

Appendix A-9

Work Execution Plan and Drawings of Urgent Development

Project (Water Transport Sector)

Composition of Appendix A-9

	<u>Page</u>
1. Work Execution Plan	A9-1
2. Drawings	A9-20

1. Work Execution Plan

**RECONSTRUCTION AND IMPROVEMENT OF
MALAKAL RIVER PORT**

WORK EXECUTION PLAN

AUGUST 2013



**TONE ENGINEERING CORPORATION Co., Ltd
and TONE (SOUTH SUDAN) Co., Ltd JV**

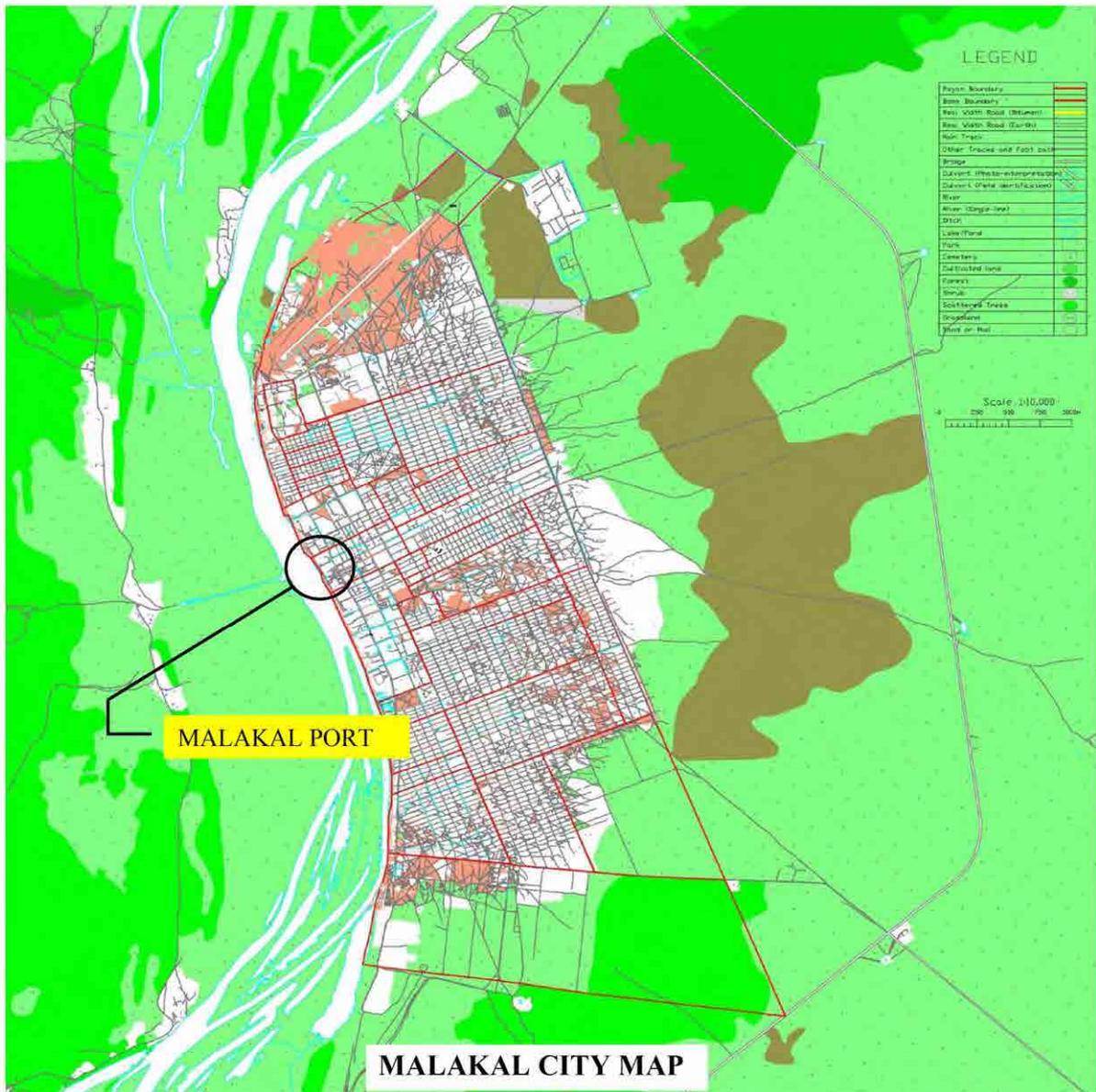
- CONTENTS -

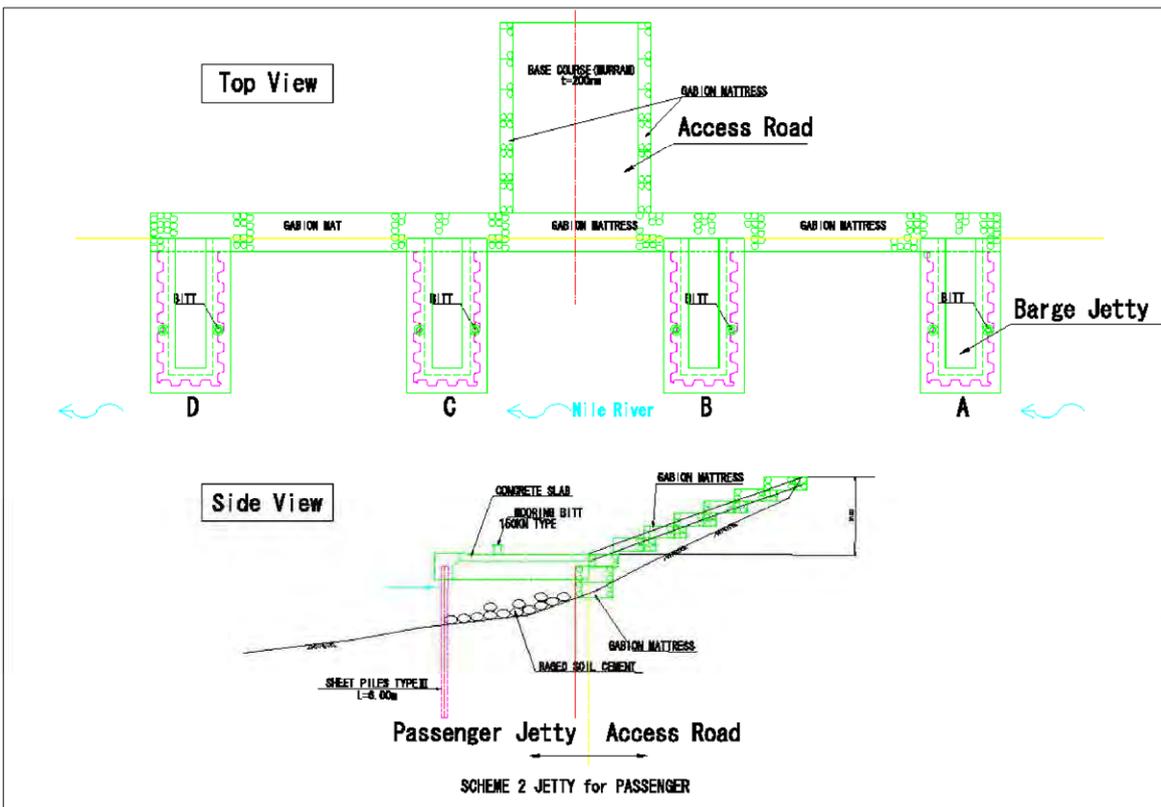
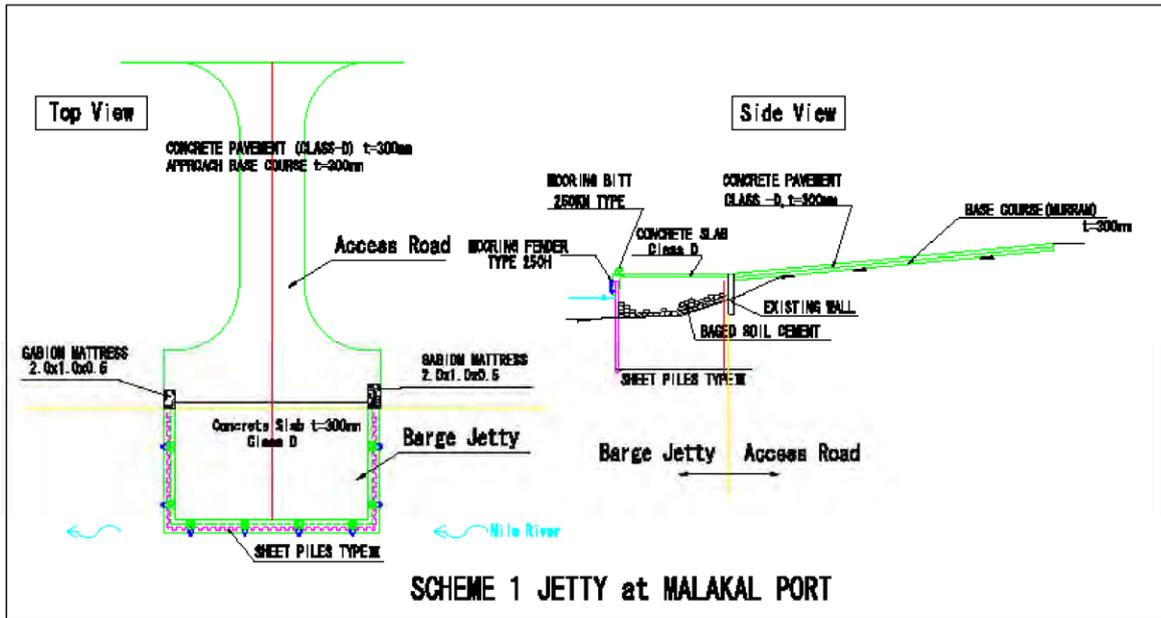
1. Introduction	.....	A9-3
2. Location of the Project Site and Drawing	.....	A9-4
3. Construction Schedule	.....	A9-6
4. Organization Chart	.....	A9-7
5. Construction Quantity	.....	A9-8
6. Equipment and Materials List	.....	A9-9
7. Construction Method	.....	A9-11

1. INTRODUCTION

1.Objectives	Malakal Port shall play important roles as international logistics infrastructure in South Sudan. Moreover, due to economic growth and increase in industrial activity in Malakal Town in the future, cargo and passenger volume will increase dramatically. Corresponding to the above, it is necessary to strengthen port function.
2.Financed	JAPAN INTERNATIONAL COORPORATION
3.Supervised	Katahira & Engineers International (KEI)
4.Contractors	Tone Engineering Corporation Co., Ltd and Tone (South Sudan) Co., Ltd J V
5.Contractors Amount	
6.Term	27,Jun,2013~22,May,2014
7. Counterpart	Ministry Transport River Transport office in Juba Ministry of Physical Infrastructure of Upper Nile States

2. LOCATION OF THE PROJECT SITE AND DRAWING





3. Construction Schedule

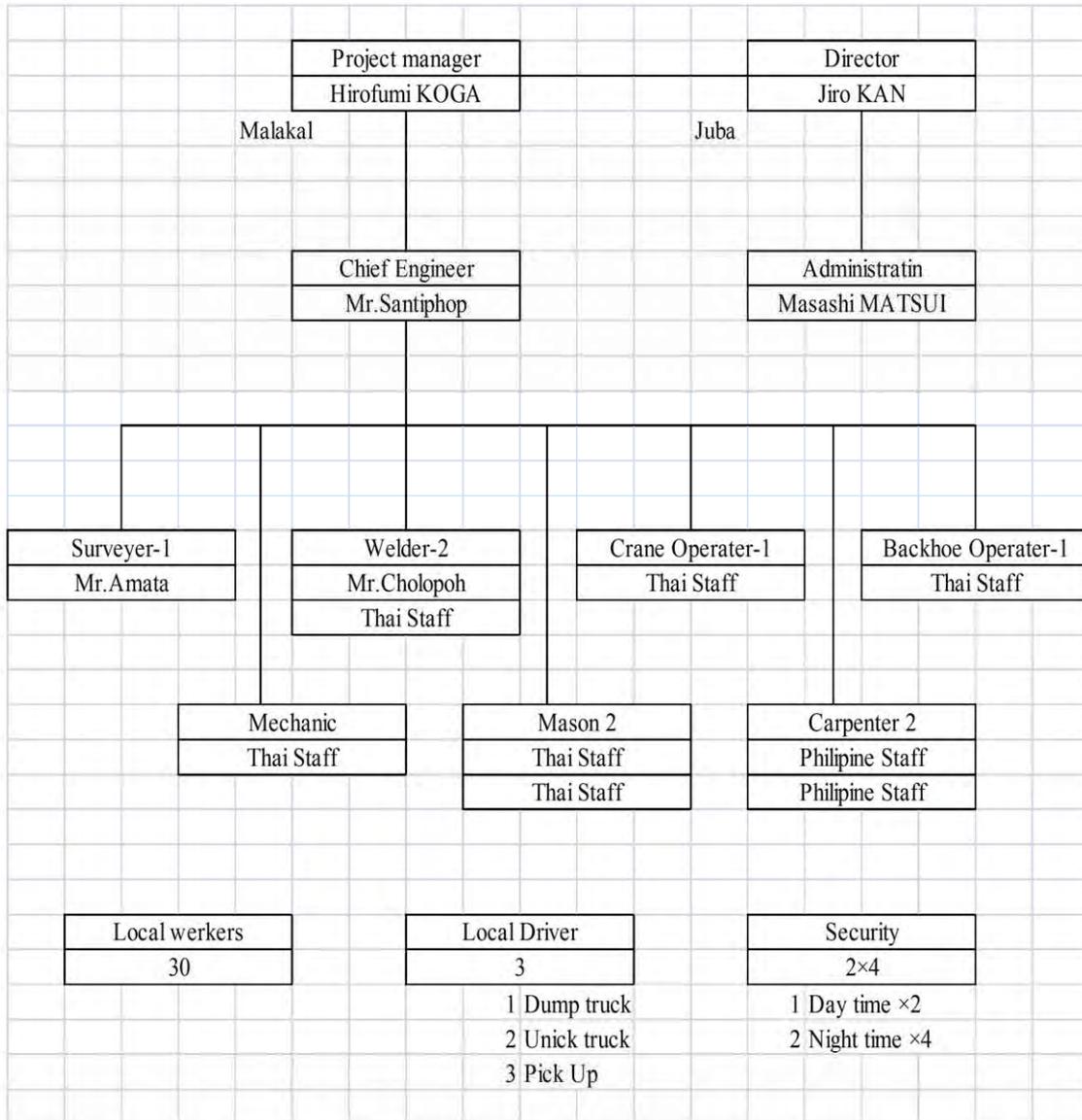
Procurement of Reconstruction and Improvement of Malakal River Port Project

Schedule control Plan

27.Jun.2013 ~ 22.May.2014

Description	Quantity	Unit	Jun			Jul			Aug			Sep			Oct			Nov			Dec			Jan			Feb			Mar			Apr			May		
			30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30					
Arrangement of construction																																						
Mobilization & De-mobilization	1.0	L.S	[Gantt bar from Jun 30 to May 30]																																			
Construction of Accommodation	1.0	L.S	[Gantt bar from Sep 20 to Oct 30]																																			
Construction of Site area	1.0	L.S	[Gantt bar from Sep 10 to Oct 10]																																			
Survey	1.0	L.S	[Gantt bar from Sep 20 to Sep 30]																																			
Jetty at Malakal Port																																						
Demolition Existing Port	1.0	L.S	[Gantt bar from Oct 10 to Oct 20]																																			
Sheet Pile Driving	764.0	m	[Gantt bar from Nov 10 to Nov 30]																																			
Fill (Fill as specified in the drawings to require material)	0.0	m3	[Gantt bar from Dec 10 to Dec 20]																																			
Preparation of Sand bags	557.0	m3	[Gantt bar from Dec 20 to Jan 10]																																			
Soil cement Sandbag Filling	557.0	m3	[Gantt bar from Dec 20 to Jan 10]																																			
Concrete (24Mpa)	103.0	m3	[Gantt bar from Feb 10 to Feb 20]																																			
Formwork	138.0	m2	[Gantt bar from Feb 10 to Feb 20]																																			
Reformed bar	2.6	t	[Gantt bar from Feb 10 to Feb 20]																																			
Base course (Marrum)	56.0	m3	[Gantt bar from Mar 10 to Mar 15]																																			
Fender	No	8	[Gantt bar from Mar 10 to Mar 20]																																			
Mooring	No	8	[Gantt bar from Mar 10 to Mar 20]																																			
Jetty for Passsenger																																						
Sheet Pile Driving	768.0	m	[Gantt bar from Nov 10 to Nov 30]																																			
Fill (Fill as specified in the drawings to require material)	246.0	m3	[Gantt bar from Dec 10 to Dec 20]																																			
Preparation of Sand bags	123.0	m3	[Gantt bar from Dec 20 to Jan 10]																																			
Soil cement Sandbag Filling	123.0	m3	[Gantt bar from Dec 20 to Jan 10]																																			
Concrete (24Mpa)	51.0	m3	[Gantt bar from Feb 10 to Feb 20]																																			
Formwork	148.0	m2	[Gantt bar from Feb 10 to Feb 20]																																			
Reformed bar	1.5	t	[Gantt bar from Feb 10 to Feb 20]																																			
Base course (Marrum)	37.0	m3	[Gantt bar from Mar 10 to Mar 15]																																			
Mooring	No	8	[Gantt bar from Mar 10 to Mar 20]																																			

4. Organization Chart



5. Construction Quantity

5.1 Works and Quantity

Works and quantity of Project are shown on the following Table 5.1.1. There quantity will be changed subject to the site condition.

