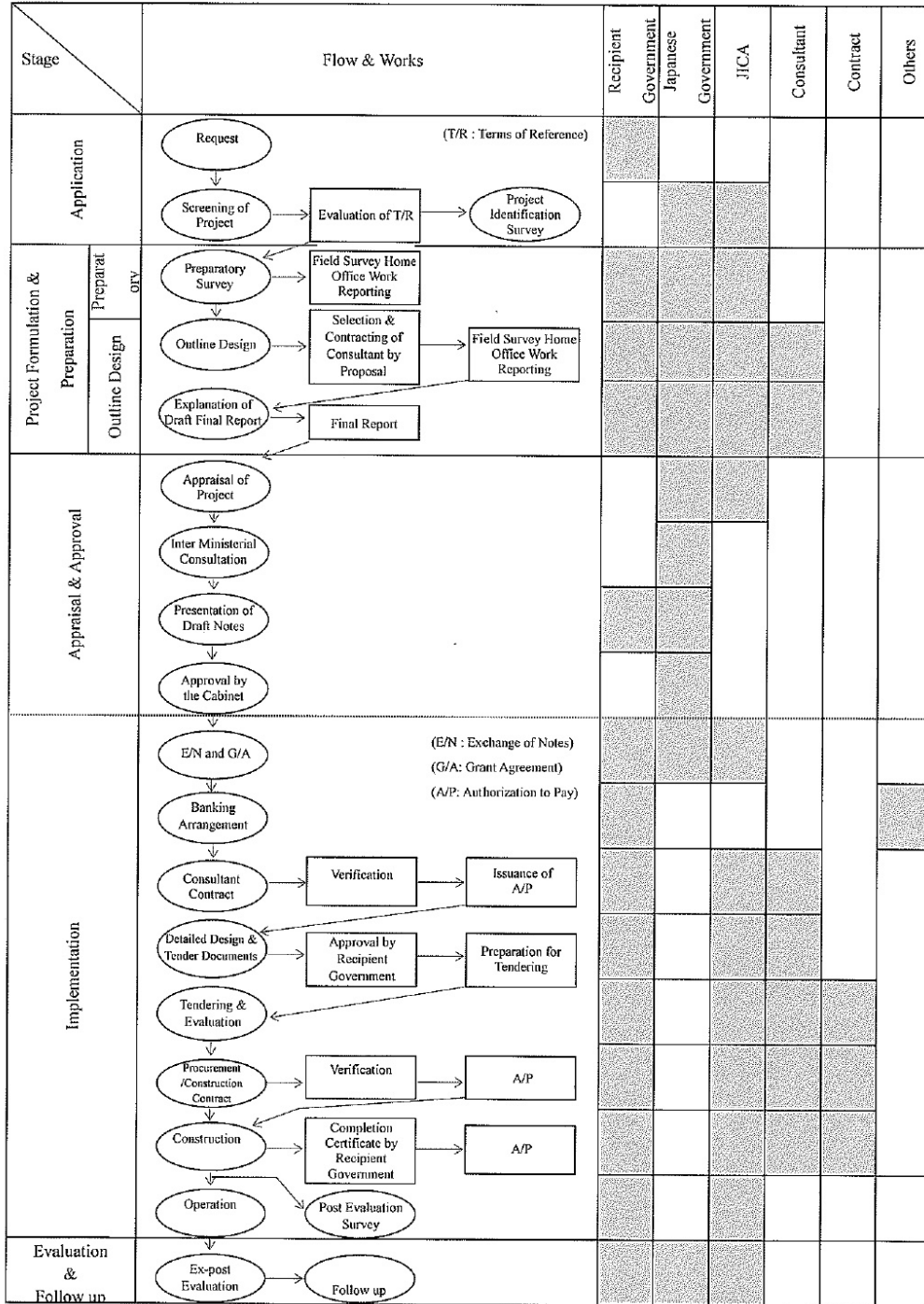


FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



## Major Undertakings to be taken by Each Governments

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		•
	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
2	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 the port of disembarkation to the project site	(•)	(•)
3	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		•
4	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
5	To ensure that the Facilities be maintained and used properly and effectively for the implementation of the Project		•
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		•
	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
7	1) Advising commission of A/P		•
	2) Payment commission		•
8	To give due environmental and social consideration in the implementation of the Project.		•

B/A : Banking Arrangement

A/P : Authorization to Pay

A

F

B

4-2 概略設計概要説明 討議議事録(M/D)

MINUTES OF DISCUSSIONS  
ON  
THE PREPARATORY SURVEY  
ON  
THE PROJECT FOR  
AUGMENTATION OF WATER SUPPLY SYSTEM IN NAROK TOWN  
IN THE REPUBLIC OF KENYA  
(EXPLANATION OF DRAFT OUTLINE DESIGN REPORT)

In February 2012, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team on "the Project for Augmentation of Water Supply System in Narok Town" (hereinafter referred to as "the Project") to the Republic of Kenya (hereinafter referred to as "Kenya") and through discussion, field survey and technical evaluation of the results in Japan, JICA prepared a draft outline design report of the survey.

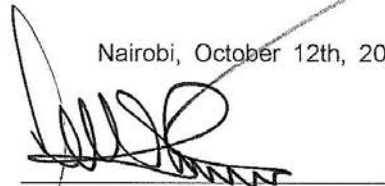
In order to explain and to consult with the Government of Kenya on the components of the draft outline design report, JICA dispatched the Draft Report Explanation Team (hereinafter referred to as "the Team") headed by Mr. Yoshiki OMURA, Senior Advisor, JICA, from 8th to 12th October 2012.

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



Mr. Yoshiki OMURA  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency

Nairobi, October 12th, 2012



Dr. David Stower, CBS, OGW  
Permanent Secretary  
Ministry of Water and Irrigation  
The Republic of Kenya



Eng. Japheth Mutai  
Chief Executive Officer  
Rift Valley Water Services Board  
The Republic of Kenya

## ATTACHMENT

### 1 Components of the Draft Outline Design Report

The Kenyan side accepted in principle the Draft Outline Design Report explained by the Team.

The Kenyan side agreed to inform JICA Kenya Office of its comments on the Draft Report by 9th November 2012.

### 2 Japan's Grant Aid Scheme

2.1 The Kenyan side understood the Japan's Grant Aid Scheme and agreed to 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 are shown in Annex-1 and Annex-2 respectively.

2.2 Both sides confirmed that the dispatch of the Team is not necessarily a commitment to implement the Project and that the scope of the Project would be examined further by the Government of Japan for its approval as a Grant Aid.

### 3 Responsible and Implementing Organisation

3.1 The responsible organisation is the Ministry of Water and Irrigation (hereinafter referred to as "MWI").

3.2 The implementing organisation is the Rift Valley Water Services Board (hereinafter referred to as "RV-WSB"), which has contracted Narok Water and Sewerage Services Company (hereinafter referred to as "NARWASSCO") to provide water services in Narok Town.

3.3 The organisation charts of the implementing organisations are shown in Annex-3A and 3B.

### 4 Schedule of the Survey

JICA will finalize the Outline Design Report and send it to Kenya by the end of January 2013.

### 5 Project Cost Estimate

The Team explained to the Kenyan side the estimated project cost as attached in Annex-4. Both sides confirmed that this estimated cost was provisional and would be examined further by the Government of Japan for its final approval.

The Kenyan side assured to secure necessary counterpart budget for the Project as shown in Annex-4.



Furthermore, both sides confirmed that this estimated project cost is strictly confidential, and should never be duplicated or released to other parties until the relevant contract is awarded by the MWI. This embargo is for securing the fairness of tender procedure.

## **6 Other Relevant Issues**

### **6.1 Project Area**

The Project area is as shown in Annex-5.

### **6.2 Project Components**

Both sides agreed on the Project components as shown in Annex-6.

### **6.3 Target Year and Water Demand**

Both sides agreed that the target year of the Project is the year 2020, and water demand of the target year was estimated based on the census 2009.

### **6.4 Revision of the Water Act 2002**

The Kenyan side explained the current status of the revision of the Water Act 2002 to the Team, and mentioned that it would not make any substantial influence on the Project.

The Kenyan side assured the Team to keep JICA informed of the water sector reform of the country.

### **6.5 Installation of Distribution Pipe/Service Pipe and Promotion of House Connection**


The Team emphasized that the RV-WSB and NARWASSCO are required to install a necessary number of house connections as shown in Annex-7 in order to achieve the target of served population by 2020.

The Kenyan side assured the Team of installing 20km of distribution pipe and house connections and water meters scheduled in Annex-7.

### **6.6 Arrangement of Staff and Budget for Operation and Maintenance**

The Team explained the estimated annual cost in 2020 for operation and maintenance of water supply facilities as described in Annex-8, which requires revision of water tariff and more efficient bill collection to recover the cost. The Kenyan side agreed to take necessary actions.

The Team emphasized that NARWASSCO needs to employ adequate number of competent staff for sustainable operation and maintenance of the water supply facilities and the Kenyan side agreed to take necessary actions.



### 6.7 Land Acquisition

The Kenyan side explained that Narok Town Council had approved in writing the transfer of the land, allotment No. Zone FTC/360, to NARWASSCO for construction of water supply facilities on April 12, 2012.

The Kenyan side also explained that the final approvals by the Ministry of Land and the National Land Commission are required and assured that this procedure will be followed up by relevant government authorities to completion.

The Kenyan side will confirm the availability of the land for construction in writing by the end of November 2012.

### 6.8 Approval of EIA

The Kenyan side explained the following:

- NARWASSCO had already submitted the Project Report outlining the Project and EIA issues, to the National Environment Management Authority (NEMA)
- NEMA accepted the Project Report as an EIA report and will grant an EIA Approval to NARWASSCO after the payment of EIA License Fee by RV-WSB
- RV-WSB had already paid EIA License Fee on 5<sup>th</sup> October, 2012

The Kenyan side assured that the final approval from NEMA will be issued soon.

The Kenyan side also assured that RV-WSB carries out required environmental monitoring at its own expense during the construction and the operation.

The Kenyan side explained that RV-WSB and NARWASSCO will decide on the sludge disposal site in accordance with the relevant Kenyan law/regulation and inform JICA Kenya Office of the decision.

### 6.9 Acquisition of Water Right

The Kenyan side explained that NARWASSCO has a water right to abstract 2,500m<sup>3</sup>/day from the Enkare Narok River at present, and also explained that it is required to apply to the Water Resources Management Authority (WRMA) for an additional abstraction of 5,000m<sup>3</sup>/day from the Enkare Narok River at the site of the proposed water intake.

The Kenyan side confirmed that WRMA issued the Water Permit No. WRMA/20/NAR/2KA/1/S of May 9, 2012 authorizing NARWASSCO to construct intake facilities of 5,000m<sup>3</sup>/day for the Project.

