for providing water supply services in the Project area.

4. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Kenya by the end of October 2008.

5. Other Relevant Issues

(1) Project Cost Estimate

The Team explained to the Kenyan side the project cost estimate as attached in Annex 1.

Both sides confirmed that this cost estimate was provisional and would be examined further by the Government of Japan for its approval as the Grant.

Furthermore, both sides confirmed that this project cost estimate should never be duplicated in any form nor released to any other party(s) until the relevant contracts are awarded by LVNWSB. This embargo is for securing fairness of tender procedure.

(2) Land Acquisition

The Kenyan side explained that based on the Previous M/D, the Kenyan side proceeded to secure the land for the proposed New Reservoir but at this moment the payment has not been effected. The Team emphasized land acquisition was prerequisite to the cabinet approval of the Japanese Government. Therefore, the Team strongly requested the Kenyan side to complete the land acquisition and submit a copy of the "Title Deed", which indicates land ownership, to JICA Kenya Office by the end of August 2008. LVNWSB committed itself to clear this issue by the

time.

(3) Plan for securing personnel of the KNWSC

The Team recommended the Kenyan side to employ one (1) technical manager by the commencement of the construction works, one (1) accountant manager by the end of October 2010 and additional fifteen (15) technical, sales and administrative staff for KNWSC by the end of March 2011 when the construction works of the Project would be completed and also recommended to employ ten (10) more staff by 2015 for smooth operation and maintenance of the water supply system. The Kenyan side agreed to employ appropriate number of staff for KNWSC in accordance with the Draft Final Report.

(4)Installation of service pipe and water meters

The Team proposed to install 400 service pipes and procure 1,700 water meters in the Project, and explained all the water meters should be installed properly by the Kenyan side at its own expense including service pipes installation for 1,300 households by the end of 2012. The Kenyan side understood that proposal made by the Team and committed to install all water meters procured by the Japanese side. In addition, as prerequisite for sustainability of the Project, the Kenyan side would allocate budget for the purchase and installation of approx. 4,400 water service pipes and 4,600 water meters starting from FY 2009/10 until 2011/12.

(5) Budget arrangement for operation and maintenance of the water supply facilities

The Team explained the estimated cost for management, operation and maintenance of water supply facility in Kapsabet Town as described in Annex-2 and requested the Kenyan side to allocate necessary budget for LVNWSB and KNWSC. The Kenyan side undertook to subsidize operation and maintenance cost of KNWSC during the construction period until 2012.

(6) Undertakings of the Kenyan side

In addition to the above undertakings, the Team requested the Kenyan side to carry out followings:

a) Abide by major undertakings of the Government of Kenya regarding Japan's general grant aid scheme.
b) Arrange for counterpart personnel
c) Construct fences and electric power lines at the proposed water treatment plant and distribution reservoirs
d) Improve / maintain access roads to construction sites
e) Obtain related licenses and permits including right of way for pipelines
f) Facilitate customs clearance for imported equipment and materials
g) Secure lands for site office, base camp and stockyard for Japanese contractor and consultant

The Kenyan side agreed to the above.

(7)Capacity Development

Both sides concurred on the necessity of a technical assistance program so-called "Soft Component Program" for KNWSC in the Project and confirmed the contents of Soft Component Program as follows:

- Capacity enhancement of operation and maintenance skills of water supply facilities for technical staff of KNWSC
- Capacity enhancement of management and administration skills of KNWSC staff

The Kenyan side committed to deploy counterpart personnel to implement the Soft Component Program and bear their local cost.

(8) Tariff Study

With regard to management and administration aspects of water services, the Kenyan side requested the Team to carry out a study for water tariff revision for Kapsabet Town. The Team replied that the revision of water tariff should be the Kenyan side's mandate basically, but in the soft component program, a Japanese expert(s) would be able to support the Kenyan side's study for water tariff.

The Kenyan side understood the comment by the Team.

End

Pages A-23 and A-24 are not available.