Table 5.1.1. Works and Quantity

Works	Unit	Quantity
Jetty at Malakal Port		
Mobilization & De-mobilization	LS	1
Demolition Existing Port	LS	1
Sheet Pile Driving	m	764
Fill(fill as specified in the drawings to require material)	M3	0
Soil cement Sandbag Filling	M3	557
Concrete(24Mpa)	M3	103
Formwork	M2	138
Reformed bar	ton	2.6
Gabion	M3	12
Filter Fabric(Geotextiles)	M2	15
Concrete(24Mpa)	M3	85
Base course (Malam)	M3	56
Fender	No	8
Mooring	No	8
Jetty for Passenger		
Sheet Pile Driving	m	768
Fill(fill as specified in the drawings to require material)	M3	246
Soil cement Sandbag Filling	M3	123
Concrete(24Mpa)	M3	51
Formwork	M2	148
Reformed bar	ton	1.5
Gabion	M3	173
Filter Fabric(Geotextiles)	M2	204
Concrete(24Mpa)	M3	37
Fender	No	8
Mooring	No	8

6. Equipment & Materials List

6.1 Construction equipment List

The construction equipment list for the Project is shown on the following Table 6.1.1

Table 6.1.1. Construction equipment list

No	Item	Spec	Quantity	Use
1	Excavator	0.7m3	1	Pile Driving
2	Excavator	0.2m3	1	Excavating
3	Pile Driver	1t	1	Pile Driving
4	Concrete Mixer(small)	2.0m3	1	Concrete mixing
5	Vibration roller	8t	1	Filling
6	Mobile crane	25t	1	Loading materials
7	Air compressor		1	Demolition concrete
8	Generator	25kva	3	Remove water
9	Water pump	3inch	3	Removal water
10	Unic Truck	Crane 3t	1	Transportation
11	Welding machine	300~500Amh	2	Pile Driving
12	Plate compactor(Rammer)	80kg	1	Filling
13	Compactor Roller	0.44t	2	Filling
14	Concrete Vibrator	55mm	2	Casting concrete
15	Dump Truck	8.5m3	1	Transportation
16	Double Cabin Car	4wd	1	Transportation

6.2 Construction materials List

The construction materials list for the Project is shown on the following Table 6.2.1

Table 6.2.1. Construction materials list

No	Item	Spec	Quantity	Unit	Shipping from
1	Sheet pile	FSP3	1,532	m	Japan & Thailand
2	Aggregate	9~25mm	290	t	Juba
3	Sand		220	t	Juba
4	Cement (concrete)	42.5N	100	t	Kenya
5	Soil		1,200	t	Malakal
6	Cement (Soil cement)	32,5N	65	t	Kenya
7	Re-bar	12-16mm	4.1	t	Kenya
8	Gabion stone	125-250mm	185	M3	Malakal
9	Gabion Net	1.0x2.0x0.5m	185	pcs	Thailand
10	Geotextiles		219	M2	Thailand
11	Malam		120	M3	Malakal
12	Fender		8	pcs	China
13	Mooring		8	pcs	China

7. Construction Method

Constructor shall prepare the construction method as listed below and it includes describing the safety and quality control plan.

1. Sheet piling works

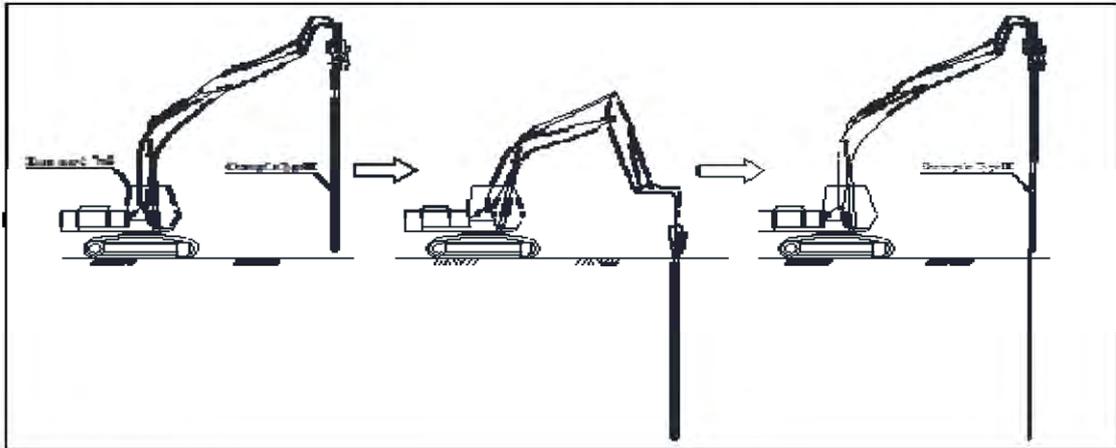
Prior to the works of piling we shall check materials for safety and use only passed safety control materials. The sizes of sheet piles shall be recorded by taking photos.

We shall conduct a survey to decide the places where the piles should be driven in according to employer's confirmation.

The piling work shall be started from center of the sheet piles using the backhoe with vibrohammer. H steel beams shall be set as a guide-line for targets of piling points.

The steel plate which is appropriate thickness shall be laid on sand stuffed bags and these bags shall be used for footholds of backhoe.

For piling a tolerance should be within 30mm, for vertical line within 1/200 should be required.



2. Backfilling works

After the completion of piling the sandbags which mixed 5% cement shall be placed inside sheet piles and they should be piled up without spaces.

For mixing cement a backhoe shall be used.

During the backfilling the bulge may occur toward sheet piles by soil pressure. Thus the sheet piles should be fixed by welding on the inner surface bank in order to prevent.

3. Concrete works

We shall arrange a schedule for mixing test and decide the amount of blending after confirming the strength of concrete.

The concrete shall be mixed by a drum mixer at the rated capacity.

After removing trash from areas where the pile shall be driven in then the work shall start. Mixed concrete

shall be carried by a wheelbarrow to cast it and vibrator machine shall be used.

If the temperature reach 35°C casting should be done in the shade.

The surface of concrete must be smooth and curing shall be done with the use of water.

The strength test shall be done accordance with appropriate manual using the cube.

Pilling cement shall be transported from Juba and stored in containers at the port.

4. Demolished existing port

Existing facilities in port shall be demolished by using excavators and cranes.

At first a front part of deck shall be demolished by welder, and then construction work can be proceeded on the remaining deck part. Demolished parts shall be craned and carried away from the site to designated area by truck taking them to pieces for easy transportation.

Existing piles shall be kept for using as the sheet pile support to prevent bulge pressure.

If the water level will be too high or make more difficult for construction, sand stuffed bags shall be used as temporary working stand. We shall demolish the port not to be an obstacle to traffics in river.

Finally the concrete of jetty on the bank shall be demolished by excavator with a large breaker.

We shall demolish minimum area which is needed exactly not to be trouble for passengers.

5. Miscellaneous works.

1) Gabion

After excavating a pit until appropriate depth the sheets for erosion-prevention should be placed on the bottom of a pit then gabions shall be put there. Geotextiles shall be put in backside of Gabion. Stones for gabions should be filled fully in the net.

2) Setting fender and bollard

After completion of laying reinforcement robs into concrete slab fenders and bollards shall be installed at appropriate place. Upon attachment of anchors the concrete placing shall be started.

3) Concrete formwork

Concrete forms shall be assembled properly in order to sustain side pressures of concrete because it possibly influences shapes of concrete after solid.

When forms are assembled at the head of sheet piles separators should be attached by welding and fixed forms with steel pipes. The bottom of sheet piles shall be fixed with bracket welding.

4) Putting fence around the site

The fence shall be built around the site to prevent unauthorized persons entering the site. The fence shall consist of appropriate high poles and barbed wire or wire net.

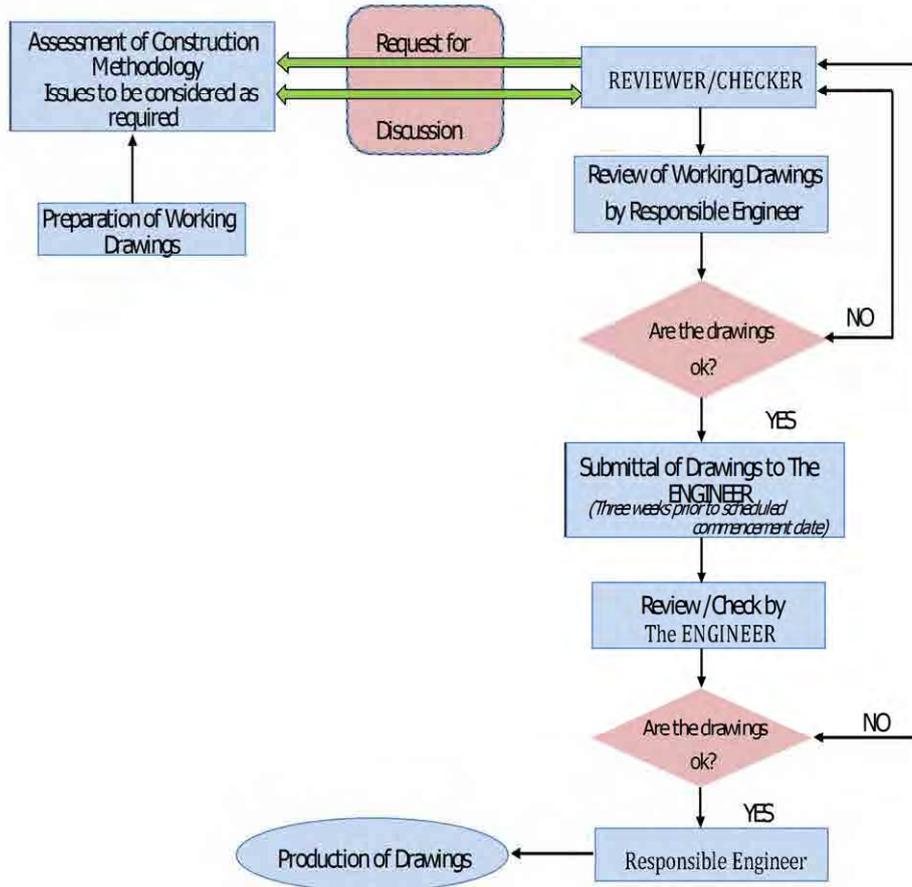
Land 1,000 m² is required to park heavy machines and store construction materials.

BF05 Quality Control Plan

The Bidder must describe his Quality Control Plan in order to achieve the Works under the condition in this Bidding Documents.

Quality Control of Drawing

In ensuring the quality of work in the production of drawings, the following flowchart illustrates the flow of documents, correspondences and coordination work between different entities involved.



Procedure of Quality Control

(1) Procedure of Quality Control

- 1) Quality control target shall be set and managed for quality control. Along with the progress of the work, it shall be performed promptly. The result shall be reported to the project manager as necessary and approval shall be obtained.
- 2) Characteristic value of measurement (tested value) shall be recorded on the management drawing as necessary. Comparison and fluctuation against standard value to be grasped and properly managed.
- 3) At the beginning, frequency of measurement shall be added and performed carefully. In case results excessively deviates and varies, the reason shall be investigated and corrected. It shall be managed that required value is able to be obtained.
- 4) This Quality Control Standard shall be applied to all items which is stated as "essential" in the Test Classification.
- 5) Photograph shall be taken on site and in the laboratory testing situation and instrument frequently.

(2) Point of Data sort out

- 1) Test result shall be gathered as per separate sheet's Standard Form and to be filed by the kind of works.
- 2) Photographs shall be edited by the kind of works and album to be prepared.

Quality Control Program

In order to satisfy the required quality of the members as specified in the design documents, quality control measures must be in accordance with the design specification provided for by the project manager and quality control standard as shown in Table 4. However, quality control stipulated in Table 4 will be overruled by the quality control specifications provided in the design documents if conflict arises. The following shall be the bases in the procurement of products and material supplies.

- 1) Prevention of the occurrence of damages during material handling. This requires proper custody of equipment and material supplies.
- 2) Elimination of defective product by conducting inspection of material supplies during delivery.
- 3) Inspection of materials for quality assurance.
- 4) The CBR test shall be conducted. Also re-bar and tensile test shall be done before installation in Kenya .

5) Steel sheets shall be purchased in Thailand and also mill sheets shall be brought from the factory in Thailand.

< T a b l e 4 > Table of Quality Control Standard

Process Flow		Control/Inspection Item		Measurement Standard	Standard Drawing	Control Record	Measure
Classification	Work Process	Control Characteristic or Inspection Item	Control Level or Standard Value				
Form Work		Fixed Status	Existence of flaw, 凹凸, Firmly fixed, are there openings, distance, in line or not	Measured at completion of erection		Execution Control Sheet (ECS)	Amend
Re-bar Work	Mat. Approval	Product name/ Standard	Design document standard	Prior to re-bar erection		Inspection Certificate	-
	Reception Inspection	Product name/ Standard/ Qty Non processed Prior to process	Ordered standard and Qty	Once per kind at delivery		Reception inspection report	
		Figure(after process)	Processed as per design documents?	Once/kind for Starrap bar Once for Processed main bar, distribution bar		Execution Control Sheet	Return
	Re-bar Erection	Erected, fixed status	Re-bar fixed status, Waste on tie rod, its in line	measured upon erection completion		ECS	Amend
		Numbers, Figure	Is it erected in accordance with design documents and numbers correct?			Meeting minutes (to be submitted) Scheduled inspection report	
	Curing	Valid height	Designed dimension ± 10 mm, secure required cover	3 cross sections per one span		Meeting minutes (to be submitted) Scheduled inspection report	Amend
		Cover	More than designed dimension				
		Re-bar lap splice	Over 28, 125D	Measured upon errec. Compl.			
		Re-bar spacing	± 20 mm	3 locations per one span			
	When above valid height is minus	± 10 mm					
Re-bar Curing	Cure (onsite or process site)	Cover by sheet	Sight inspection on delivery	-	-	-	
Concrete Work	Mat. Approval	Product name/ Standard	Standard of design documents	Prior to execution	Design doc.	Mix report Cost. Mtg. Notes (approval)	Discuss
	Scheduled Inspection (trial mix)	Slump test	$8_{cm} \pm 2.5_{cm}$	Prior to use (at each plant)		Cost. Mtg. Notes (approval) Scheduled test report Test result	Discuss
		Air amount test	$4.5\% \pm 1.5\%$				
		Chlorine test	Under $0.3_{kg}/m^3$ (Chlorine ion volume)				
		Compre. Streng. $\sigma 7$ (standard curing)	Over $12.6N/mm^2$ ($\sigma 28 = 1.35 * \sigma 7 + 7.0$)				
		Compre. Streng. $\sigma 28$ (Standard curing)	Once; Over 85% Average of 3 tests; Over $24N/mm^2$				
	Reception Inspection	Product name/ Standard, Qty	Check with delivery sheet	Confirm with delivery sheet		Reception inspection report	Return
	Scheduled Inspection (On site test)	Slump test	$8_{cm} \pm 2.5_{cm}$	To be performed to all vehicles. When the results of slump test is maintains good and stabilized, frequency may be decreased after discussing with the supervisor.		Scheduled inspection report Test result	Return
		Air amount test	$4.5\% \pm 1.5\%$	Twice/day (Morning & afternoon) Also once/150m ³		Scheduled inspection report Test result	Return
		Chlorine test	Under $0.3_{kg}/m^3$ (Chlorine ion volume)	Twice/day (Morning & afternoon) However, if morning test result is below half of restricted value, afternoon test will be omitted.			
Scheduled Inspection (Compressive strength test)	Compre. Streng. $\sigma 7$	Over $12.6N/mm^2$ ($\sigma 28 = 1.35 * \sigma 7 + 7.0$)	Standard curing: Twice/one casing day (morning & afternoon) $\sigma 7$ -3 lots, $\sigma 28$ -3 lots		Scheduled inspection report Test result	Discuss	
	Compre. Streng. $\sigma 28$	Once; Over 85% Average of 3 tests; Over $24N/mm^2$	On site curing: Once/150m ³ $\sigma 7$ -3 lots, $\sigma 28$ -3 lots				

BF06 Safe Plan

The Bidder must describe his Safe Plan in order to achieve the Works under the condition in this Bidding Documents.