The Kenyan side also explained that upon issuance of the EIA license, application for water right could be commenced. The Kenyan side assured the Team that RV-WSB should take a necessary action to acquire the water right of 5,000m<sup>3</sup>/day after issuance of the EIA license.



#### 6.10 Coordination with Other Projects

The Team requested the Kenyan side to coordinate with other projects planned or conducted by NARWASSCO itself as well as by other development partners in order to avoid duplication with the Project and to create synergy effects. The Team also requested the Kenyan side that any new plan or project related to or influential on the Project should be informed to the Japanese side in advance. The Kenyan side agreed to these points.

#### 6.11 Undertakings by the Kenyan Side

In addition to the undertakings mentioned above and major undertakings described in Annex-2, the Team requested the Kenyan side to abide by undertakings listed below for the smooth implementation of the Project. Subject to the Grant Agreement the Kenyan side agreed to take necessary measures;

- (1) To provide the consultant to be engaged in detailed design and construction supervision of the Project (the Consultant) with available relevant data, information and materials necessary for project implementation,
- (2) To assign necessary number of counterpart personnel,
- (3) To secure necessary permits such as building permit and permissions for topographic survey and soil investigation,
- (4) To conduct felling and ground leveling of the access road before the commencement of the contractor's works,
- (5) To secure land for such purposes as a contractor's camp and stockyard during the construction period,
- (6) To bear the commissions of customs bond related to importing equipment and materials for the Project,
- (7) To construct the gates and fences around the intake facilities and the North Water Treatment Plant simultaneously with the construction works, and
- (8) To construct electric power line for the operation of the intake facilities and the North Water Treatment Plant by the time of half a year prior to the completion date of the construction contract.

#### 6.12 Climate Change

Both sides confirmed that the Project is expected to contribute to adaptation to climate change.

(END)

Annex:

Annex-1 Japan's Grant Aid Scheme

Annex-2 Major Undertaking to be Given by Each Government



- Annex-3 Organisation Chart of the Implementation Organisation
- Annex-4 Project Cost Estimate
- Annex-5 The Project Site
- Annex-6 Project Components
- Annex-7 Work Schedule Conducted by Kenyan Side
- Annex-8 Operation & Maintenance Cost Estimate





## JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as “the GOJ”) is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

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

### 1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

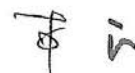
- Preparatory Survey
  - The Survey conducted by JICA
- Appraisal & Approval
  - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
  - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as “the G/A”)
  - Agreement concluded between JICA and a recipient country
- Implementation
  - Implementation of the Project on the basis of the G/A

### 2. Preparatory Survey

#### (1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.

- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of a outline design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve 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 of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

**3. Japan's Grant Aid Scheme**

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.



(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority 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, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(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 JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by 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 Annex.

(6) "Proper Use"

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

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA 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 JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.



A3



(9) Authorization to Pay (A/P)

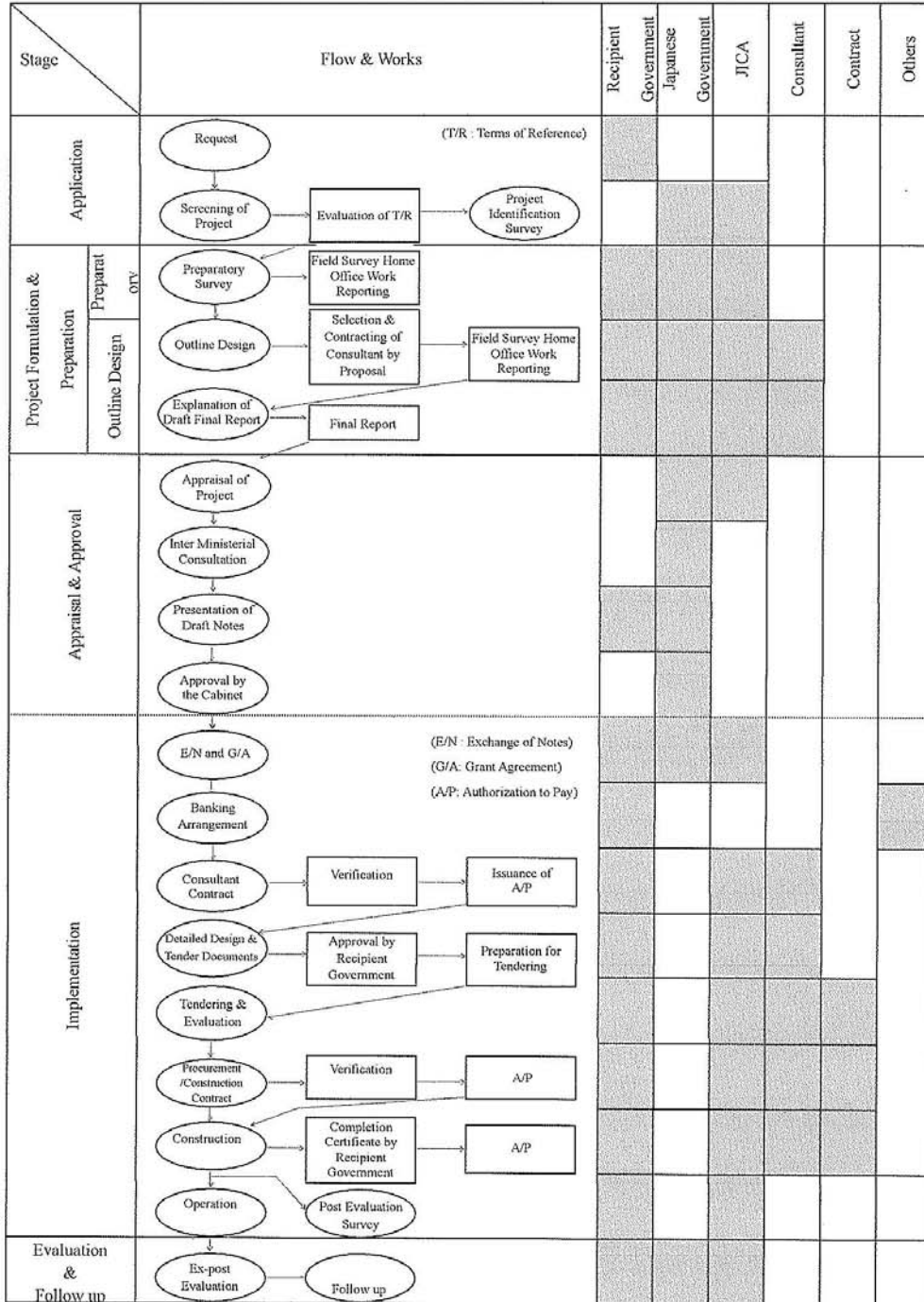
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.



FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



A5

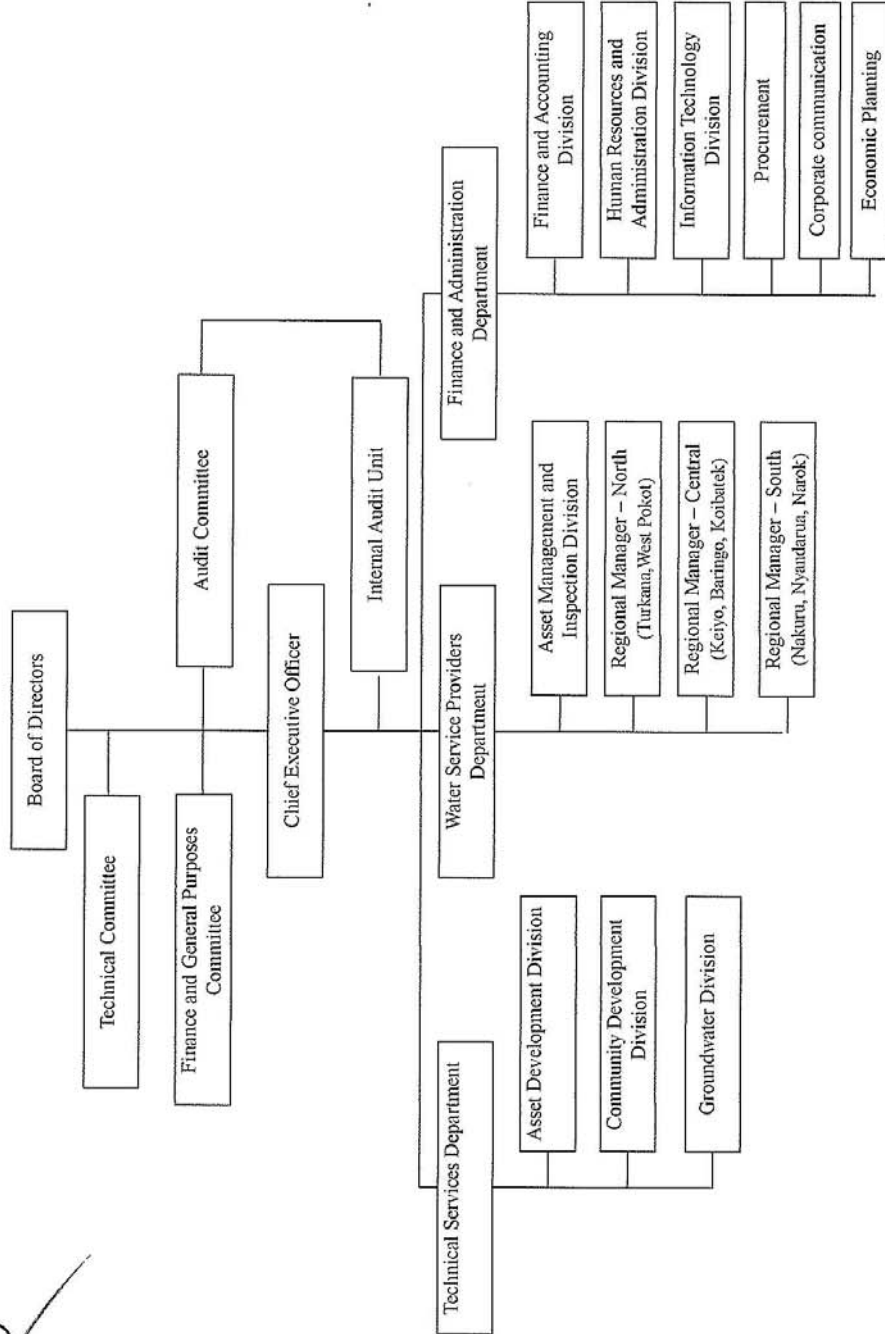
## Major Undertakings to be taken by Each Governments

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		•
2	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	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 the port of disembarkation to the project site	(•)	(•)
3	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		•
4	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
5	To ensure that the Facilities be maintained and used properly and effectively for the implementation of the Project		•
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		•
7	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		•
	2) Payment commission		•
8	To give due environmental and social consideration in the implementation of the Project.		•

B/A : Banking Arrangement

A/P : Authorization to Pay

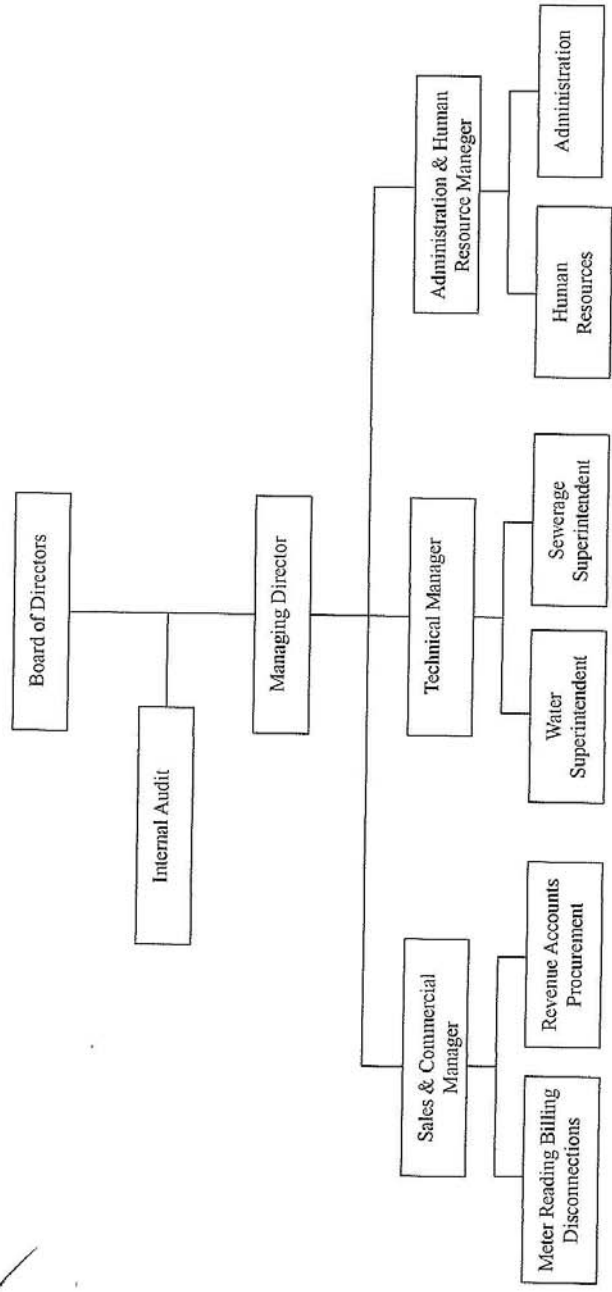
A6



source: RV-WSB

Annex-3A Organisation Chart of Rift Valley Water Services Board (RV-WSB)

A7



Annex-3B Organisation Chart of Narok Water & Sewerage Services Company Ltd. (NARWASSCO) source: NARWASSCO  
A8



**CONFIDENTIAL**

Annex-4

**Project Cost Estimate**

**(1) Project Cost to be borne by the Japanese Side**

Item	Cost Estimate (million JPY)
Construction	1,105
Materials and Equipment Procurement	56
Detailed Design, Construction Supervision and Soft Component	207
Total	1,368

(Approx. 17.2 million US\$)

**(2) Project Cost to be borne by the Kenyan Side**

No	Work Contents	Description	Quantity	Unit	Unit Cost	Cost (Kshs)
1	New North WTP	Gate	1	set	150,000	150,000
		Fence	880	m	1,900	1,672,000
2	Intake Facility	Gate	1	set	150,000	150,000
		Fence	85	m	1,900	161,500
3	Access road to intake facility (Maintenance while construction is undertaken by Japanese Grant Aid)	Construction (Felling & Leveling) of access road	1,500	m	34,000	5,100,000
4	Power receiving (distribution line + main breaker+ transformer)	WTP	30	m	-	11,000,000
		Intake facility	1,500	m	-	-
5	Distribution Pipe	Lay $\phi$ 50 mm pipe with pipe materials and labor borne by Kenyan side	20,000	m	1,000	20,000,000
6	House Connection Pipe	1/2" (13mm)	16,000	m	600	9,600,000
7	Placing Water Meter	Placing of provided meter	1,600	pcs	300	1,110,000
8	Land Acquisition	Land acquisition for the North WTP, Intake, raw water transmission pipe and access road. As they are governmental land, land acquisition cost is free	5.5	ha	-	0
9	Land Rental	Contractors Camp, stock yard and so on, 2 years	1.5	ha	1,250,000	0
10	Furniture for Administration Building	If needed	1	set	200,000	200,000
11	EIA Approval Fee		1	lot	1,000,000	1,000,000
12	Bank Commission	0.05% of total construction cost + 20,000Kshs	1	set	580,000	580,000
<b>Grand Total</b>						<b>50,723,500</b>

(Approx. 0.56 million US\$)

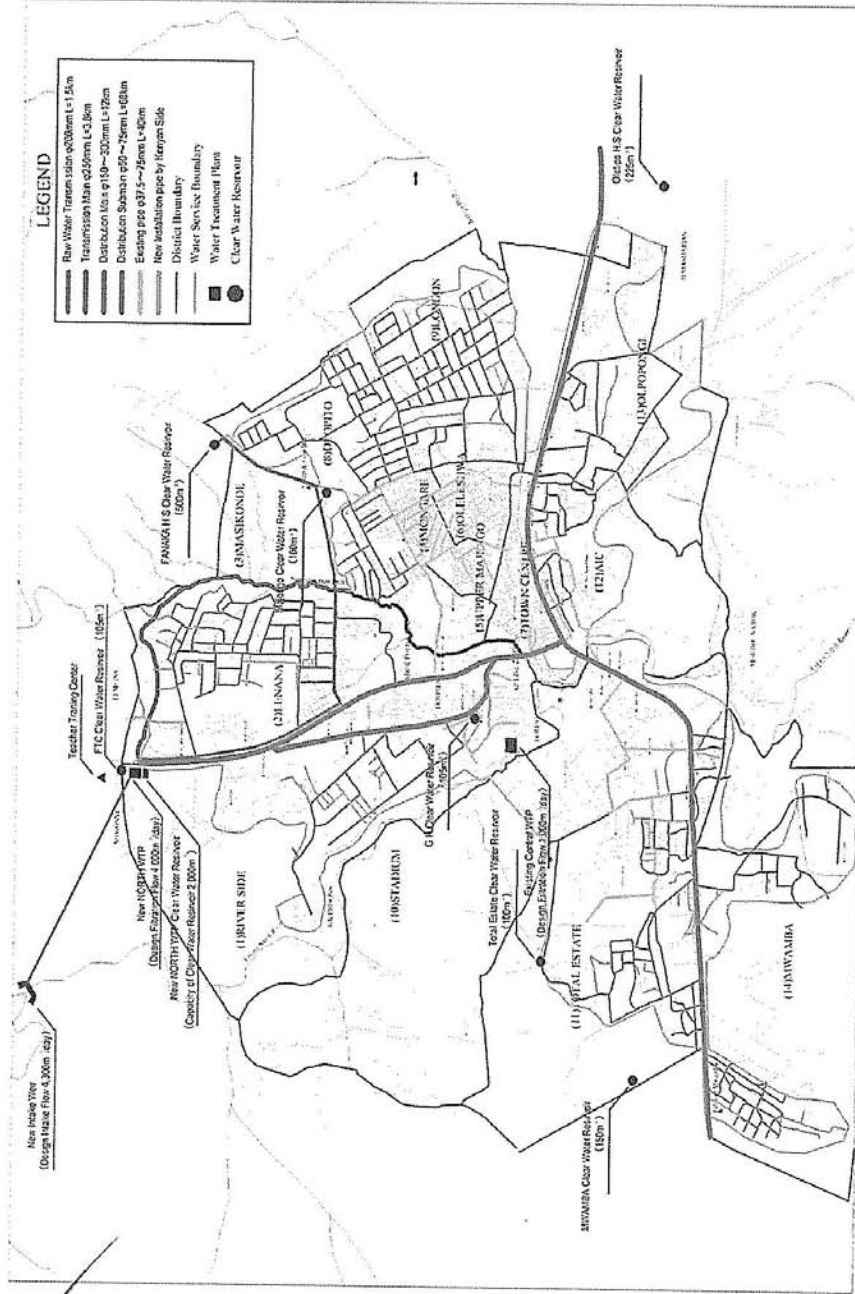
Note 1: US\$ 1.0 = JPY 79.38, Kshs 1.0 = JPY 0.881 (as of May, 2012)



A9



Project Site



A10

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## The Project Components

## (1) Construction of Water Supply Facility

No.	Item	Quantity
1	Construction of new intake facilities	Intake Weir, Intake pumps, etc. 1 set
2	Raw water transmission pipe installation	φ200 mm 1.5 km
3	Rehabilitation of the existing WTP	1,000 m <sup>3</sup> /day 1 set
4	Construction of new WTP	4,000 m <sup>3</sup> /day 1 set
5	Clear water transmission pipe installation	φ250 mm 3.8 km
6	Construction of new reservoir	2,000 m <sup>3</sup> 1 unit
7	Rehabilitation of the existing reservoirs	7 units
8	Distribution main/branch pipe installation	φ50 mm~300 mm 80 km
9	Construction of Chemical House	1 unit

## (2) Procurement of Equipment

No.	Item	Quantity
1	Chemical dosage equipment and water quality analysis equipment	1 set
2	Computer	5 units
3	Printer	4 units
4	House connection pipes	16 km
5	Water meter	1,600 pcs

## (3) Soft Component

No.	Item	Quantity
1	O&M of water supply facilities	1 set
2	Upgrading Supervising Capacity of Pipe Installation	1 set
3	Strengthening Managerial Capacity of Water Supply Undertaking	1 set

A11

**Work Schedule conducted by Kenyan Side**

Work Items	Description	Details	Work Schedule (Year)										
			1	2	3	4	5	6	7	8			
1	Installation of Distribution Pipe	L = 5km L = 5km L = 5km L = 5km											
2	Installation of House Connections (Pipe Material to be provided under the Project)	L = 8km L = 8km											
3	Installation of House Connection (Pipe Material provided by Kenyan side)	L = 4km L = 4km L = 4km											
4	Installation of Water Meters (Water Meters to be provided under the Project)	800 pcs 800 pcs											
5	Installation of Water Meters (Water Meters provided by Kenyan side)	500 pcs 500 pcs 500 pcs											
6	Felling & Leveling	500 pcs											
7	Construction of Access Road	for Temporary Work Road at Raw Water Transmission Pipe											
8	Installation of Gate & Fence at Intake	from Intake to the North WTP											
9	Installation of Gate & Fence at the North WTP	Gate: 1 set, Fence 85m Gate: 1 set, Fence 880m											
10	Preparation of Power Receiving	Distribution Line, Main Breaker, Transformer at Intake & North WTP											
11	Furniture for Administration Building at the North WTP												