The catch phrase for the project as follows

“The operation without accident” We shall perform the project in accordance with the safety plan bellow mentioned;

1 The daily schedule

8:00 a.m. All workers shall join the meeting in order to confirm the schedule for the day and safety plan.

10:00 a.m. 20minute’s break. Patrolling and checking the site by project manager

13:00p.m. Lunch

14:00p.m. The meeting for schedule

15:00p.m. 20 minute’s break

16:45p.m. Cleaning the site

17:00p.m. Finish of the day work

2. Holding the weekly meeting and patrolling the site

3. Clothes

- Wearing helmet in the site is required.
- Working in sandals is prohibited.
- Clothes must be suitable for working.

4. Heavy machines and vehicles

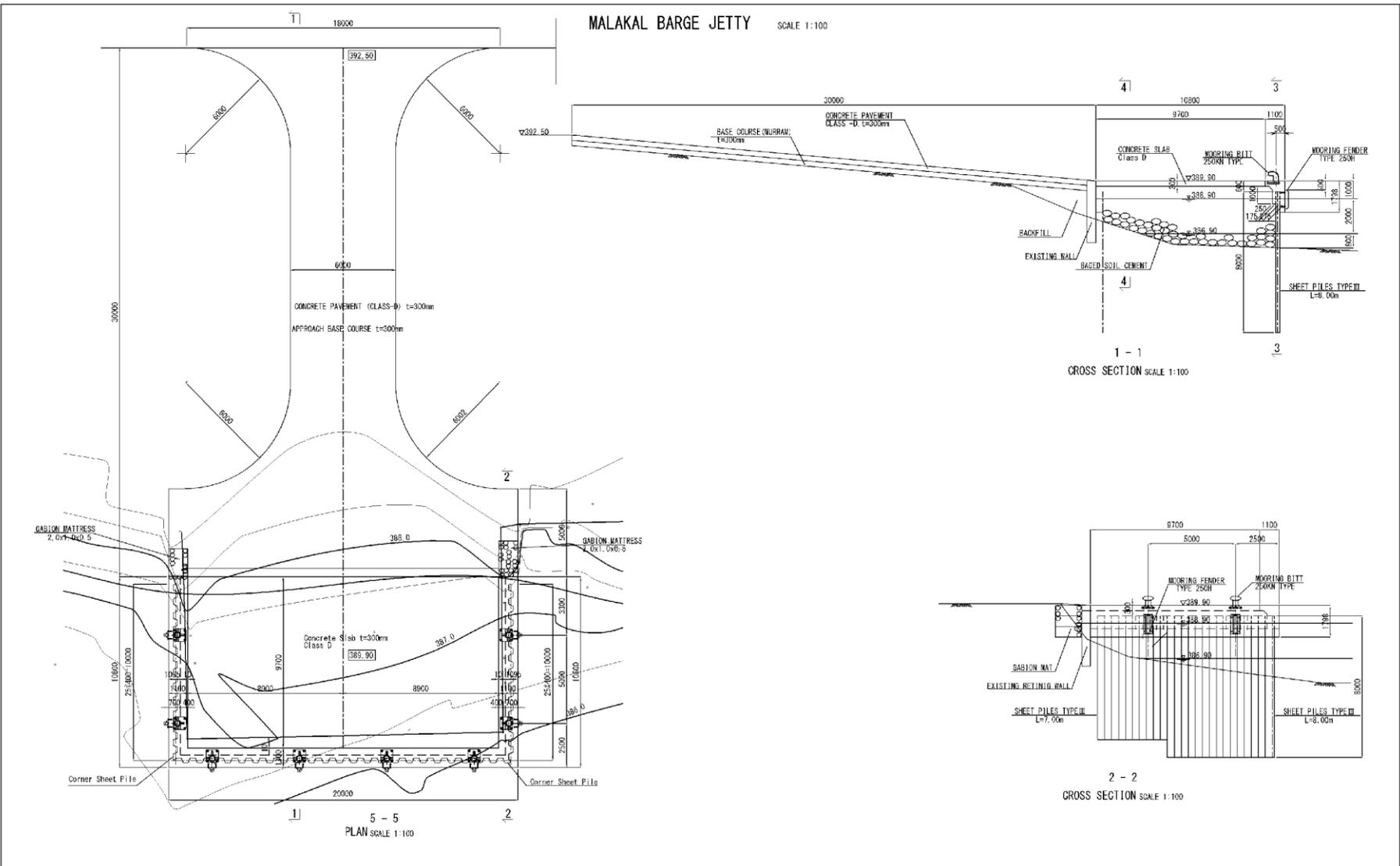
- Heavy machines must be operated by the person who is assigned by the project manager.
- Heavy machines must be checked to avoid accidents every day.
- The security guard must be deployed when heavy machines move back.

5. Others

- Only the persons concerned are allowed to enter the site.
- Safety belts for fall-prevention must be used over 2 meters height.
- Heavy machines must be operated on the stable ground to avoid turning over.
- The mask should be worn if needed.

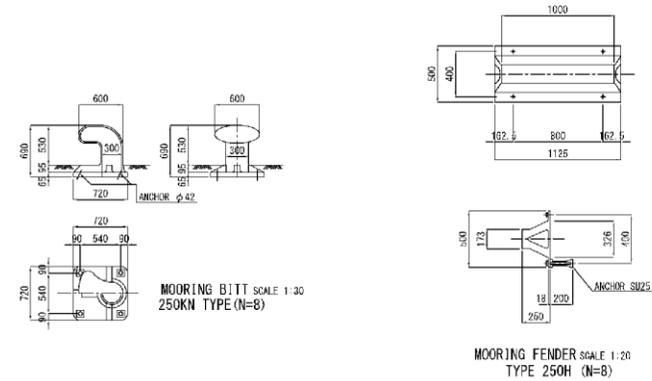
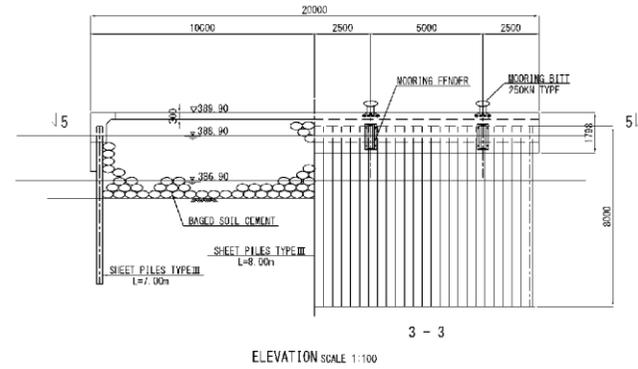
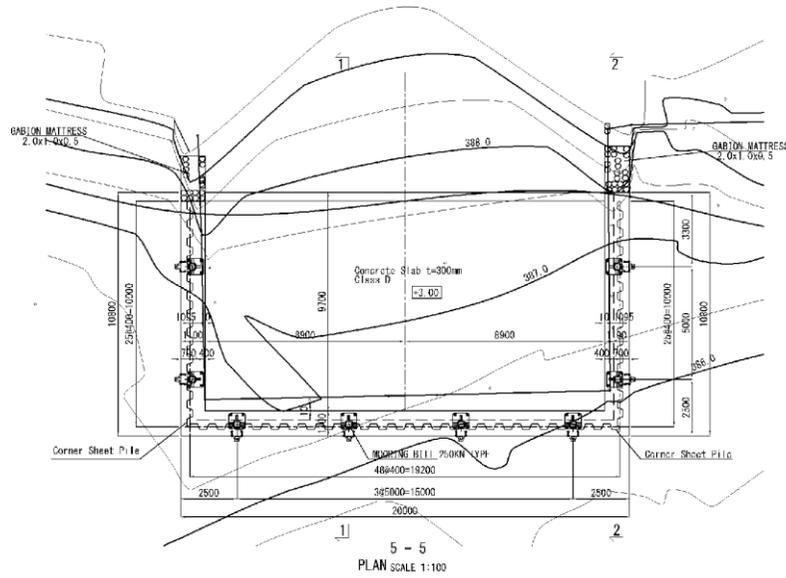
- For considering environment car's idling is not allowed and leaking of oil from the site to river is strictly banned.

2. Drawings



MINISTRY OF HOUSING & PHYSICAL PLANNING REPUBLIC OF SOUTH SUDAN MINISTRY OF PHYSICAL INFRASTRUCTURE & RURAL DEVELOPMENT, UPPER NILE STATE	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIRO ENGINEERING CO., LTD RECS INTERNATIONAL INC. KOKUSAI KOGYO CO., LTD	THE PLANNING OF URGENT DEVELOPMENT AND SUPPORT FOR COMPREHENSIVE PLANNING AND SUPPORT FOR URGENT DEVELOPMENT ON SOCIAL ECONOMIC INFRASTRUCTURE IN MALAKAL TOWN	TITLE: BARGES JETTY	Drawing No.	1 of 7
				Scale	As Drawing
				Date	June-2013

MALAKAL BARGE JETTY SCALE 1:100



MINISTRY OF HOUSING & PHYSICAL PLANNING
REPUBLIC OF SOUTH SUDAN
MINISTRY OF PHYSICAL INFRASTRUCTURE &
RURAL DEVELOPMENT, UPPER NILE STATE

JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIRO ENGINEERING CO., LTD
RECS INTERNATIONAL INC.
KOKUSAI KOGYO CO., LTD

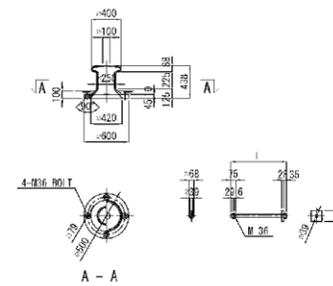
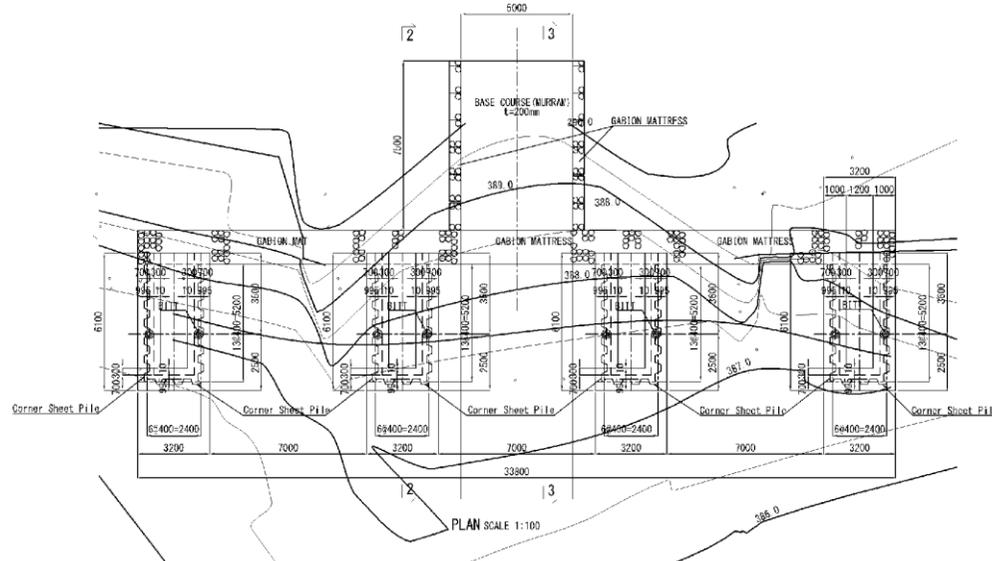
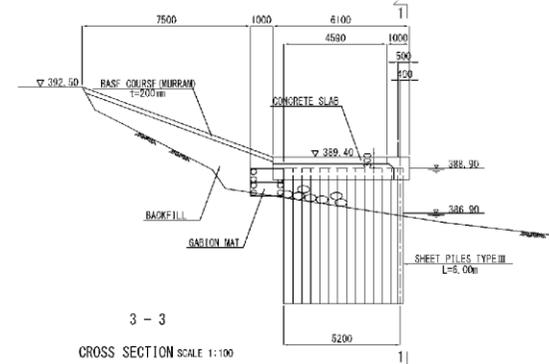
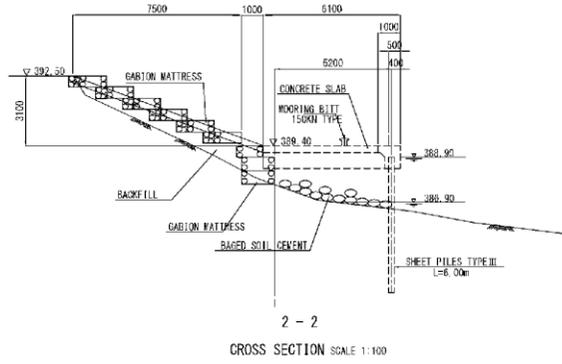
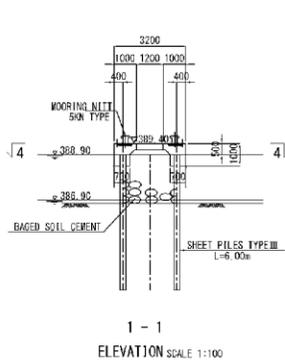
THE PLANNING OF URGENT DEVELOPMENT AND
SUPPORT FOR COMPREHENSIVE PLANNING AND
SUPPORT FOR URGENT DEVELOPMENT ON SOCIAL
ECONOMIC INFRASTRUCTURE IN MALAKAL TOWN

TITLE: BARGES JETTY

Drawing No.	2 of 7
Scale	As Drawing
Date	June-2013

PLAN - A

MALAKAL PASSENGER JETTY SCALE 1:100



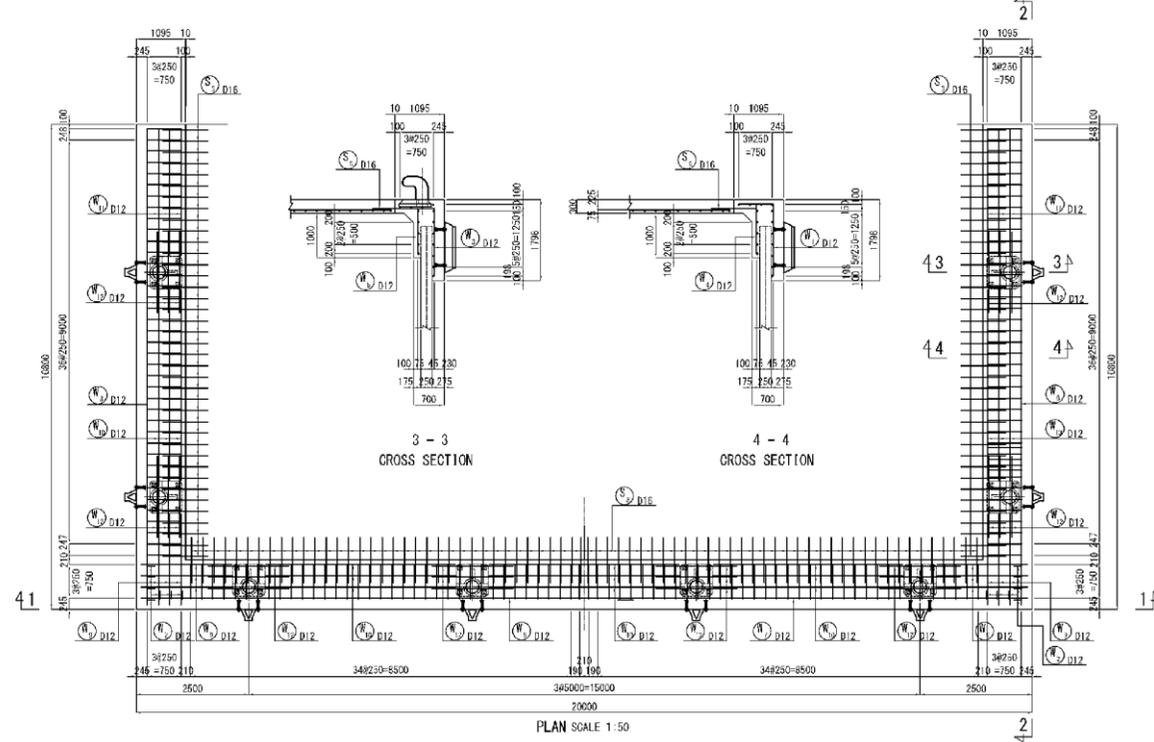
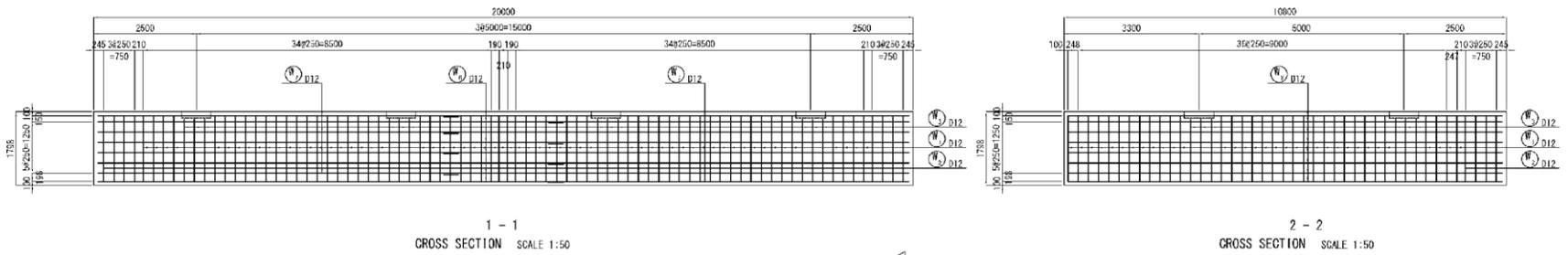
MINISTRY OF HOUSING & PHYSICAL PLANNING
REPUBLIC OF SOUTH SUDAN
MINISTRY OF PHYSICAL INFRASTRUCTURE &
RURAL DEVELOPMENT, UPPER NILE STATE

JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIRO ENGINEERING CO., LTD
RECS INTERNATIONAL INC.
KOKUSAI KOGYO CO., LTD

THE PLANNING OF URGENT DEVELOPMENT AND
SUPPORT FOR COMPREHENSIVE PLANNING AND
SUPPORT FOR URGENT DEVELOPMENT ON SOCIAL
ECONOMIC INFRASTRUCTURE IN MALAKAL TOWN

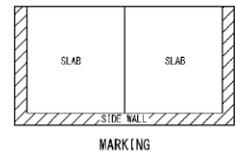
TITLE: PASSENGER JETTY	Drawing No.	3 of 7
	Scale	As Drawing
	Date	June-2013

BAR ARRANGEMENT OF SIDE WALL



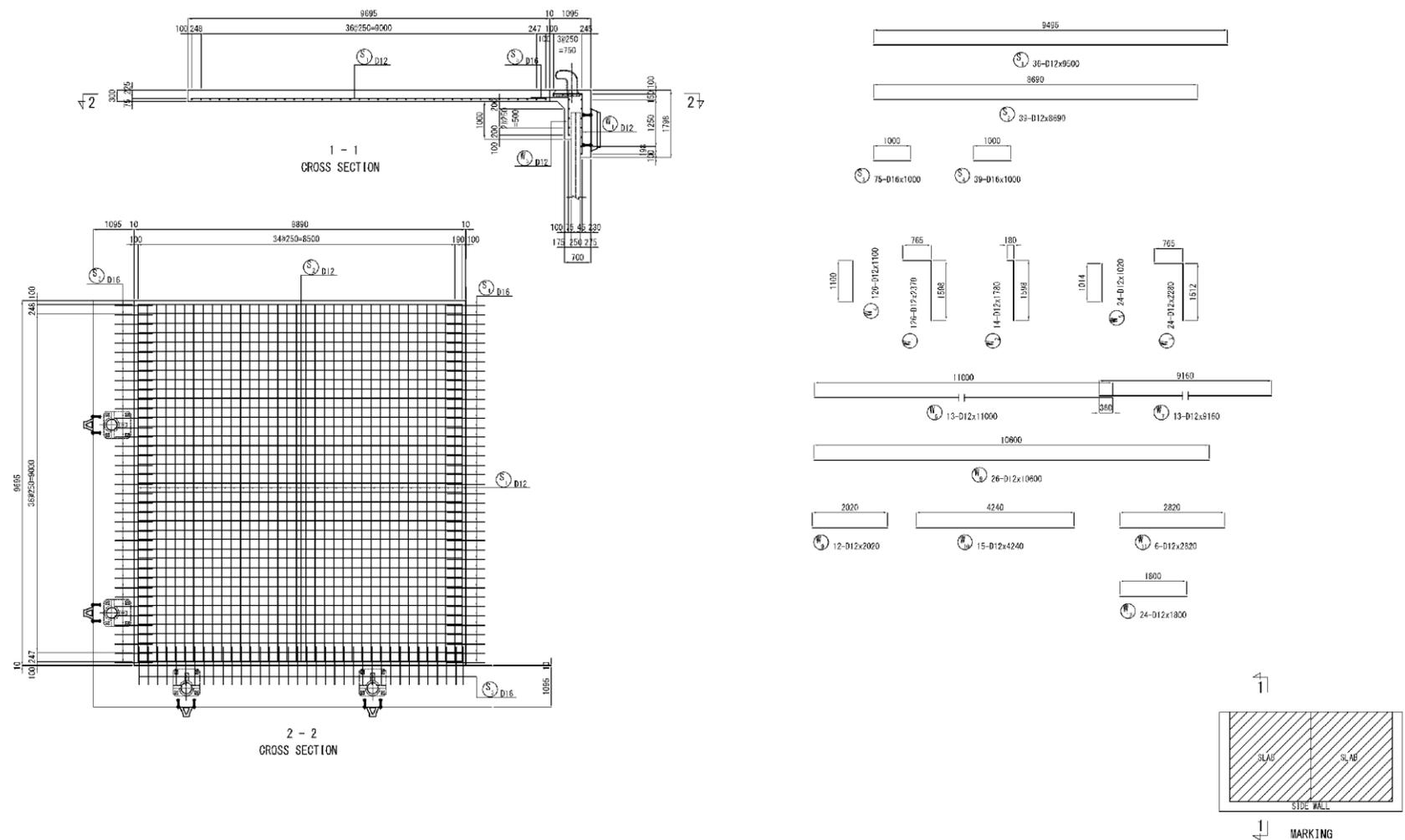
MATERIAL LIST

MARK	SIZE	LENGTH (mm)	NO.	WT./M	WT./ONE	WEIGHT (kg)	REMARKS
SLAB							
S 1	D12	9500	36	0.888	6.436	304	—
S 2	D12	8990	39	0.888	7.711	301	—
S 3	D16	1000	75	1.578	1.578	116	—
						723	kg
						TOTAL 723 x 2 = 1446	kg
S 4	D16	1000	39	1.578	1.578	62	—
						SABU TOTAL	1508 kg
SIDE WALL							
W 1	D12	2370	126	0.888	2.105	255	1
W 2	D12	1780	14	0.888	1.581	22	1
W 3	D12	2280	24	0.888	2.025	49	1
W 4	D12	1105	126	0.888	0.977	123	1
W 5	D12	1020	24	0.888	0.906	22	1
W 6	D12	11000	13	0.888	9.786	127	—
W 7	D12	9180	13	0.888	8.134	106	—
W 8	D12	10600	26	0.888	9.413	245	—
W 9	D12	2020	12	0.888	1.794	22	—
W 10	D12	4740	15	0.888	3.795	66	—
W 11	D12	2820	6	0.888	2.504	15	—
W 12	D12	1805	24	0.888	1.596	35	—
						SABU TOTAL	1090 kg
						TOTAL WEIGHT	2566 kg
				D16	298	kg	
				D12	2300	kg	
				TOTAL WEIGHT	2598	kg	



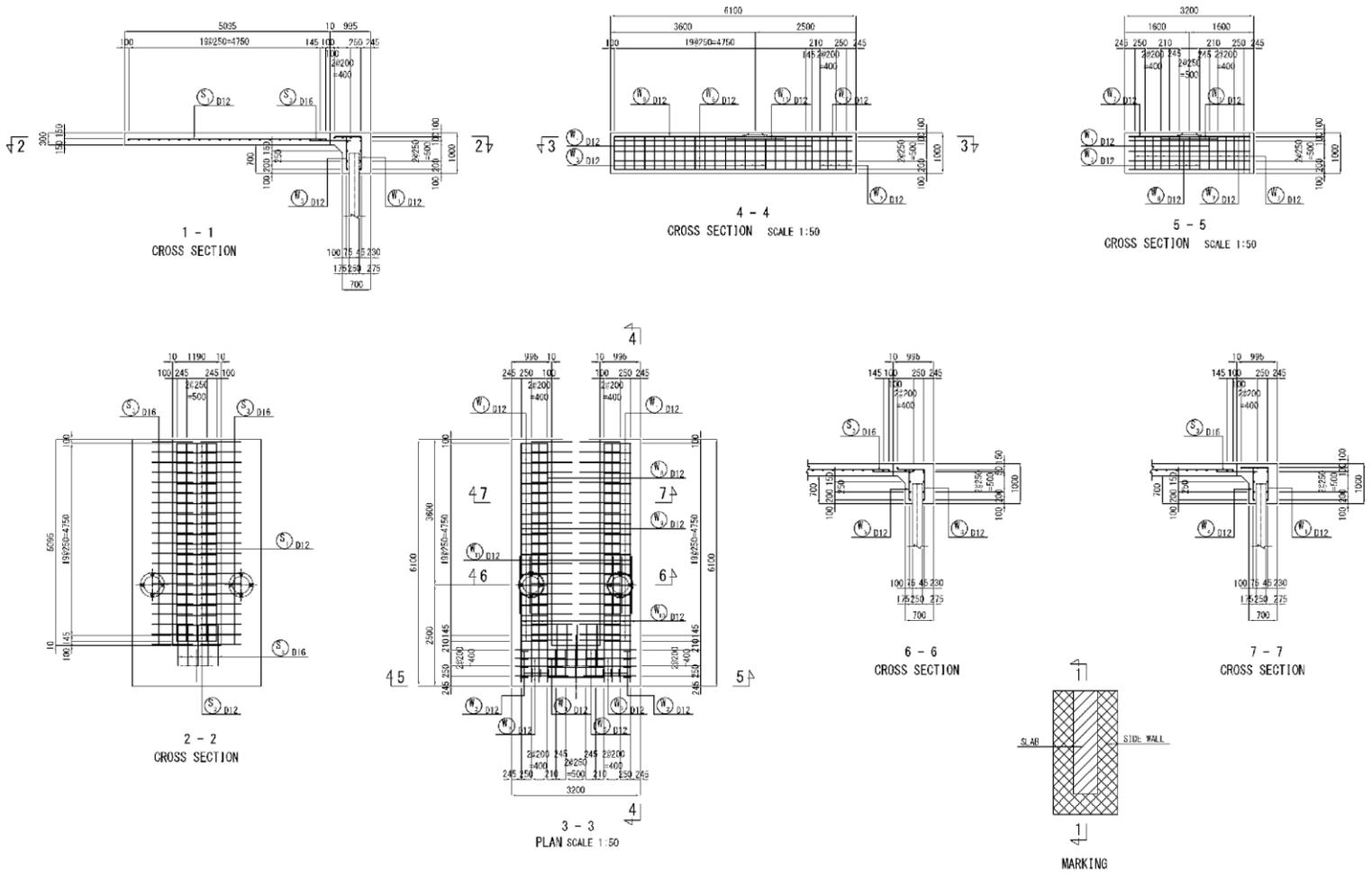
MINISTRY OF HOUSING & PHYSICAL PLANNING REPUBLIC OF SOUTH SUDAN MINISTRY OF PHYSICAL INFRASTRUCTURE & RURAL DEVELOPMENT, UPPER NILE STATE	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIRO ENGINEERING CO., LTD RECS INTERNATIONAL INC. KOKUSAI KOGYO CO., LTD	THE PLANNING OF URGENT DEVELOPMENT AND SUPPORT FOR COMPREHENSIVE PLANNING AND SUPPORT FOR URGENT DEVELOPMENT ON SOCIAL ECONOMIC INFRASTRUCTURE IN MALAKAL TOWN	TITLE: BARGES JETTY BAR ARRANGMENT OF SIDE WALL	Drawing No.	4 of 7
				Scale	As Drawing
				Date	June-2013

BAR ARRANGEMENT OF SLAB



MINISTRY OF HOUSING & PHYSICAL PLANNING REPUBLIC OF SOUTH SUDAN MINISTRY OF PHYSICAL INFRASTRUCTURE & RURAL DEVELOPMENT, UPPER NILE STATE	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIRO ENGINEERING CO., LTD RECS INTERNATIONAL INC. KOKUSAI KOGYO CO., LTD	THE PLANNING OF URGENT DEVELOPMENT AND SUPPORT FOR COMPREHENSIVE PLANNING AND SUPPORT FOR URGENT DEVELOPMENT ON SOCIAL ECONOMIC INFRASTRUCTURE IN MALAKAL TOWN	TITLE: BARGES JETTY BAR ARRANGMENT OF SLAB	
			Drawing No.	5 of 7
			Scale	As Drawing
			Date	June-2013

BAR ARRANGEMENT OF SLAB AND SIDE WALL (1)



MINISTRY OF HOUSING & PHYSICAL PLANNING
 REPUBLIC OF SOUTH SUDAN
 MINISTRY OF PHYSICAL INFRASTRUCTURE &
 RURAL DEVELOPMENT, UPPER NILE STATE

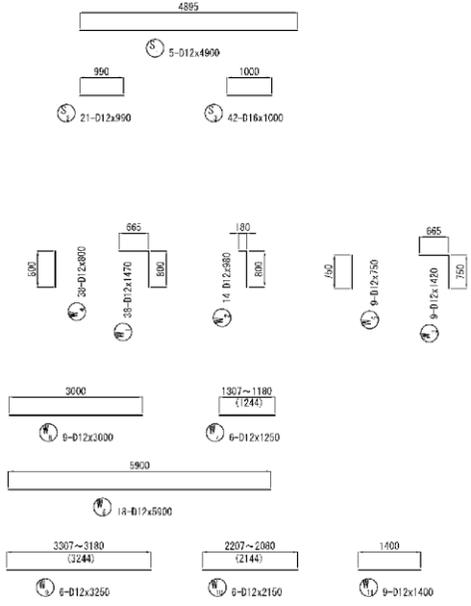
JAPAN INTERNATIONAL COOPERATION AGENCY
 KATAHIRA & ENGINEERS INTERNATIONAL
 YACHIRO ENGINEERING CO., LTD
 RECS INTERNATIONAL INC.
 KOKUSAI KOGYO CO., LTD

THE PLANNING OF URGENT DEVELOPMENT AND
 SUPPORT FOR COMPREHENSIVE PLANNING AND
 SUPPORT FOR URGENT DEVELOPMENT ON SOCIAL
 ECONOMIC INFRASTRUCTURE IN MALAKAL TOWN

TITLE: PASSENGER JETTY
 BAR ARRANGMENT OF SLAB AND SIDE WALL(1)

Drawing No.	6 of 7
Scale	As Drawing
Date	June-2013

BAR ARRANGEMENT OF SLAB AND SIDE WALL (2)



MATERIAL LIST						
MARK	SIZE	LENGTH (mm)	NO.	WT/N	WT/ONE	REMARKS
SLAB						
S 1	D12	4900	5	0.885	4.351	22
S 2	D12	950	21	0.885	0.879	18
S 3	D12	1000	42	1.576	1.578	56
						106 kg
SABU TOTAL 106 x 4 =						424 kg
SIDE WALL						
W 1	D12	1470	38	0.885	1.305	50
W 2	D12	980	14	0.885	0.870	12
W 3	D12	1420	9	0.885	1.561	11
W 4	D12	800	38	0.885	0.710	27
W 5	D12	760	9	0.885	0.665	8
W 6	D12	3000	9	0.885	2.664	24
W 7	D12	1250	6	0.885	1.110	7
W 8	D12	5900	18	0.885	5.239	94
W 9	D12	3250	6	0.885	2.685	17
W 10	D12	2150	6	0.885	1.909	11
W 11	D12	1400	6	0.885	1.243	11
						270 kg
SABU TOTAL 270 x 4 =						1050 kg
TOTAL WEIGHT						1504 kg
D16						264 kg
D12						1240 kg
TOTAL WEIGHT						1504 kg

MINISTRY OF HOUSING & PHYSICAL PLANNING
REPUBLIC OF SOUTH SUDAN
MINISTRY OF PHYSICAL INFRASTRUCTURE &
RURAL DEVELOPMENT, UPPER NILE STATE

JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIRO ENGINEERING CO., LTD
RECS INTERNATIONAL INC.
KOKUSAI KOGYO CO., LTD

THE PLANNING OF URGENT DEVELOPMENT AND
SUPPORT FOR COMPREHENSIVE PLANNING AND
SUPPORT FOR URGENT DEVELOPMENT ON SOCIAL
ECONOMIC INFRASTRUCTURE IN MALAKAL TOWN

TITLE: PASSENGER JETTY
BAR ARRANGMENT OF SLAB AND SIDE WALL(2)

Drawing No.	7 of 7
Scale	As Drawing
Date	June-2013

Appendix A-10

Report of Reconnaissance Interview Survey on Pilot Works

by LBT (Road Transport Sector)

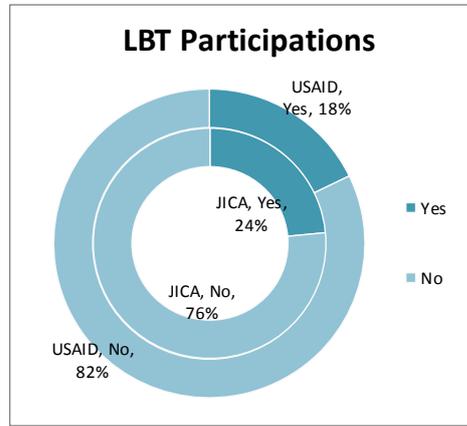
Q-01. Have you participated LBT Works done by JICA recently?