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**Operation & Maintenance Cost Estimate**

Cost Items	Description (at year of 2020)	Annual O&M Cost (Kshs/Year)	
		2020	2011 Actual Performance
Personnel Cost	Total 43 persons	20,640,000	7,700,000
Chemical Cost	<u>Existing Central WTP</u>		
	• Sulfate Aluminum (Average dosing rate 80ppm)		
	• Lime (Average dosing rate 10ppm)		
	• Hypochlorous Calcium (Average dosing chlorine 2ppm)	10,614,000	2,891,000
	<u>New North WTP</u>		
	• Sulfate Aluminum (Average dosing rate 80ppm)		
	• Lime (Average dosing rate 10ppm)		
	• Hypochlorous Calcium (Average dosing 2ppm)		
Electricity	<u>Intake Facility</u>		
	Existing Central WTP	31,824,000	8,645,000
	New North WTP		
Sludge Disposal Cost	Generated amount of dried sludge : 53 tons	780,000	-
Equipment Repair Cost	Providing 4 % of mechanical/electrical equipment cost	9,400,000	5,332,000
Office Expense, etc	Calculate on 15% of total of abovementioned costs	11,000,000	6,332,000
<b>Total</b>		<b>84,258,000</b>	<b>30,900,000</b>

**TECHNICAL NOTE**

**ON THE PREPARATORY SURVEY  
ON THE PROJECT FOR  
AUGMENTATION OF WATER SUPPLY SYSTEM IN NAROK TOWN  
IN THE REPUBLIC OF KENYA**

**AGREED UPON BETWEEN  
RIFT VALLY WATER SERVICES BOARD,  
NAROK WATER & SEWERAGE SERVICE CO. LTD.  
AND  
JICA STUDY TEAM**

**30 MARCH, 2012**



Mr. Toru YAGI  
Chief Consultant  
JICA Study Team



Eng. Japheth Mutai  
Chief Executive Officer  
Rift Valley Water Services Board  
The Republic of Kenya



Mr. Wilson L. Pere  
Managing Director  
Narok Water & Sewerage Service Co. Ltd.  
The Republic of Kenya

After a series of discussions during the field survey in Kenya from 14<sup>th</sup> February 2012 through 29<sup>th</sup> March 2012, the following points were agreed between Rift Valley Water Services Board (here in after referred to as “RV-WSB”) and Narok Water & Sewerage Service Co. Ltd. (here in after referred to as “NARWASSCO”) and the JICA Study Team (here in after referred to as “the Team”). Based on the agreement as well as the Minutes of Discussion signed on 21<sup>st</sup> February 2012, the Team will further analyze the results of field survey in consultation with JICA and concerned parties in Japan and will prepare a draft final report which includes the layout and design of the facilities and/or equipment for the Project.

### 1. Planning Frame of Augmentation of Water Supply System in Narok Town

- (1) Target Year: 2020  
 (2) Water Service Area: Narok Town (ANNEX-1)  
 (3) Population to be served: 49,800  
 (4) Daily Water Demand: 5,000m<sup>3</sup>/day  
 For Existing WTP (Central WTP): 1,000m<sup>3</sup>/day  
 For New WTP (North WTP): 4,000m<sup>3</sup>/day

### 2. Request Components of the Project

NO.	Component	Specification
1. Construction and Rehabilitation of Facilities		
1)	New Water Intake Facility, which includes intake pumps and generator	1 No
2)	New Raw Water Transmission Main - 300mm dia	1.5 km
3)	Rehabilitation of the Existing Water Treatment Plant (1,000 m <sup>3</sup> /day)	1 Lot
4)	New Water Treatment Plant (4,000m <sup>3</sup> /day), which includes generator, chemical dosing facilities and laboratory with chemical store house	1 Lot
5)	New Clear Water Reservoir (2,000m <sup>3</sup> /day)	1 No
6)	Rehabilitation of Existing Clear Water Reservoir	4 No
7)	New Distribution Pipes with accessories	25km & Some addition
8)	New Kiosks	1 Lot
2. Procurement of Equipment		
1)	Chemical Dosing Facility and Laboratory Equipment for Water Quality Analysis for existing water treatment plant	1 Set
2)	Desktop Computer with Printer	1 Set
3)	Distribution Pipes Materials	1 Lot
4)	Service Pipes, Meters and Meter Calibration Equipment	1 Lot
3. Soft Component		
1)	Capacity building for operation and maintenance, pipe installation works and management of the water supply	1 Lot

\*) Marker parts are revised from M/D on February 21

### **3. Water Supply System in Narok Town**

The Team explained the concept of the water supply system in Narok town in 2020 with presenting the schematic drawing. (ANNEX-2) This proposed system is prepared considering not only for the existing water supply facilities but some facilities which are planned and under constructed facilities conducted by NARWASSCO. RV-WSB and NARWASSCO understood the basic concept of water supply system.

### **4. Location of Water Intake, Raw Water Transmission Main and Water Treatment Plant (WTP)**

The Team explained the location of water intake, raw water transmission main and WTP, and the land is owned by Narok Town Council. (ANNEX-3) Land acquisition is required. RV-WSB and NARWASSCO understood the location of water intake, raw water transmission main and WTP.

### **5. Draft Plan of Water Intake**

The Team explained the draft plan of water intake (ANNEX-4). Intake weir, pump pit and operation/generator house will be constructed at the Narok River and its surroundings. Intake water will be sent to WTP by pump. RV-WSB and NARWASSCO understood the draft plan of water intake.

### **6. Diagram of Water Supply Facilities from Intake to Clear Water Reservoir**

The Team explained the schematic diagram of the major water supply facilities from water intake to clear water reservoir (ANNEX-5). Particularly, among them, the Team emphasized that water from rapid mixing tank to clear water reservoir in WTP flows by gravity. RV-WSB and NARWASSCO understood the diagram of water supply facilities.

### **7. Distribution Pipe Network**

The Team explained the concept of the installation of distribution pipe network in water supply service area shown in ANNEX-6. Distribution pipe by the Japan's Grant Aid Project shall be provided in major road, major facility area and high population density areas, not all of the water service supply area. RV-WSB and NARWASSCO understood the basic concept of distribution pipe network conducted by the Japan's Grant Aid Project.

### **8. Construction of Distribution Pipe**

The Team explained about the construction of distribution pipe. Distribution pipe length of 25km and some additional pipe will be constructed by the Japan's Grant Aid Project. The rest of the necessary distribution pipe in water supply area will be installed by Kenyan side. Some part of distribution pipe will be installed using procured pipe material by the Japan's Grant Aid Project and some





parts of distribution pipe will be installed by all Kenyan side budgets. RV-WSB and NARWASSCO understood the construction of distribution pipe.

#### **9. Rehabilitation of Existing WTP**

The Team explained the contents of the rehabilitation of existing WTP. The contents of rehabilitation items are replacement of filter sand, construction of chemical dosing equipment with building and laboratory equipment for water quality analysis such as Jar Tester, Turbidity Meter, Chlorine Concentration Measuring Instrument, pH Meter and Balance. RV-WSB and NARWASSCO understood the basic concept of rehabilitation of existing WTP.

#### **10. Design Standards**

In principle, "Practical Manual for Water Supply Services in Kenya 2005." will be adopted for designing the above water supply facilities. According to the circumstances, however, Japanese design criteria and other standards adopted internationally shall be referred to.

#### **11. Land Acquisition**

Main water supply facilities such as water intake, raw water transmission pipe and WTP are planned to be constructed in public land. The Narok Town Council which manages its public land promised to issue an official agreement letter for the transfer on the land use for water supply facilities after a week of submission of "Part of Development Plan (PDP)". Formal certificate for land acquisition shall be issued by the approval of Ministry of Land within 2 months. A Copy of these documents shall be delivered to the Team by hand-over, email or facsimile through NARWASSCO.

#### **12. Soft Component**

The necessity of following fields of soft component was recognized.

- Adequate operation and maintenance
- Pipe installation works
- Sound management of the water supply.

#### **13. Water Right**

With regard to extraction of water from the Enkare Narok River, it is necessary that water right be granted. Water Right process has two stages, namely; the Authorization Stage and the Permit Stage. The Authorization Stage gives the mandate to undertake the planned constructions against a given set of conditions while the Permit Stage allows for the abstraction of water. RV-WSB, NARWASSCO and WRMA agreed to fast track the process of acquiring water right. Detail is shown in ANNEX-7.



**14. EIA Approval**

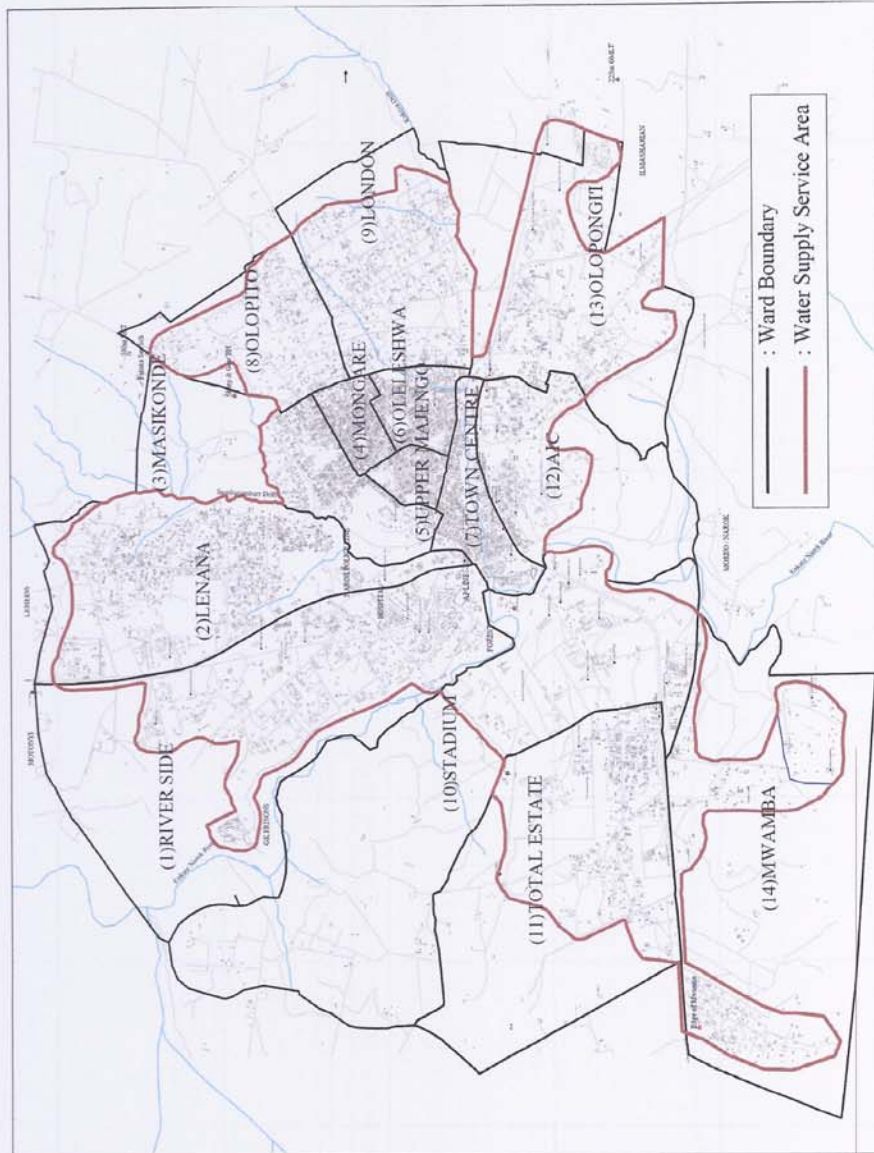
NEMA requires “project report” for EIA approval. The Team will give the assistance to finalize the project report to NARWASSCO. After the submission of the project report to NEMA, EIA procedure for EIA approval including finalization of EIA report should be done by NARWASSCO and RV-WSB.