Q-02. Have you participated LBT Works done by USAID a few years ago?

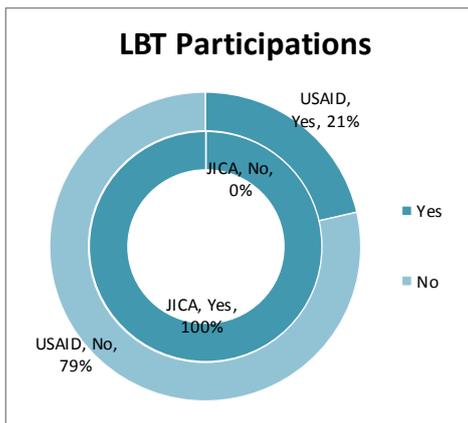
About 1/4 of interviewees has participated LBT Pilot Works done by JICA Project Team, while about 1/5 of interviewees had participated former LBT Works done by USAID.

Within the G1, about 1/5 of interviewees had participated former LBT Works done by USAID as well, while within the G2 and G3, a few of them have participated LBT Pilot Works done by JICA, however more had participated former LBT Works done by USAID.

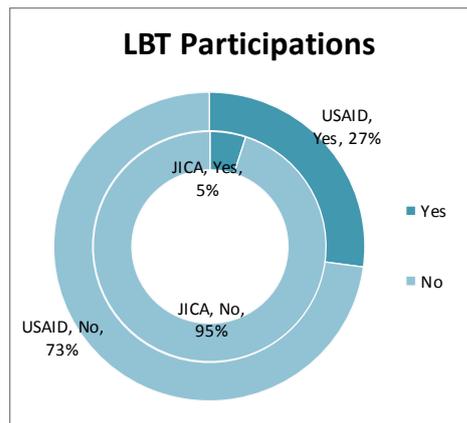
GA



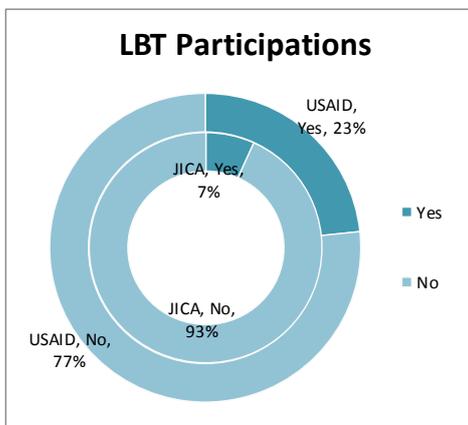
G1



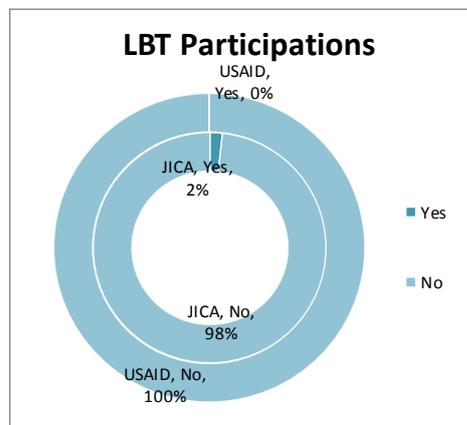
G2



G3



G4

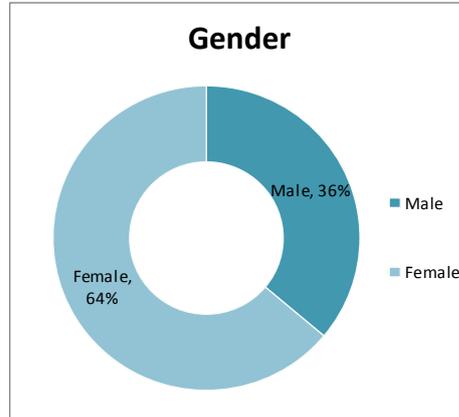


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LBT Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA, and GA is Group All Combined.

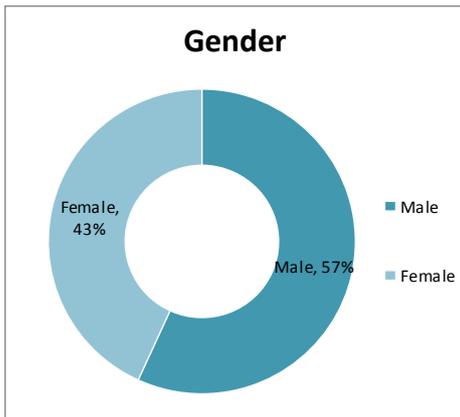
Q-03. Please indicate your gender;

About 1/3 of interviewees are male, and remaining 2/3 are female as a whole. Within the G1, male compositions becomes 3/5, while in the other groups, such as G2, G3, G4, male compositions within the interviewees are varied from 1/5 to 2/5 level possibly due to most probably time of interviews.

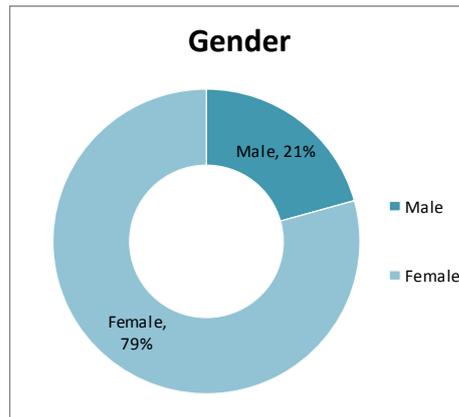
GA



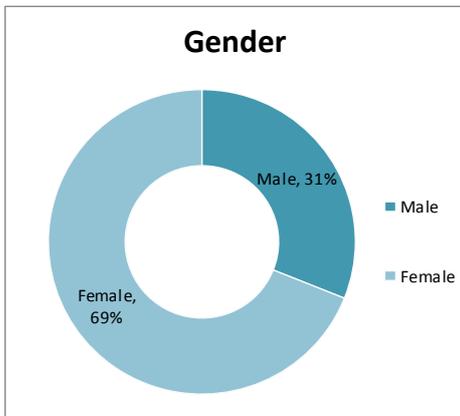
G1



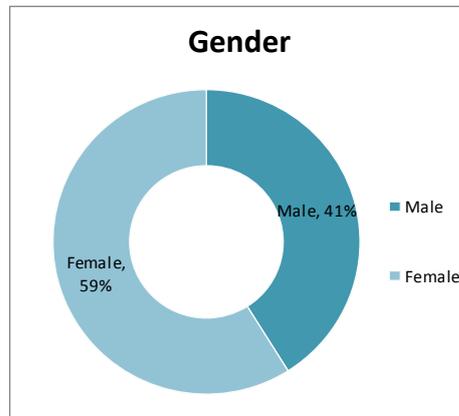
G2



G3



G4

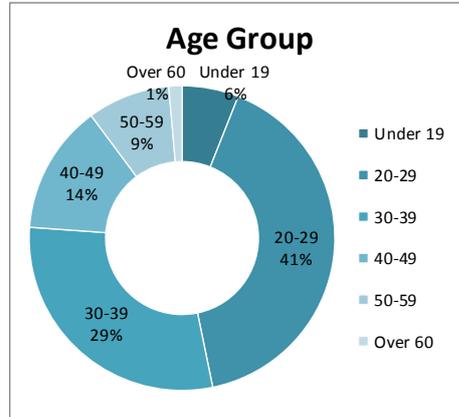


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LBT Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA, and GA is Group All Combined.

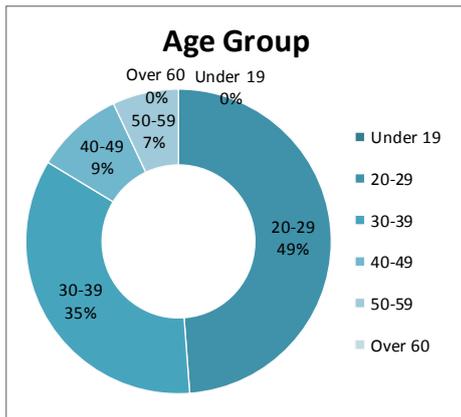
Q-04. Please indicate your age group;

About 2/5 of interviewees are 20's, followed by 30's and 40's, while about 1/10 is over 50's, and some are under 20's. Within the G1, about 1/2 of them is 20's, followed by 30's, 40's, and 50's. There are no under 20's nor over 60's at least. Within the other groups, such as G2, G3, and G4, 20's compositions are varied from 1/3 to 2/5 level, followed by 30's, 40's, and 50's or under 20's, and lastly over 60's.

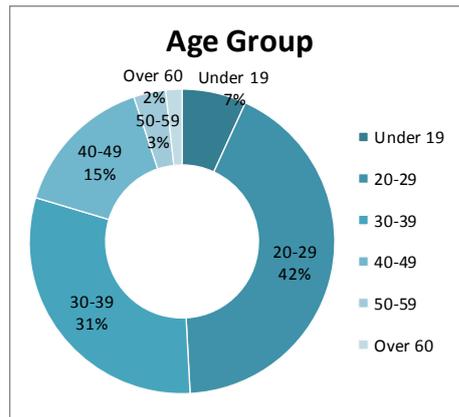
GA



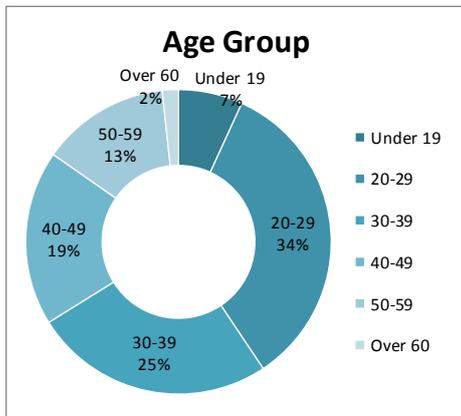
G1



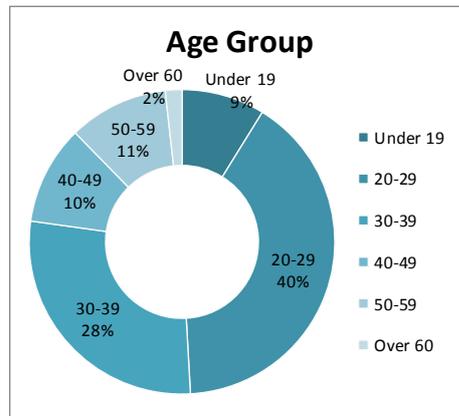
G2



G3



G4



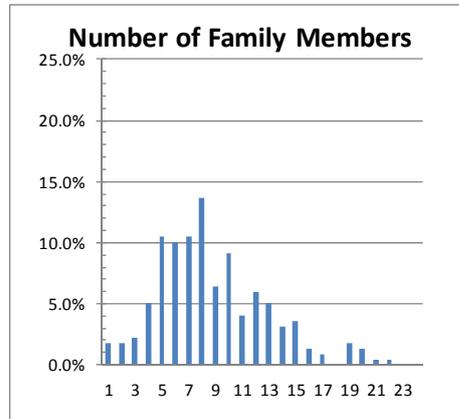
Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LBT Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA, and GA is Group All Combined.

Q-05a. How many family members are you staying together in your house(s)?

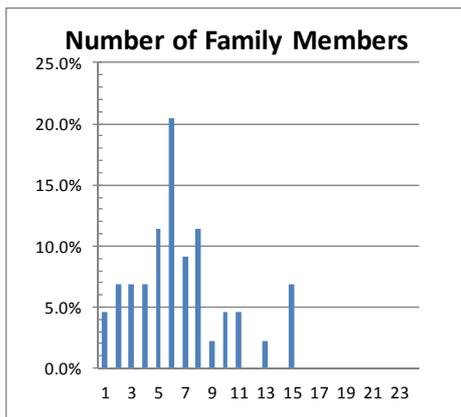
Average number of family member is 9.0 per household and its distribution shows almost natural tendency of "log-normal distribution" as a whole.

However, average number of family member per household for G1, G2, G3, and G4 showed 6.9, 10.3, 9.3, and 9.0, respectively, and that suggested that there is some kind of gap between G1 and G2, however, reason why is not clear.

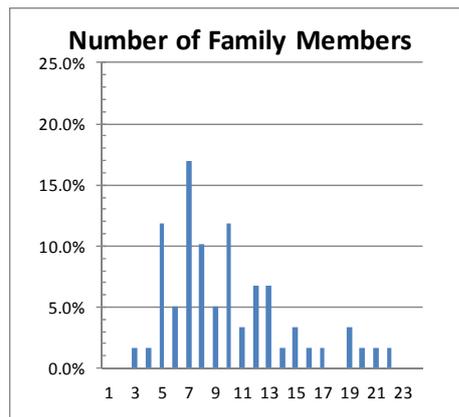
GA



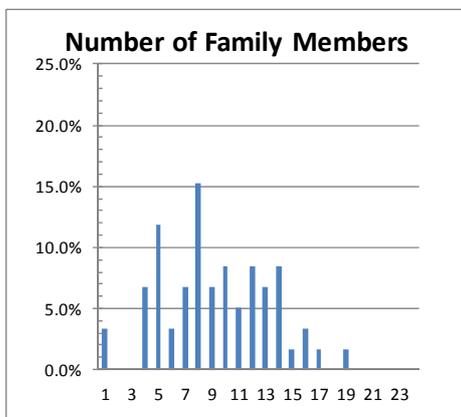
G1



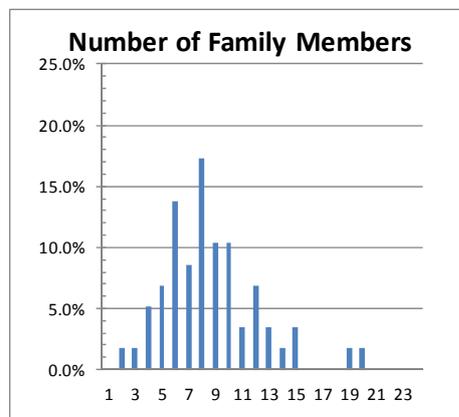
G2



G3



G4

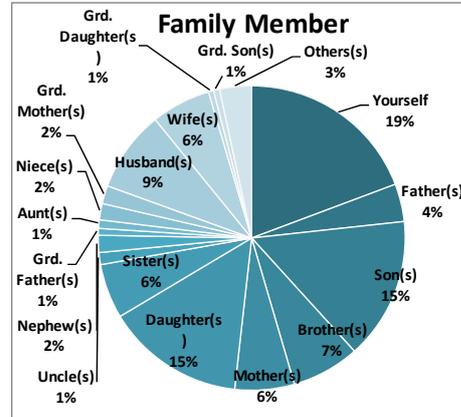


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LBT Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA, and GA is Group All Combined.

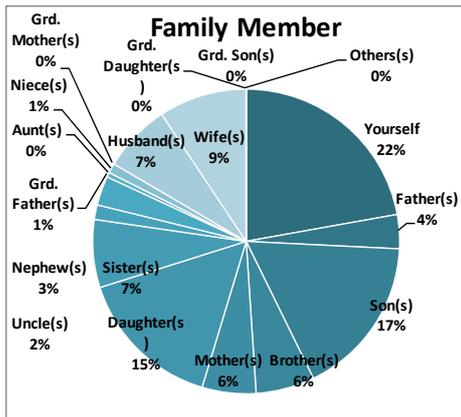
Q-05b. Who are in your family? Please select who ever applicable and indicate numbers at corresponding row(s);

There are no significant difference among the groups, and most families consist from 3 generations and sometimes with relatives, such as uncle(s) and/or aunt(s) and their children as nephew(s) and niece(s), or their grand father and/or grand mother.

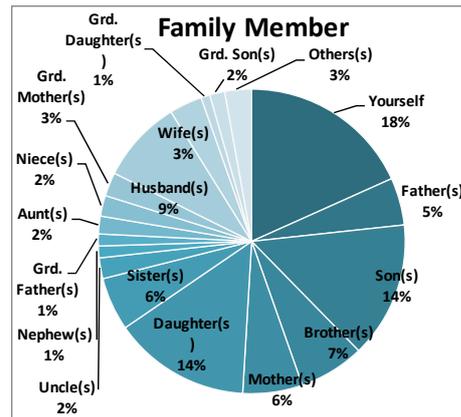
GA



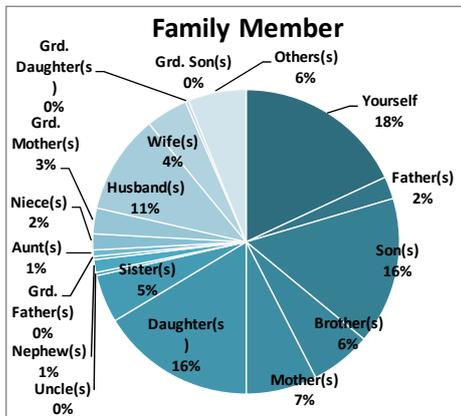
G1



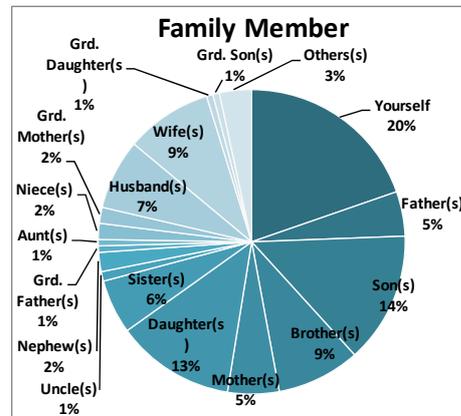
G2



G3



G4

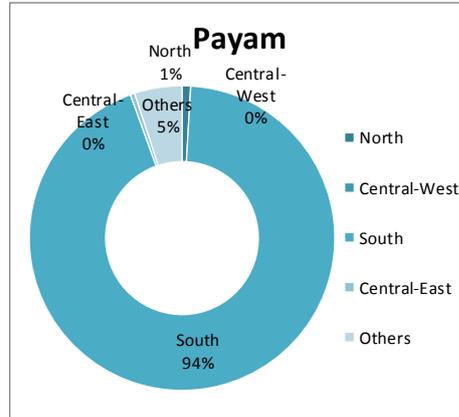


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LBT Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA, and GA is Group All Combined.

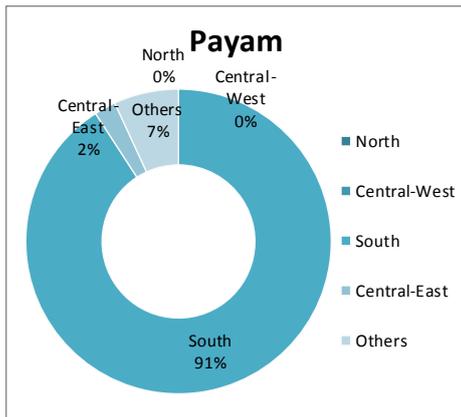
Q-06. Which payam do you belong to?

Since interviewed areas are all within south payam, therefore, most of all interviewees are from south payam, however, some are from other payams as shown.

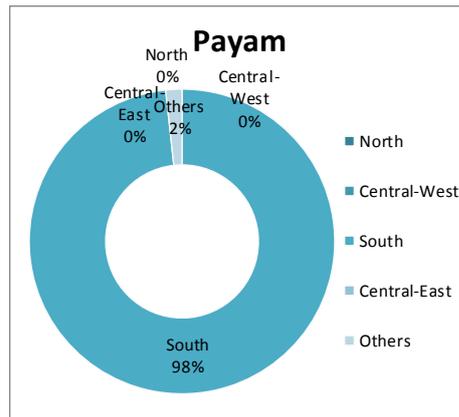
GA



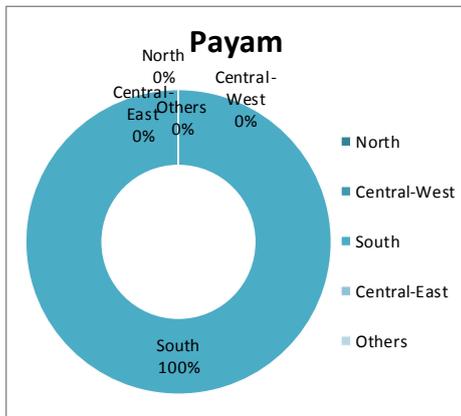
G1



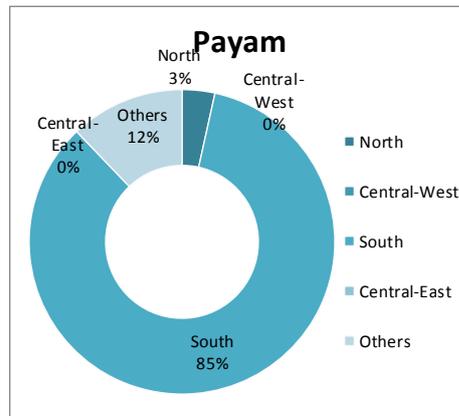
G2



G3



G4



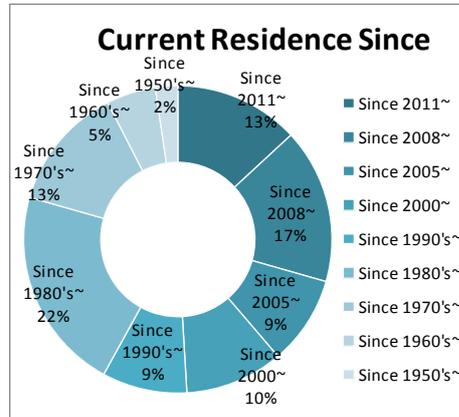
Note; G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LBT Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA, and GA is Group All Combined.

Q-07. How long have you been in current payam?

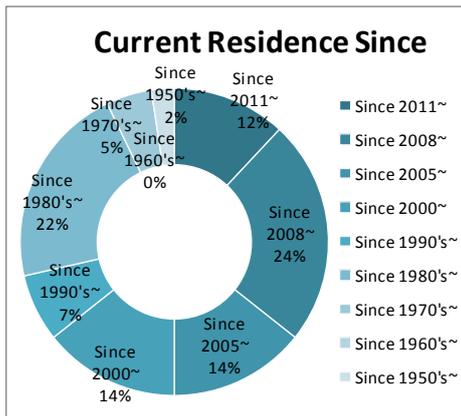
About 1/2 of interviewees has been in current residence after Year of 2000, and of which after CPA is about 2/5, however, the other 1/2 has been in current residence before that, and some are since 80's or 70's, or even since 50's and 60's as a whole.

Within the G1, 1/2 of them has been current residence after CPA, and the other 1/2 has been there before CPA.

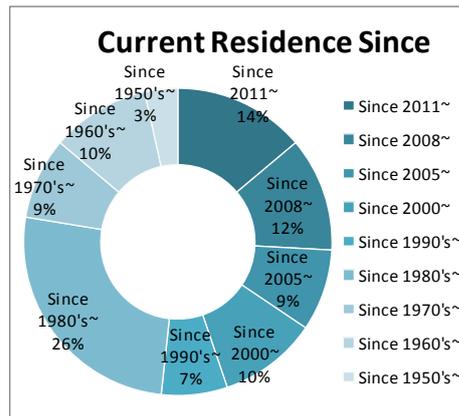
GA



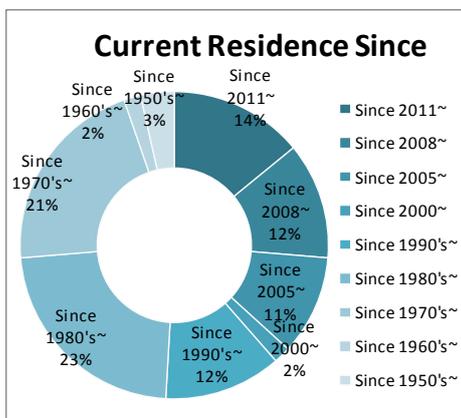
G1



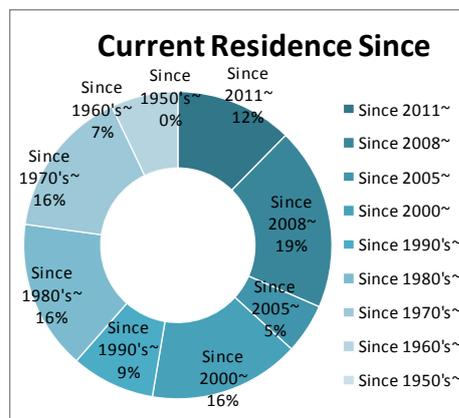
G2



G3



G4



Note; G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LBT Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA and GA is Group All Combined.

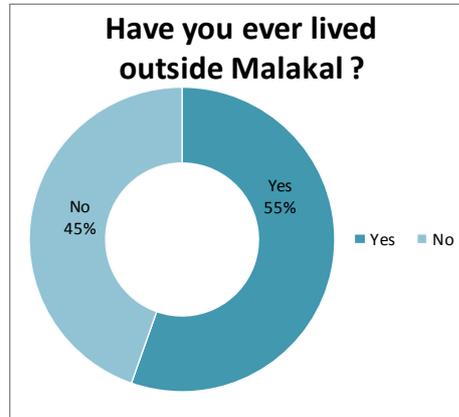
Q-08a. Have you ever lived outside of Malakal Town?

More than 1/2 of interviewees has ever lived outside of Malakal Town as a whole, and its distributions are varied among the groups.

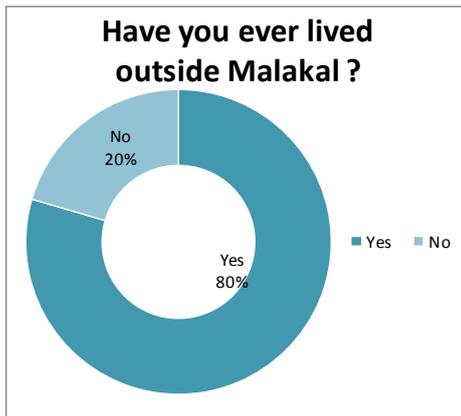
Especially in G1, 4/5 of them has ever lived outside, followed by G4 with 3/5 level.

On the other hand, G2 and G3 show almost same composition that less than 1/2 of them has ever lived outside of Malakal Town.

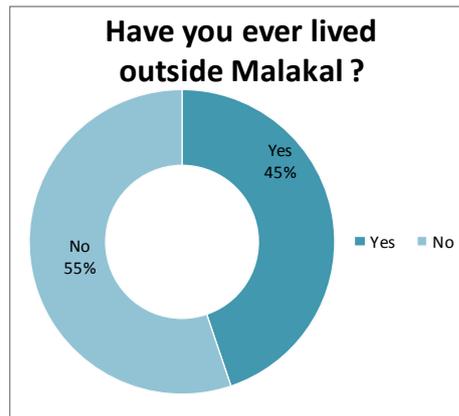
GA



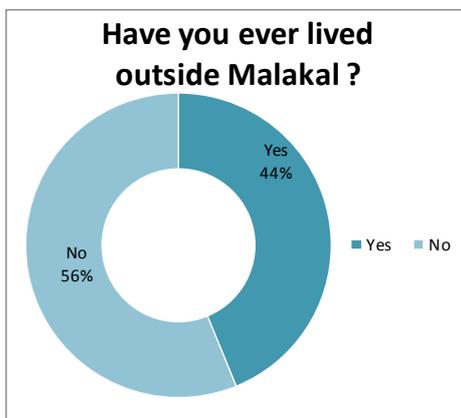
G1



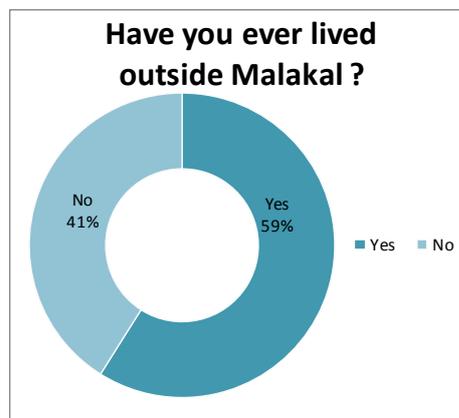
G2



G3



G4

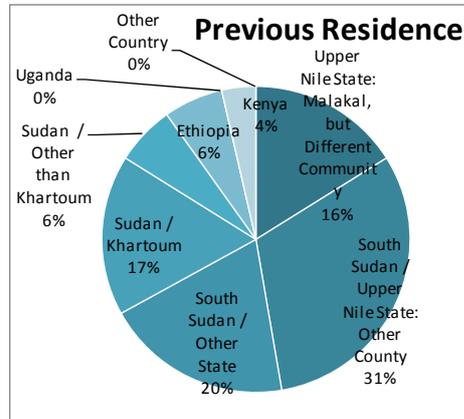


Note; G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JI and GA is Group All Combined.

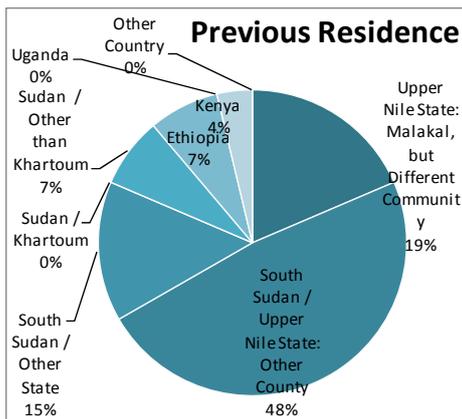
Q-08b. If "Yes" for Q-08a above, where did you live? And How long did you live there?

About 3/5 of them who answered they have ever been in outside of Malakal Town were from within South Sudan while slightly less than 1/5 of them were from Khartoum. Who were in Ethiopia or Kenya are around 5% as a whole. Among the 4 groups, their previous residences are very varied. For example, no one is from Khartoum in G1, however, those who are from Khartoum in G2 and G3 are around 30%, and that of which in G4 is around 10%.