**15. Required Increase Staffs**

The Team explained the necessity of required increase staffs. (ANNEX-8) After construction of north water treatment plant and expansion of distribution pipe, NARWASSCO should be increased staffs in order to operation and maintenance for new water supply facilities. RV-WSB and NARWASSCO understood the required increase staffs.



ANNEX-1: Water Supply Service Area

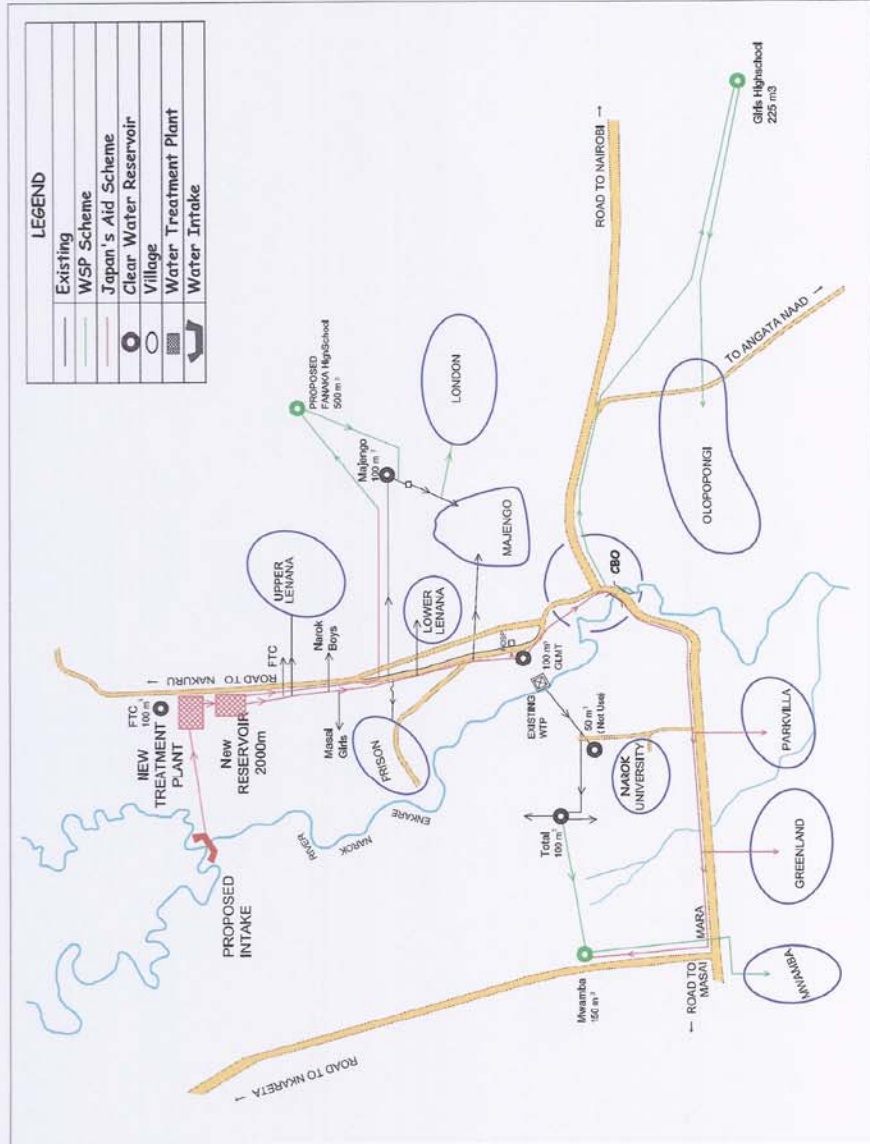


*[Handwritten signature]*

(17)

7

ANNEX-2: Water Supply System in Narok Town



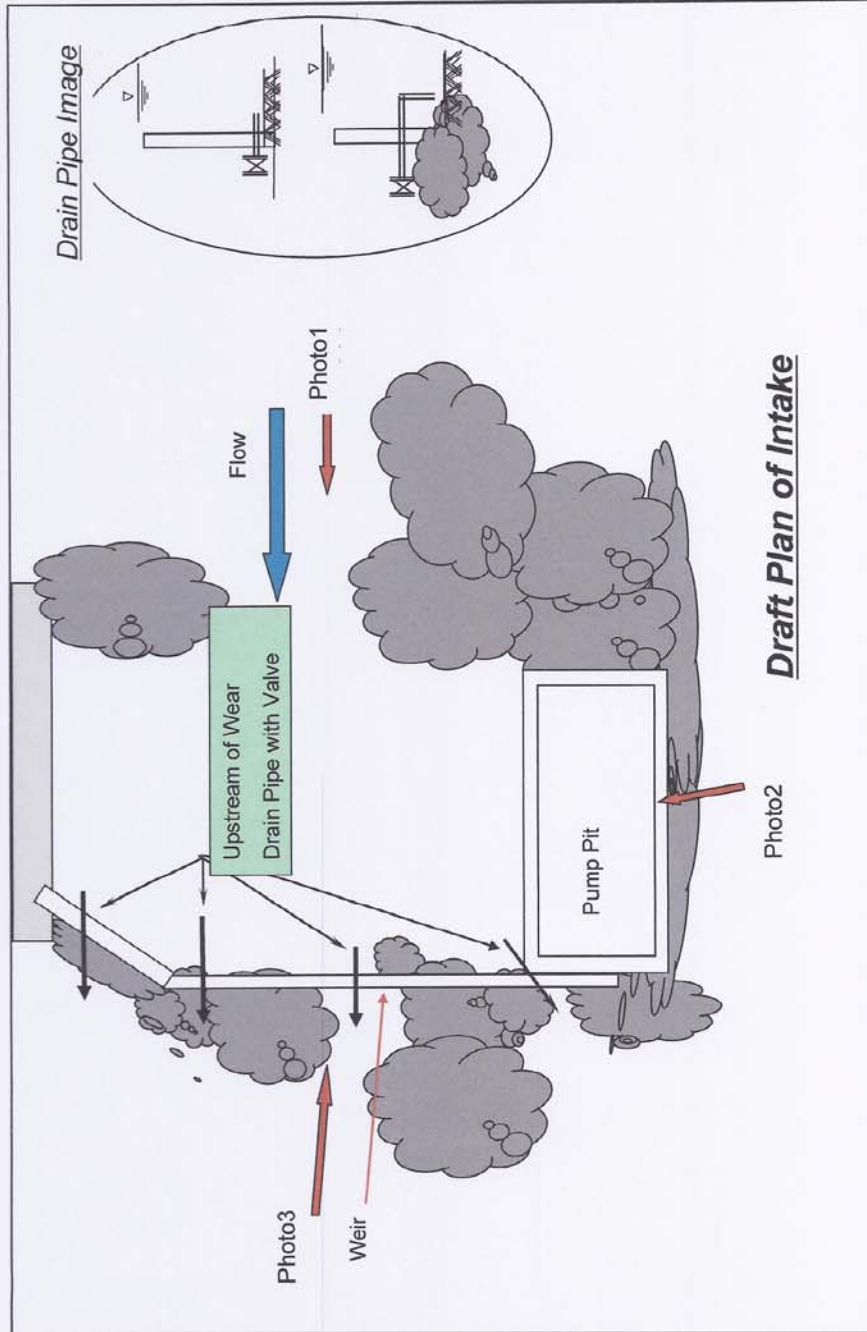
*[Handwritten signature]*  
 (157) 7

ANNEX-3: Location of Water Intake, Raw Water Transmission Main and Water Treatment Plant (WTP)



(15) [Signature] 7

ANNEX-4: Draft Plan of Water Intake and Photos at the Site



*[Handwritten signature]*  
*[Handwritten initials]*

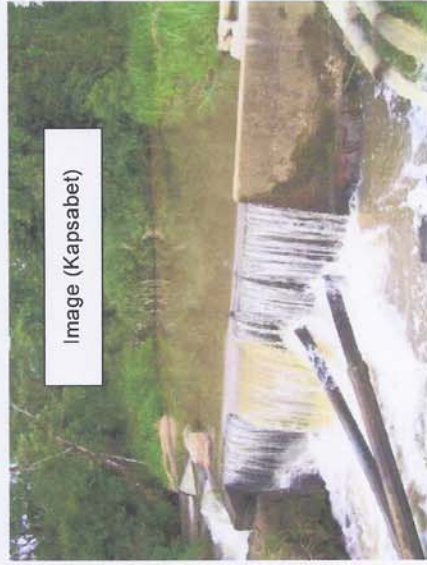
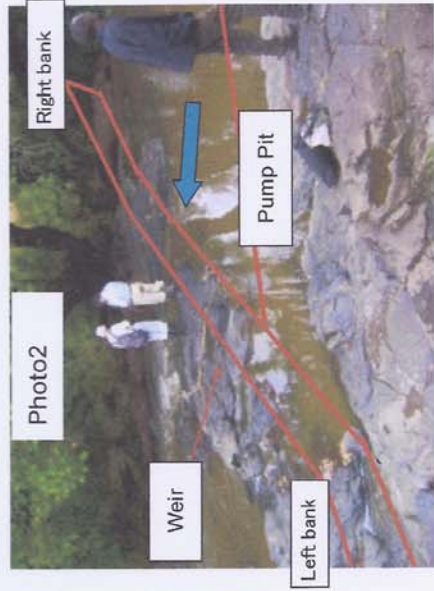
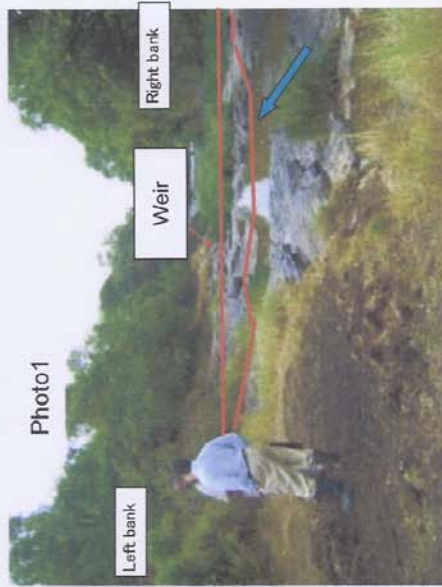