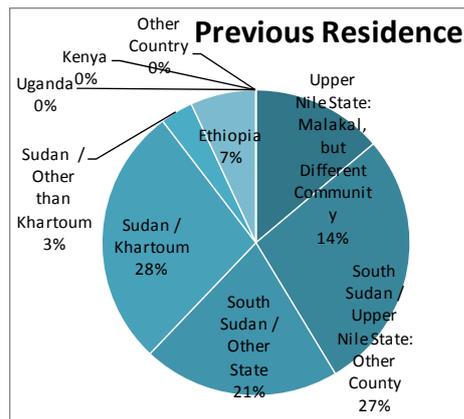
GA



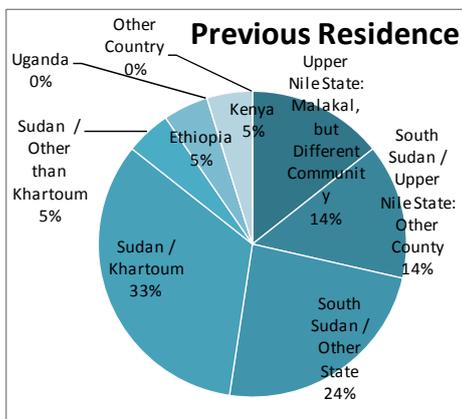
G1



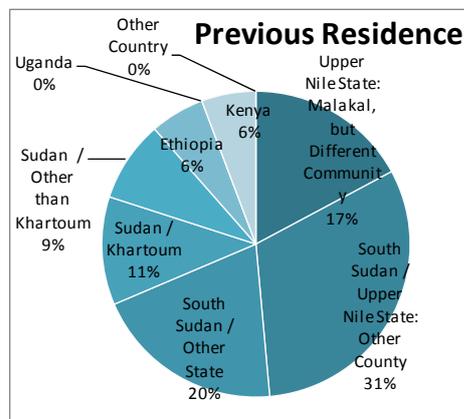
G2



G3



G4

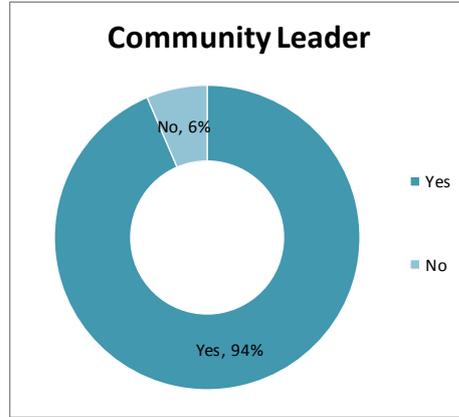


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L1 Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

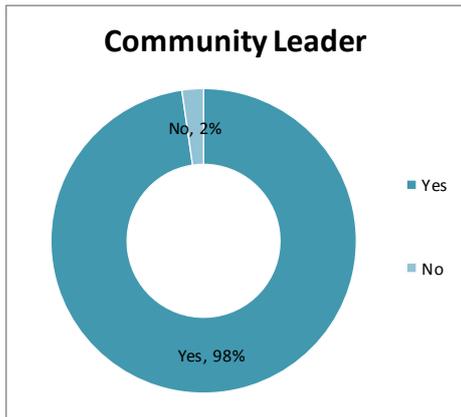
Q-09. Do you know who is the leader in your community?

Most of interviewees answered they know who is the leader in their community. However, in G2, that number is slightly lower than that of other groups. This may be explained by that, there is no majority within the community who has same background as former residence within G2. In G1, G3, and G4, there is at least one sub group who has same background as former residence and consists almost or more than 1/3 of the corresponding group.

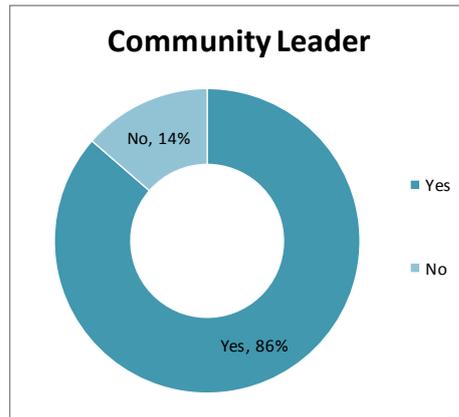
GA



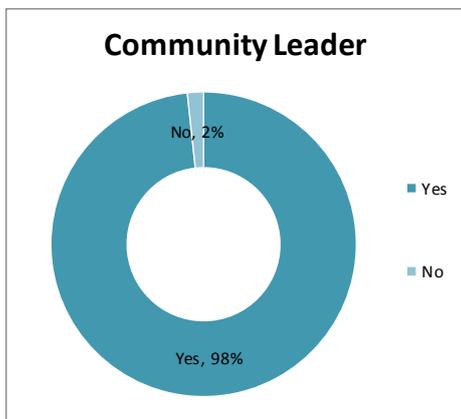
G1



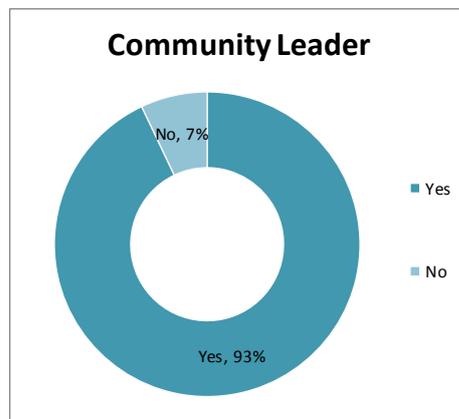
G2



G3



G4

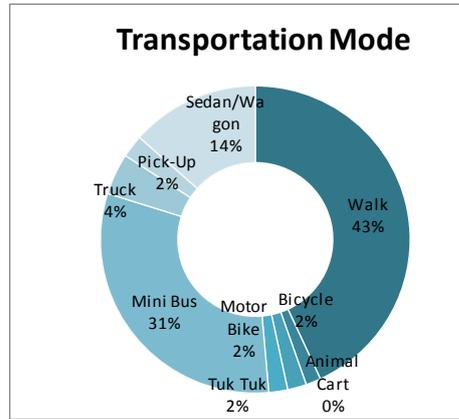


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L1 Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

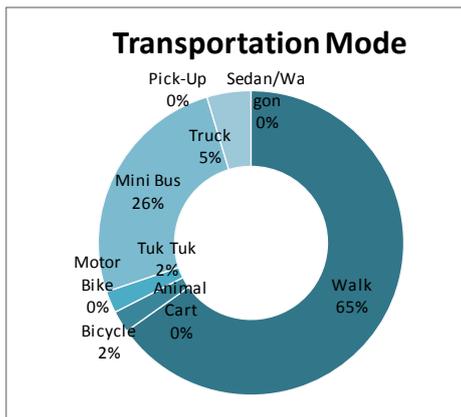
Q-10. What type of transport mode are you using, when you need to go other payam?

About 2/5 of interviewees move by walk, followed by mini bus as a whole. However, in G1, who move by walk increased up to 2/3 while no one move by sedan/wagon, and that is significant against other three groups who move by walk are about 2/5, and by sedan/wagon is 15% or 18%.

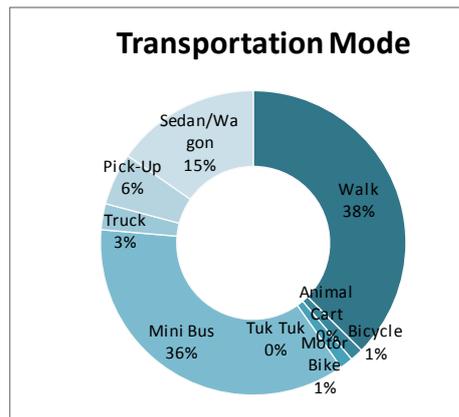
GA



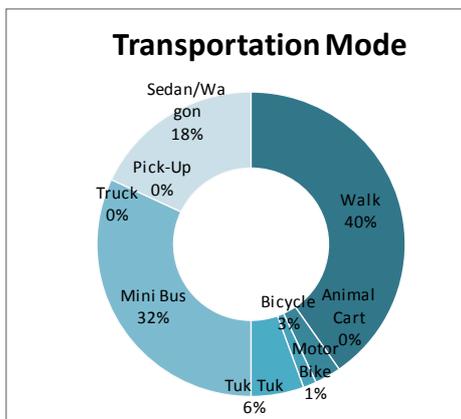
G1



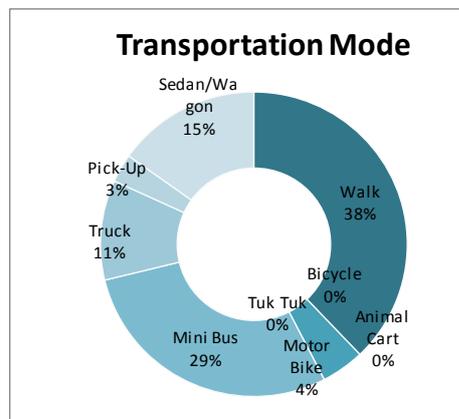
G2



G3



G4

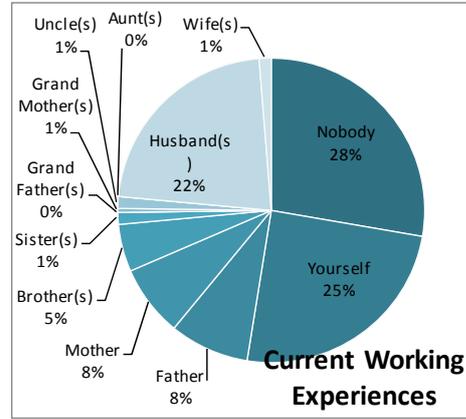


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JI and GA is Group All Combined.

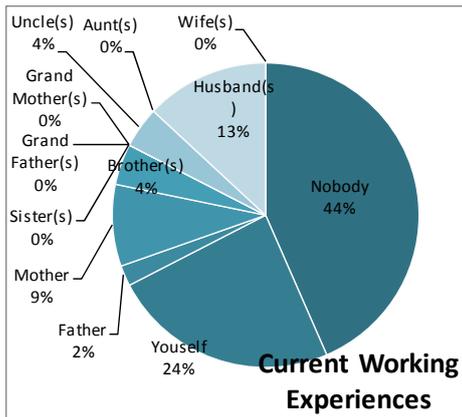
Q-11a. Who is/are currently working in your family? Please select which ever applicable;

Slightly less than 30% of interviewees answered nobody is currently working in their family as a whole, and this number increases in G1 up to 44%, and decreases in G4 up to 20%. Within those who answered somebody is currently working, majority is interviewees themselves and/or their husband, followed by their father and/or mother, and those are working as government employees, such as civil servant, teacher, police, army, nurse, etc. or doing private business.

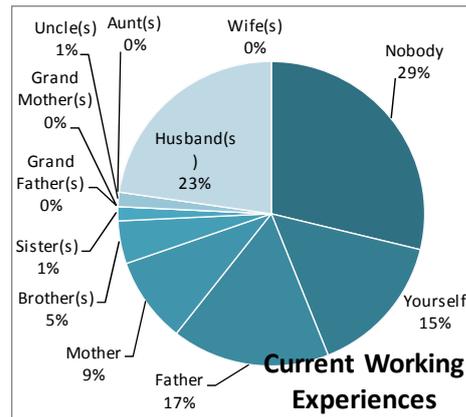
GA



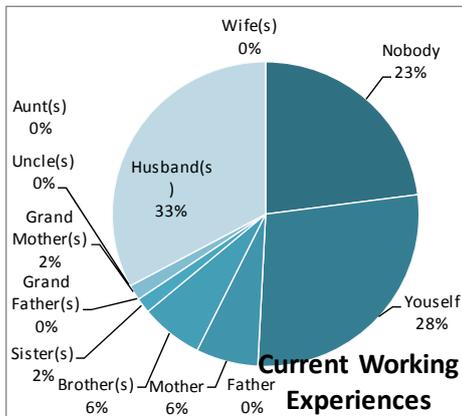
G1



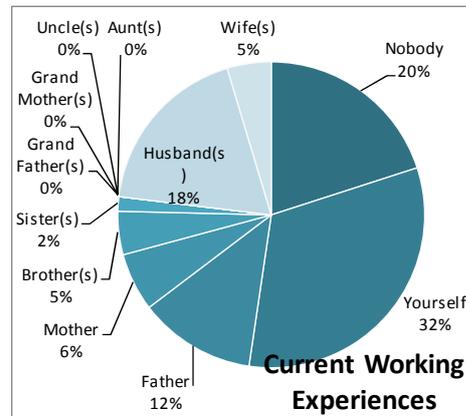
G2



G3



G4

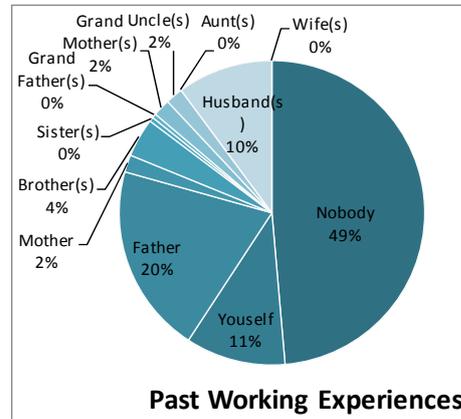


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

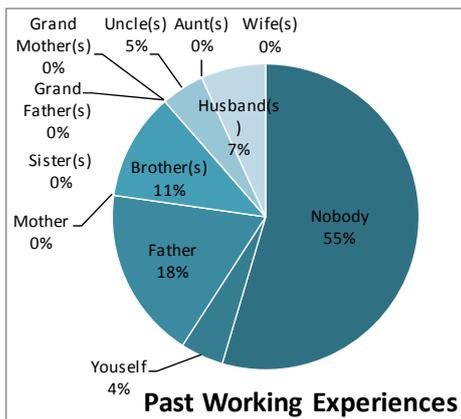
Q-11b. Who was/were working before in your family? Please select which ever applicable;

Almost 1/2 of interviewees answered nobody was working before in their family as a whole, and this number increases in G1 up to 55%. Within those who answered somebody was working, majority was interviewees' father, followed by themselves, their husband, and their brother(s). And those were working as government employees, such as civil servant, teacher, police, army, etc. or doing private business.

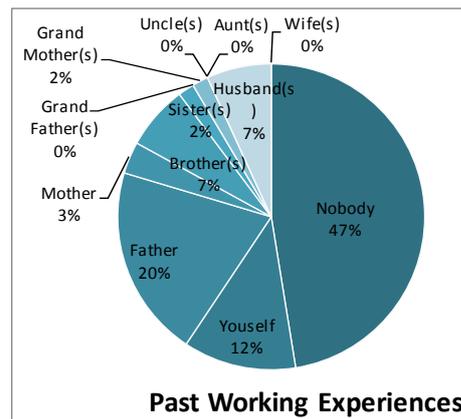
GA



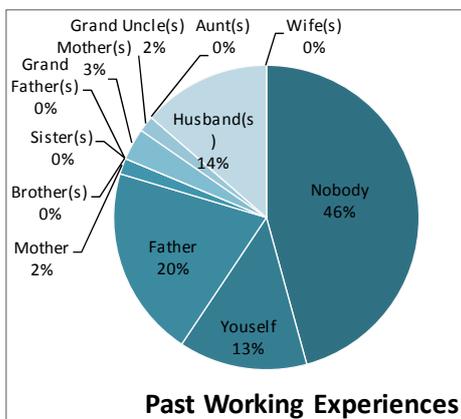
G1



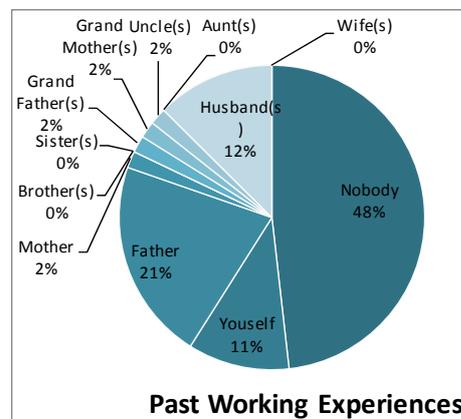
G2



G3



G4

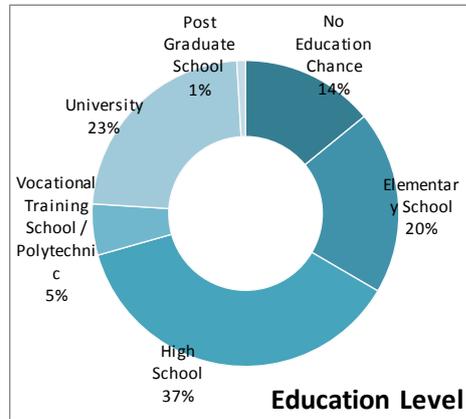


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

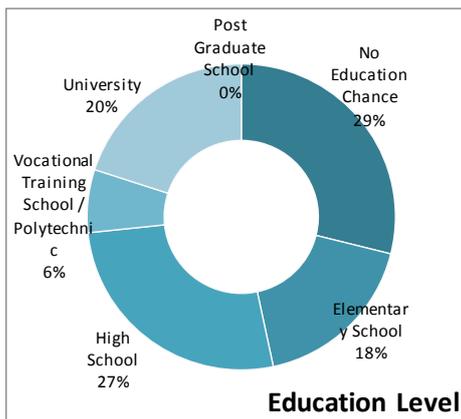
Q-12. What is the highest education level in your family? Please select one;

About 1/4 of interviewees answered that they have university and/or post graduate school graduate(s), and about 2/5 has high school graduate(s), while 14% of them has no education chance still. In G1, no education chance composition reaches almost double score while that of university or higher still remains 1/5 level. In G2, university and/or post graduate composition reaches 1/3 of the group. In G3 and G4, high school graduate composition reaches 54% and 43%.