Image (Kapsabet)

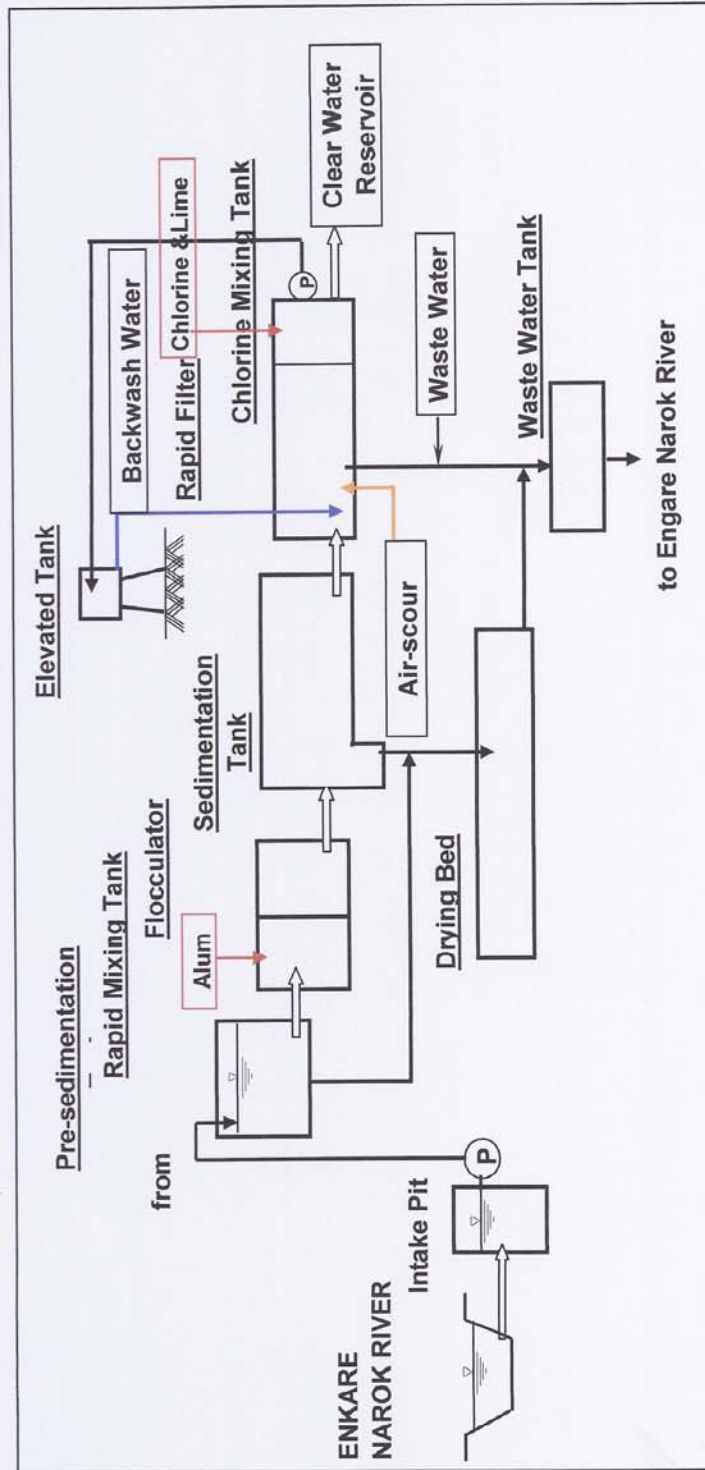
Photo3  
HHWL: Storm Water Level

Photo2

Photo1

(14) *Chibani* 7

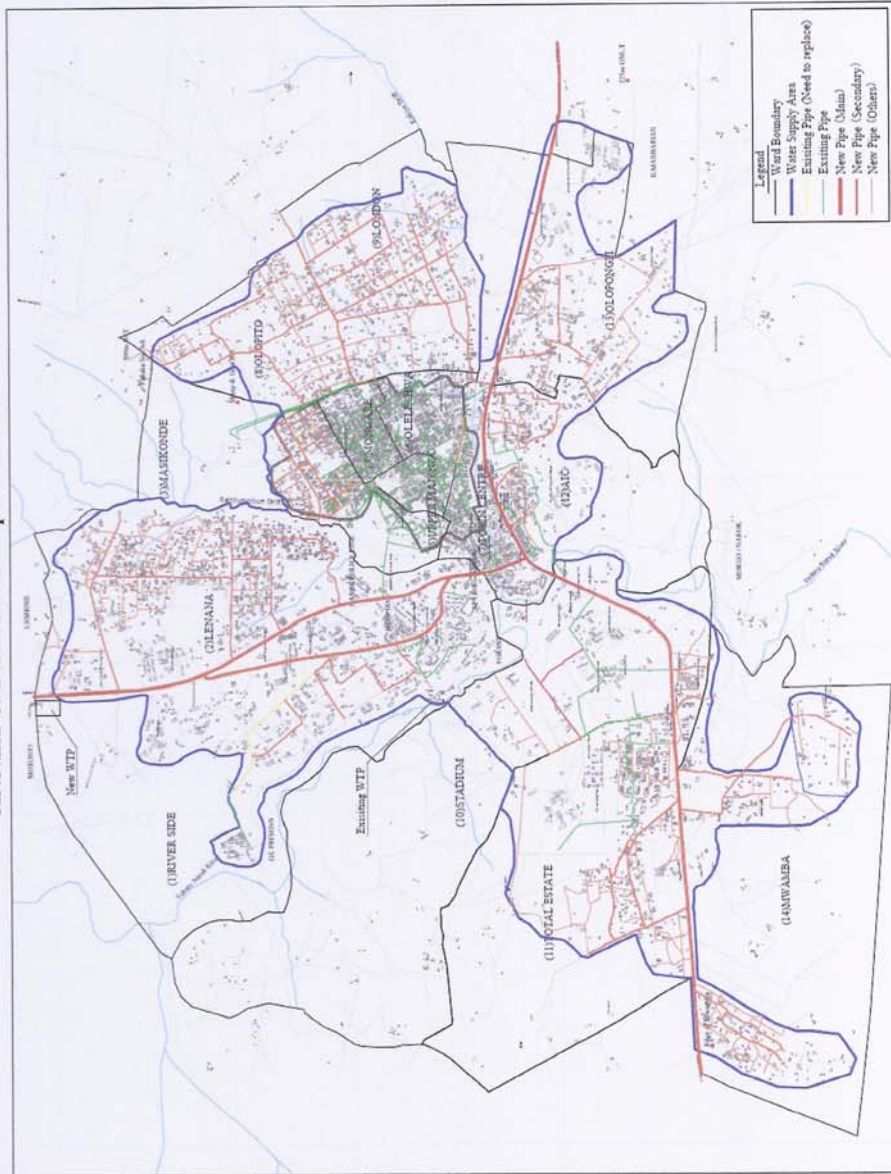
ANNEX-5: Diagram of Water Supply Facilities from Intake to Clear Water Reservoir



*(Handwritten signatures and initials)*



**ANNEX-6: Distribution Pipe Network**



*[Handwritten signature]*  
 (14) *[Handwritten mark]*

### ANNEX-7: Detail Explanation about Water Right

With regard to extraction of water from the Enkare Narok River, it is necessary that water right be granted. However, to get water rights, Kenyan regulation requires attaching a copy of EIA license with the application form and its procedures takes about 6 months in maximum. EIA procedure also takes 6 months in maximum. It takes times.

To solve this problem, we held a meeting among Rift Valley Water Service Board (RV-WSB:Nakuru Regional Office), WRMA (Narok), NARWASSCO, and JICA Study Team in NARWASSCO office on March 20<sup>th</sup>, 2012. The meeting consent was as follows: Authorization by WRMA for the project is necessary and the necessary documents shall be prepared by RV-WSB, and NARWASSCO.

The authorization document shall soon be issued after submission of application form. After the issue of the authorization document, the project shall be able to start the construction of water supply facilities for the project. Water rights are necessary at the time of operation after completion of construction of water supply facilities for the project. RV-WSB will take appropriate action to acquire the water right as earliest.



**ANNEX-8: Required Increase Staffs**

<i>Item</i>	<i>Number</i>	<i>Note</i>
<i>WTP/Intake</i>		
<i>WTP manager</i>	<i>1</i>	
<i>Intake facilities</i>	<i>10</i>	<i>Including night time workers. Water quality engineer will work both existing &amp; new WTP.</i>
<i>WTP operation &amp; maintenance</i>		
<i>Pipe maintenance</i>	<i>2</i>	<i>When big accident occurred, WTP workers will help them.</i>
<i>Meter reader</i>		<i>Shall be increased up to 1000 meters per person or be outsourced.</i>
<i>Billing/accountant</i>	<i>1</i>	<i>IT equipment shall be modernization.</i>
<p><i>Others :</i></p> <ul style="list-style-type: none"> <li>- <i>Vehicles, mortar bikes for transportation and maintenance vehicles are required.</i></li> <li>- <i>Training of local contractor is required.</i></li> <li>- <i>Meters shall be installed in the place which is easy to read.</i></li> </ul>		



## 資料-5 ソフトコンポーネント計画書

### (1) ソフトコンポーネントを計画する背景

「ケニア国ナロック給水拡張計画」は、ナロック市における、既存給水施設の老朽化及び給水能力不足に起因する不安定な給水状況を改善することを目的としており、本無償資金協力事業において、(1)施設建設（①既存浄水場・配水池のリハビリ、②新規取水施設・浄水場・配水池の建設、③導水管・配水管の布設）、(2)資機材調達（①薬品注入設備及び水質分析機器、②配水管/給水管/給水メータ）の実施を予定している。

一方で、給水施設の維持管理主体であるナロック上下水道会社（NARWASSCO）は、本無償資金協力事業で整備される給水システムによる事業運営の経験が十分でないこと、既存給水施設に比べ事業規模も増大し、より効率的な事業運営が必要となること、また、配水管/給水管布設工事並びに給水メータ設置工事の品質管理が不十分であることに起因する非効率な配水量管理が明らかになったことから、プロジェクトの円滑な立ち上がりを支援し、協力成果の持続性を確保する観点からソフトコンポーネントの実施を計画することとした。

計画策定にあたっては、上記観点から、表-1に示す3項目をソフトコンポーネントの対象業務とした。

表-1 ソフトコンポーネントの対象業務

対象業務	業務の目的
1. 水道施設の運転・維持管理に関する技術指導	取水施設から各戸給水施設までの、給水システム全体に対する効率的な施設運用能力の強化
2. 水道事業の経営基盤強化に関する指導	料金請求・徴収及び会計業務の徹底、また顧客管理・顧客サービスの充実を通じた経営能力の強化
3. 配管布設工事の施工監理能力向上に関する技術指導	効率的な事業運営の基礎となる給水施設整備の品質確保

### (2) ソフトコンポーネントの目標

ソフトコンポーネントの実施を通じて、本無償資金協力事業完了の一定期間後には、給水事業の使命である、「NARWASSCO が、健全な経営基盤の基に施設を適切に運転・維持管理し、受益者である住民に対して安全な水を安定的に供給できる」状態が達成されることを、本ソフトコンポーネントの目標とする。

### (3) ソフトコンポーネントの成果

ソフトコンポーネントの実施により期待される成果を以下にまとめる。

#### 1) 水道施設の運転・維持管理に関する技術指導

NARWASSCO の担当職員が、本無償資金協力事業によって整備される取水・導水施設、浄水施設、送・配水施設等の上水道システム全体の構成内容・目的を理解し、適切に運転・維持管理する能力を修得する。

#### 2) 水道事業の経営基盤強化に関する指導

NARWASSCO の担当職員が、財務管理（予算管理、原価分析）、業務管理及び顧客管理・顧客サービス等、水道事業経営に必要な知識を修得するとともに、料金請求/会計システムを利用した、水道料金の請求・徴収、会計事務を確実に実施する能力を修得する。また、受益者である住民に対し、水道事業について十分な情報を提供し、住民の衛生意識を向上させ、水道施設への新規給水接続を促進するための、広報/啓発活動に関する手法を習得する。

#### 3) 配管布設工事の施工監理能力向上に関する技術指導

NARWASSCO の担当職員が、配水管/給水管の布設及び給水メータ設置における施工監理の重要性を理解し、適切に施工監理する能力を習得することで施工品質の向上を図るとともに、適切な給水メータ管理の方法を習得する。

#### (4) 成果達成度の確認方法

成果達成度の確認は、研修終了時に、

- ① 後述する対象業務ごとの「成果品」の検収
- ② 研修受講者評価による、研修内容の理解度確認

により行う。研修受講者評価における主な視点を表-2 に示す。

表-2 研修受講者評価の視点

対象業務	研修受講者評価の視点
<p>1. 水道施設の運転・維持管理に関する技術指導</p> <p>受講対象者 技術部門責任者及び職員</p>	<ul style="list-style-type: none"> <li>・ 水道施設の構成、各施設の目的・機能を理解しているか。</li> <li>・ 取水堰、導水管の維持管理（スクリーン、排泥バルブ操作）ができるか。</li> <li>・ 需要量に応じた計画取水量を決定できるか。</li> <li>・ 浄水場の各施設の滞留時間の把握ができるか。</li> <li>・ 計画取水量に応じたるろ過池運転ができるか。</li> <li>・ 薬品の溶解作業が適正にできるか。</li> <li>・ 計画取水量および原水水質に応じて、薬品注入量を設定し、薬品注入設備を運転できるか。</li> <li>・ ジャーテストができるか。</li> <li>・ フロック形成状況の適否が判断できるか。</li> <li>・ 各プロセスにおける濁度、pH、残留塩素の水質チェックができるか。</li> <li>・ 沈殿池の排泥ができるか。</li> <li>・ ろ過池の適正な洗浄ができるか。</li> <li>・ 天日乾燥床におけるスラッジの乾燥状況を判断の上、適正な維持管理ができるか。</li> <li>・ 取水・送水ポンプの送水量に応じて、適正な運転及び維持管理ができるか。</li> <li>・ 配水池の水位管理ができるか。</li> <li>・ 送配水管の維持管理の必要性を理解し、実施（バルブ操作、管路点検）できるか。</li> <li>・ 配水ブロックごとの水量を把握できるか。</li> <li>・ 各施設の運転維持管理記録（チェックリスト、日報、月報類）が作成できるか。</li> <li>・ 図面・台帳類の管理ができるか。</li> </ul>
<p>2. 水道事業の経営基盤強化に関する指導</p> <p>受講対象者 総務・業務部門責任者及び職員</p>	<ul style="list-style-type: none"> <li>・ 予算管理の仕組みを理解しているか。</li> <li>・ 財務諸表が作成できるか。</li> <li>・ 原価分析の方法を理解し、適切に原価分析を行い、適正な水道料金への改定提案を行えるか。</li> <li>・ 料金請求・徴収管理の方法を理解しているか。</li> <li>・ 料金請求/会計システムを使って、水道料金請求/徴収管理（請求書/領収書発行、徴収記録）及び会計処理（入・出金処理、仕訳処理）ができるか。</li> <li>・ 新規顧客の登録手続き等を含む、顧客管理台帳を作成できるか。</li> <li>・ NARWASSCO の職員が、自力で広報活動や渉外活動、普及・啓発活動を管理できるか。</li> <li>・ 住民啓発セミナー参加者が、衛生の重要性や上下水道の役割を理解出来たか。</li> </ul>
<p>3. 配管布設工事の施工監理能力向上に関する技術指導</p> <p>受講対象者 工事部門責任者及び職員</p>	<ul style="list-style-type: none"> <li>・ 配水管/給水管に係る施工監理の目的、重要性を理解しているか。</li> <li>・ 施工承認図書を適切に評価できるか。</li> <li>・ 水圧検査等を含む、完了検査を適切に実施できるか。</li> <li>・ 竣工図書を適切に管理できるか。</li> <li>・ 給水メータ管理の方法を理解しているか。</li> <li>・ 給水メータの動作状況を判断の上、検定装置及び必要な工具類を適正に操作できるか。</li> </ul>

(5) ソフトコンポーネントの活動（投入計画）

本ソフトコンポーネントにおける活動内容を以下に示す。活動の詳細計画については表-4 に示す。

### 1) 水道施設の運転・維持管理に関する技術指導

詳細設計図面および設計図書、研修資料（維持管理ガイドライン）を用いたクラスルームトレーニング及び、実施設を用いた運転・維持管理に関する OJT により実施する。研修教材の作成にあたっては「メルー市給水計画」・「カプサベット市給水計画」等において作成した維持管理マニュアルを参考とする。

なお、本ソフトコンポーネントとは別に、本体工事請負業者は施設引渡し時の運転操作指導の一環として、施設を構成する各設備の運転管理マニュアルを作成し、それぞれの設備が適切に機能するよう、操作方法を主体とした訓練を行なうこととなるが、ソフトコンポーネントでは、ジャーテストによる原水濁度に応じた薬品注入率の設定、浄水量に応じた薬品の溶解作業、各浄水プロセス運転状況の適否の判断、送水ポンプの起動停止と配水池水位の管理方法、水質チェックのポイント等、状況に応じた運転・維持管理業務を適切に行うための訓練内容が中心となる。

### 2) 水道事業の経営基盤強化に関する指導

水道事業の経営に必要な業務知識および管理知識の向上を目的に、i) 事業経営に係る研修、ii) 住民啓発に係る研修、を行なう。

#### i) 事業経営に係る研修

演習を含むクラスルームトレーニング方式により会計管理、財務管理、顧客管理等の事業経営に係る研修を行う。

#### ii) 住民啓発に係る研修

ナロック市民を対象とした住民啓発セミナーの開催を通じた OJT により研修を行う。「メルー市給水計画」において作成した水道普及パンフレット等を参考に、住民啓発に係る研修教材を作成する。

なお、本ソフトコンポーネントで実施する住民啓発セミナーの開催は全3回程度とし、このうち初回は専門家（ローカルコンサルタント）主導で実施するが、第2回目以降は企画・運営主体を徐々に NARWASSCO 職員に移管して、本ソフトコンポーネント終了後も、指導を受けた NARWASSCO 職員が自力で管理・継続出来るよう技術移転を図る。

### 3) 配管布設工事の施工監理能力向上に関する技術指導

配水管及び給水管工事の施工監理の目的・必要性を理解するために、工事契約図書、本体工事における施工承認図書等を活用したクラスルームトレーニングを実施するとともに、本体工事の一部である配水管及び、無償資金協力の調達機材による給水管材料を用いたケニア側負担工事である給水管工事の施工監理を通じた OJT による研修を行う。また給水メータ管

理の方法を理解し、給水メータ接続に必要な工具類の操作並びに給水メータ検定装置の操作に係る指導を行う。

#### (6) ソフトコンポーネントの実施リソースの調達方法

本ソフトコンポーネントにおける実施リソースは、その活動内容から下記専門家の調達が必要となる。

##### ①水道施設の運転・維持管理に関する技術指導

上水道専門家（2名（機器管理、水質管理）：水道施設の運転・維持管理に関する技術指導）

##### ②水道事業の経営基盤強化に関する指導

水道事業経営専門家（1名：水道事業の経営基盤強化に関する指導）

水道経営/コミュニティ開発（住民啓発）専門家（1名：水道事業の経営基盤強化に関する指導）

##### ③配管布設工事の施工監理能力向上に関する技術指導

配管施工監理専門家（1名：配管布設工事の施工監理能力向上に関する技術指導）

各専門家は、本無償資金協力事業に精通し、かつ本計画内容を十分に把握していること、また水道事業の運営管理に十分な知識・経験を有していることが求められるため、受注コンサルタント（邦人コンサルタント）による直接支援により実施する。なお、上記の水道経営/コミュニティ開発（住民啓発）専門家に関しては、他 WSP や地域住民との協調・コミュニケーションが求められることから、円滑な業務実施のため、ローカル・コンサルタントや現地 NGO から傭人雇用し、日本人コンサルタントの管理のもとに指導を行う。

日本人コンサルタントとローカル・コンサルタントの基本的な役割分担は以下の通り。

#### 日本人コンサルタントの役割

##### ✓ 上水道専門家（機器管理）

ソフトコンポーネント計画全体を管理し、全体研修計画を監修する。

研修教材（維持管理ガイドライン）を作成し、機器管理を中心とした水道施設の運転・維持管理及び水道システム全体（取水、導水、浄水、送配水）に係る技術指導を実施し、研修成果の確認・評価を行う。

##### ✓ 上水道専門家（水質管理）

取水施設、浄水施設、配水施設における水質分析手法の指導を通じ、水道施設の運転・維持管理のうち、特に浄水プロセス管理に係る技術指導を実施し、研修成果の確認・評価を行う。

##### ✓ 水道事業経営専門家

水道事業経営強化に関する研修全体を管理する。



業務・経営に係る講義および実習の実施、研修成果の確認・評価を行うとともに、ローカル・コンサルタントが主体となり実施する、住民啓発活動に係る指導の監理を行う。

✓ 配管施工監理専門家

配水管、給水管布設及び給水メータ設置の施工監理に係る技術指導を実施する。また、給水メータ検定装置の操作法など、給水メータ管理に係る指導を実施する。

ローカル・コンサルタントの役割

✓ 水道経営/コミュニティ開発（住民啓発）専門家

「メルー市給水計画」において作成した水道普及パンフレットを参考に、住民啓発に係る研修教材を作成し、NARWASSCO 職員を指導する。

地域住民を対象とした啓発活動(集会)の実施、参加した地域住民に対するアンケート調査および分析を行う。

(7) ソフトコンポーネントの実施工程

ソフトコンポーネントの実施工程を図-1 に示す。

水道施設の運転・維持管理に関する技術指導（上水道専門家（機器管理）及び上水道専門家（水質管理））は、施設引渡し完了後から1ヶ月間とする。

また、住民への普及・啓発活動を含む水道事業の経営基盤強化に関する指導（水道事業経営専門家、住民啓発専門家）は、施設供用開始前に実施することが効果的であるため、施設建設完了時期を踏まえて実施する。実施期間は住民啓発セミナー等の開催日程調整にも配慮し、2ヶ月間とする。

同様に、配管布設工事の施工監理能力向上に関する技術指導（配管施工監理専門家）についても、配水管布設工事に関しては、本体工事の一部を OJT 研修として実施するため、配水管布設工事の完了時期と調整して実施する。給水管布設工事に関しては、供与資機材を活用した NARWASSCO による工事発注となることから、指導期間を2回に分けて実施する。1回目では、配水管布設工事の施工監理（施工承認図書の評価、完了検査の実施等）に係る指導及び OJT 研修、また給水管施工監理の目的・重要性に関する指導を実施し（給水管布設工事に係る工事発注スケジュールの調整を含む）、2回目では、給水管布設工事の施工監理及び給水メータ管理に係る技術指導及び OJT 研修を実施する。

なお、指導実施期間中は、最終報告書の他、1ヶ月毎の中間報告書を作成・提出する。ソフトコンポーネントの実施にあたり、NARWASSCO は、各指導開始前までに当該担当職員（研修受講者）を配置しておく必要がある。

区分	年月	2015(H27)									人月計 (M/M)
		…	5	6	7	8	9	10	11	12	
本体事業スケジュール											
施設建設											
試運転											
引渡し											
<日本人コンサルタント>											
1)上水道専門家-1,2									◀…▶		1.0×2=2.0
2)水道事業経営専門家					◀……▶						2.0
3)配管施工監理専門家					◀…▶				◀…▶		(1+1)=2.0
<ローカル・コンサルタント>											
1)住民啓発専門家					◀……▶						2.0
実施状況報告書提出						▲	▲			▲	合計 8.0 M/M
						中間 1	中間 2			最終	

図-1 ソフトコンポーネントの実施工程

(8) ソフトコンポーネントの成果品

本ソフトコンポーネントでは以下の成果品が作成される。

- 1) 水道施設の運転・維持管理に関する技術指導
  - ・ 研修計画書、研修教材、研修受講者評価書
  - ・ 維持管理ガイドライン、運転・維持管理記録（日報・月報等）
- 2) 水道事業の経営基盤強化に関する指導
  - ・ 研修計画書、研修教材、研修受講者評価書
  - ・ 財務諸表
  - ・ 住民啓発活動研修教材、住民啓発セミナー参加者アンケート
- 3) 配管布設工事の施工監理能力向上に関する技術指導
  - ・ 研修計画書、研修教材、研修受講者評価書
  - ・ 施工承認図書
  - ・ 竣工図書

(9) 相手国実施機関の責務

本ソフトコンポーネントの実施に先立ち、ケニア側実施機関は必要な受講対象者を配置するとともに、「配管布設工事の施工監理能力向上に関する技術指導」に必要な給水管布設工事の発注準備を進める必要がある。

また、ソフトコンポーネントの目標達成のためには、本活動終了後も、NARWASSCO を中心としたケニア側実施機関の継続的な取り組みが不可欠である。特に、ソフトコンポーネントの成果を活用して住民への普及・啓発活動を継続することにより、新規顧客獲得（給水接続、水道メーター設置促進）を促進し、事業経営状態を安定させるとともに、施設運転・維持管理を含めた事業運営に必要な人材の確保・育成に努めることが重要である。

表-4 ソフトコンポーネントの活動計画

活動内容	対象者 / 実施方法 / 実施リソース	成果	備考 (実施条件)
<b>1. 水道施設の運転・維持管理に関する技術指導</b>			
<ul style="list-style-type: none"> <li>本計画取水・導水施設、浄水施設、送・配水施設の構成を講習する。</li> <li>取水・導水施設の維持管理方法を訓練する(スクリーン、排泥バルブ操作等)。</li> <li>浄水施設の構造、各プロセスの目的について講習する。</li> <li>必要な取水量ならびに原水水質に応じて、浄水場を適切に運転管理できるよう訓練する(流量調節、ジャーテスト、水質検査、薬品注入量調節、ろ過水量調節、洗浄水量調節、排泥作業、スラッジ処理処分)。</li> <li>送水ポンプ設備の運転方法を訓練する(自動運転、手動運転)。</li> <li>配水池の水位管理について訓練する。</li> <li>送・配水管の維持管理について訓練する(流量・圧力調節、管路点検、排泥方法)。</li> <li>各施設の運転・維持管理記録が作成できるよう訓練する。</li> <li>図面・台帳管理について講習する。</li> </ul>	<p><u>対象者</u> 技術部門責任者および職員(施設運転・維持管理担当9名、配管維持管理担当5名)計15名</p> <p><u>実施方法</u> ・詳細設計図面および設計図書を用いたクラスルームトレーニング ・実施設を用いたOJT</p> <p><u>実施リソース</u> ・上水道専門家(日本人コンサルタント) 企画/準備及び実施:2人×1.0ヶ月</p>	<ul style="list-style-type: none"> <li>研修計画書</li> <li>研修教材(維持管理ガイドライン)</li> <li>薬品注入率表</li> <li>転維持管理記録(チェックリスト、日報、月報等)</li> <li>研修者による研修受講者評価書</li> </ul>	<ul style="list-style-type: none"> <li>ソフトコンポーネントに先立ち、対象者が配置済みであること。</li> </ul>
<b>2. 水道事業の経営基盤強化に関する指導</b>			
<p>(1)事業経営に係る研修</p> <ul style="list-style-type: none"> <li>経営管理に必要な知識および経営管理技術を講習する。</li> <li>会計業務と財務管理について講習する。</li> <li>業務管理/顧客管理(購買、普及促進、給水サービス)について講習する。</li> <li>経営関連データを題材に、経営管理情報の読み方を講習する。</li> <li>顧客サービス(広報、渉外、顧客とのコミュニケーション等)について講習する。</li> <li>料金請求/会計業務の流れと会計事務に必要な会計知識を講義する。</li> </ul>	<p><u>対象者</u> 総務・業務部門責任者および職員(営業/会計担当5名)計7名。</p> <p><u>実施方法</u> ・クラスルーム及びOJTによるトレーニング</p> <p><u>実施リソース</u> ・水道事業経営専門家(日本人コンサルタント) 企画/準備:1人×0.5ヶ月 実施:1人×1.5ヶ月</p>	<ul style="list-style-type: none"> <li>研修計画書</li> <li>研修教材</li> <li>財務諸表</li> <li>研修者による研修受講者評価書</li> </ul>	<ul style="list-style-type: none"> <li>ソフトコンポーネントに先立ち、対象者が配置済みであること。</li> </ul>

活動内容	対象者 / 実施方法 / 実施リソース	成果	備考 (実施条件)
<p>(2) 住民啓発に係る研修</p> <ul style="list-style-type: none"> <li>セミナーを開催し、地域住民に対する水道普及の啓発を行う（衛生の重要性、水道の役割やしきみ、料金体系など）。</li> </ul>	<p><u>対象者</u> 業務部門責任者および職員（営業担当2名）計3名。</p> <p><u>実施方法</u> ・OJTによる住民啓発集会開催 住民啓発セミナー参加想定者： ナロック市民を対象に、毎回30名程度の参加を想定し、計3回実施</p> <p><u>実施リソース</u> ・水道経営/コミュニティ開発専門家（ローカルコンサルタント） 企画/準備：1人×0.5ヶ月 実施：1人×1.5ヶ月</p>	<ul style="list-style-type: none"> <li>研修計画書</li> <li>研修教材</li> <li>啓発活動実施計画書</li> <li>住民啓発セミナー参加者アンケート結果</li> <li>研修者による研修受講者評価書</li> </ul>	<ul style="list-style-type: none"> <li>ソフトコンポーネントに先立ち、対象者が配置済みであること。</li> </ul>
<b>3. 配管布設工事の施工監理能力向上に関する技術指導</b>			
<ul style="list-style-type: none"> <li>施工監理業務の目的、必要性及び重要性を講習する。</li> <li>配管工事施工監理の業務フローを講習する。</li> <li>施工承認図書の承認フローについて講習する。</li> <li>施工承認図書のチェック方法をOJTにより訓練する。</li> <li>出来形検査、完了検査の検査方法について講習する。</li> <li>出来形検査、完了検査の実施方法についてOJTにより訓練する。</li> <li>竣工図書の管理方法について講習する。</li> <li>給水メータの管理方法について講習する。</li> <li>給水メータの動作状況を判断の上、検定装置及び必要な工具類の操作方法についてOJTにより訓練する。</li> </ul>	<p><u>対象者</u> 工事部門責任者および職員（配水管/給水管布設担当9名）計10名</p> <p><u>実施方法</u> ・詳細設計図面および設計図書を用いたクラスルームトレーニング ・本体事業（配水管・給水管布設工事、給水メータ設置工事）におけるOJT</p> <p><u>実施リソース</u> ・上水道配管施工監理専門家（日本人コンサルタント） 企画/準備及び実施：1人×2ヶ月(1+1)</p>	<ul style="list-style-type: none"> <li>研修計画書</li> <li>研修教材</li> <li>施工承認図書</li> <li>研修者による研修受講者評価書</li> </ul>	<ul style="list-style-type: none"> <li>ソフトコンポーネントに先立ち、担当者が配置済みであること。</li> </ul>