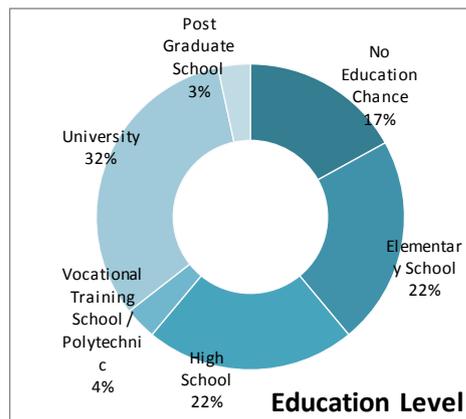
GA



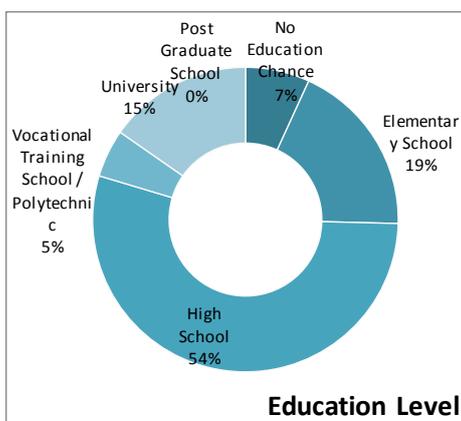
G1



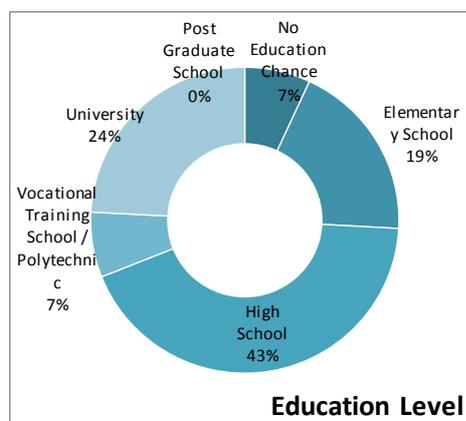
G2



G3



G4

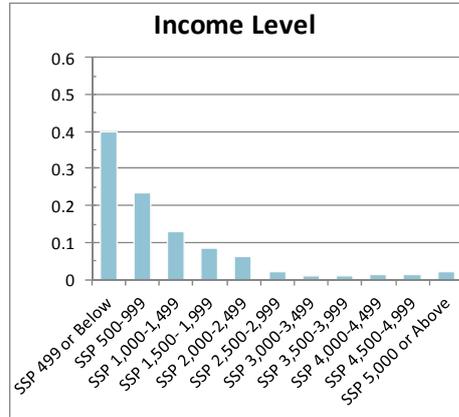


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

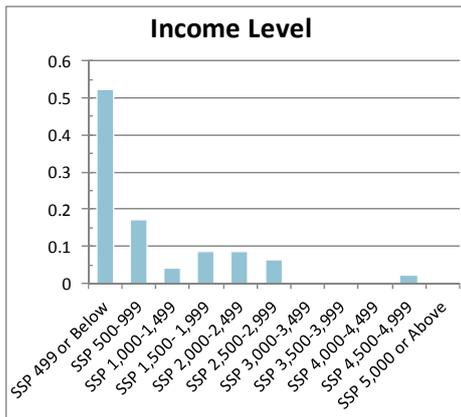
Q-13. What is the average monthly income of your household? Please select one;

Monthly income level less than SSP 500 consists 2/5, followed by less than SSP 1,000, 1,500, 2,000, and 2,500, respectively. Those 5 categories consists over 90% and average income level is around SSP 1,100 per month as a whole. In G1, 1st category reaches over 1/2 and average income level is dropped around SSP 950 per month. Average income level of G2, G3, and G4, are around 1,100, 1,250, and 1,000 per month, respectively.

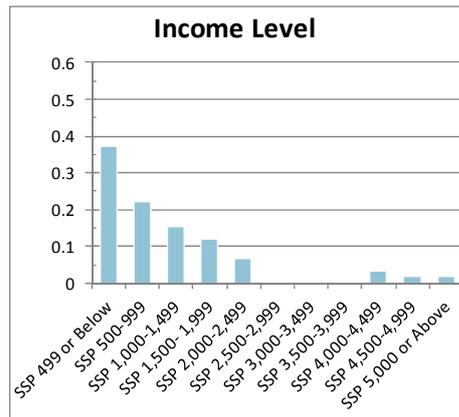
GA



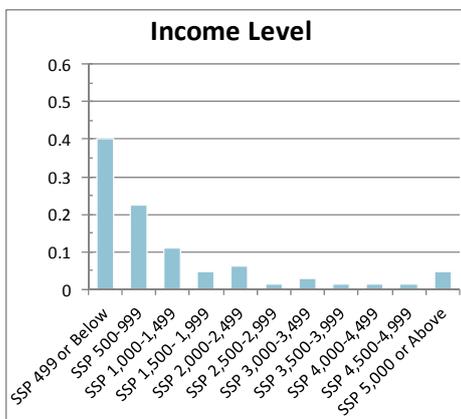
G1



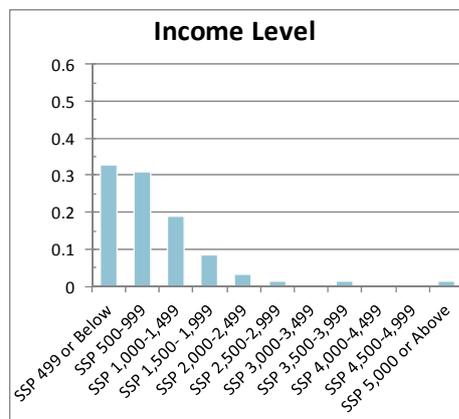
G2



G3



G4

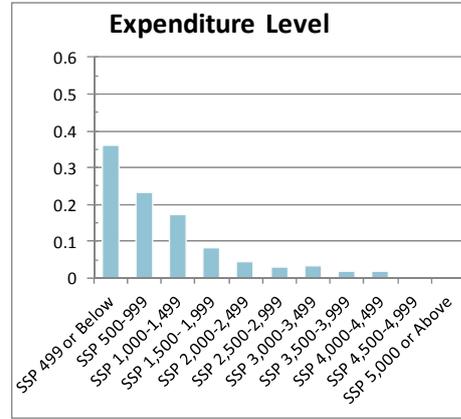


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JI and GA is Group All Combined.

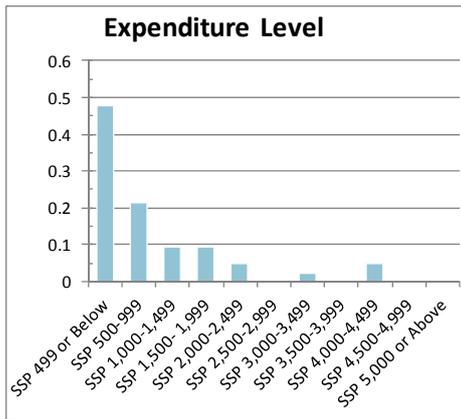
Q-14. What is the average monthly expenditure of your household? Please select one;

Monthly expenditure level less than SSP 500 consists 1/3, followed by less than SSP 1,000, 1,500, 2,000, and 2,500, respectively. Those 5 categories consists about 90%, and average expenditure level is around SSP 1,100 per month as a whole. In G1, 1st category reaches over 45% and average expenditure level is dropped around SSP 950 per month. Average expenditure level of G2, G3, and G4, are around 1,100, 950, and 1,300, respectively.

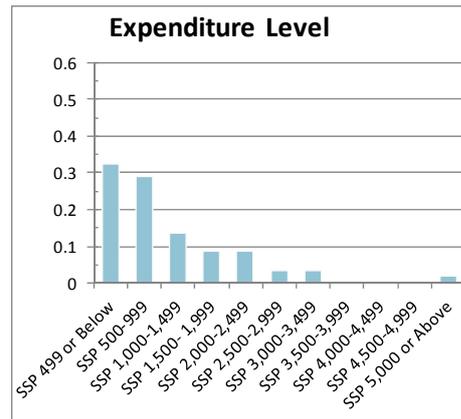
GA



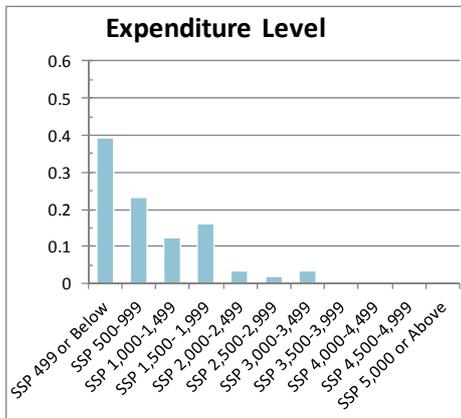
G1



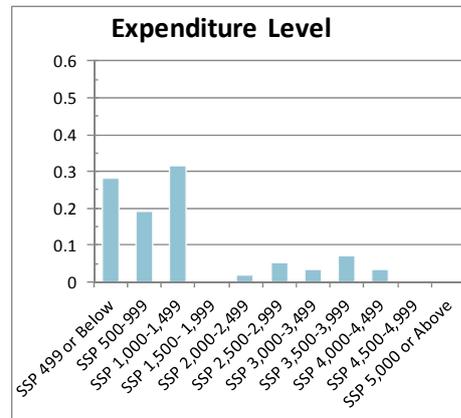
G2



G3



G4

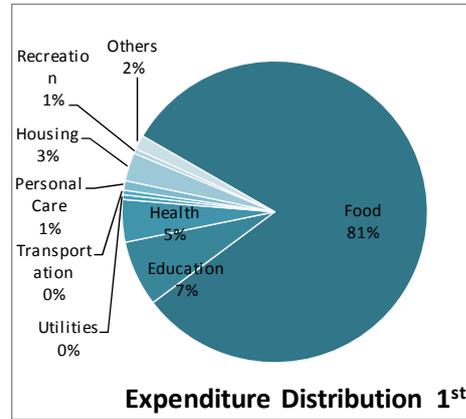


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA and GA is Group All Combined.

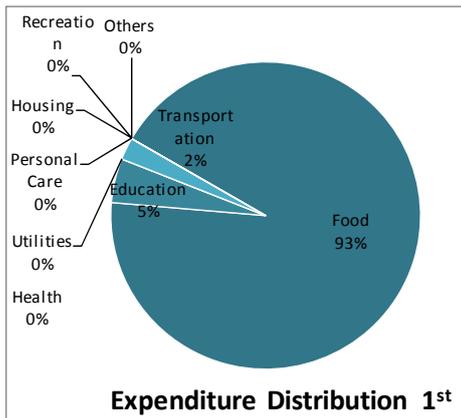
Q-15a. For which purpose did you / are you going to utilize the cash which you earned from LBT works participation? Please select 1st one from following list;

1st purpose of use of extra cash income goes to food with over 80% level, followed by education and health with 7% and 5% respectively as a whole. Food composition reaches over 90% in G1, while it dropped 65%, and more goes to education and health in G3. Distribution tendencies of G2 and G3 are basically similar to that of average.

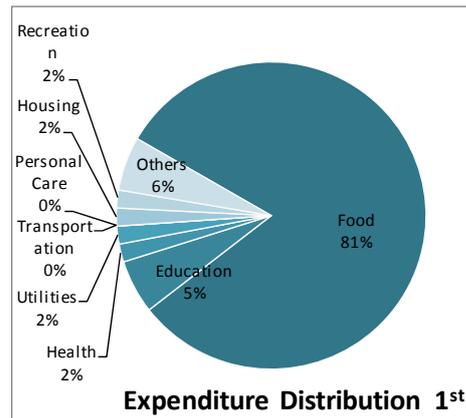
GA



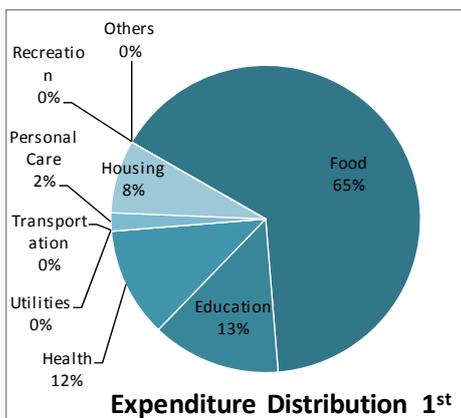
G1



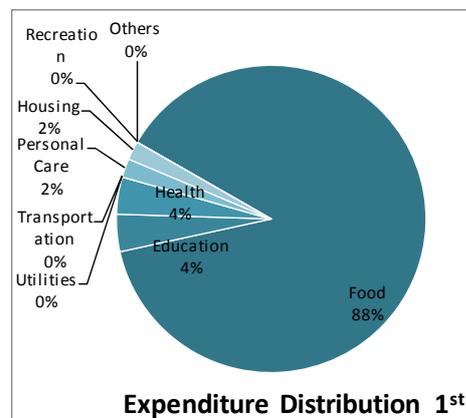
G2



G3



G4

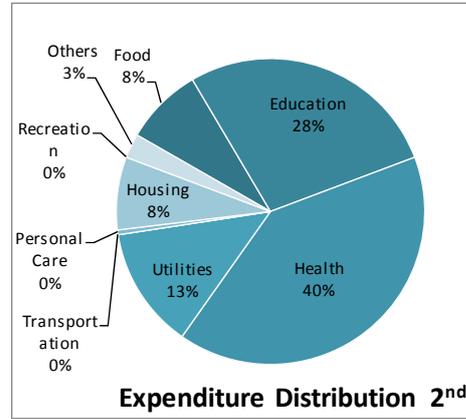


Note; G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

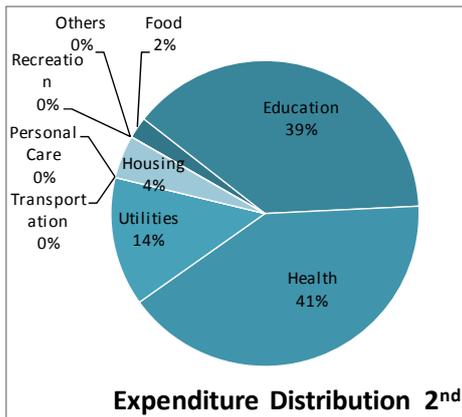
Q-15b. For which purpose did you / are you going to utilize the cash which you earned from LBT works participation? Please select 2nd one from following list;

2nd purpose of use of extra cash income goes to health with 40% level, followed by education with about 30% as a whole. In G1, education composition reaches almost 40% while that of health remains 40% level. In G2, education composition drops 20% while that of health increases 45% level. In G3, food composition becomes around 20% level, while that of education and health becomes around 25% and 30% level, respectively. In G4, utilities composition becomes 20%.

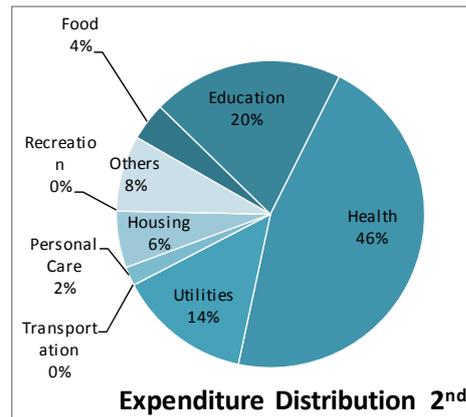
GA



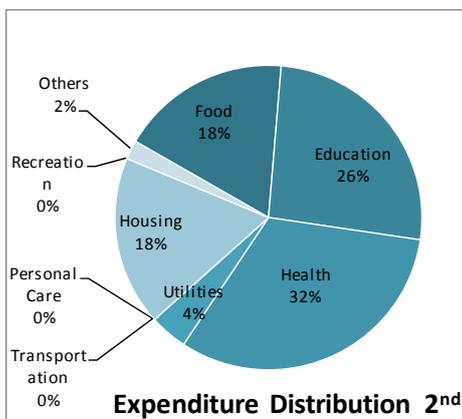
G1



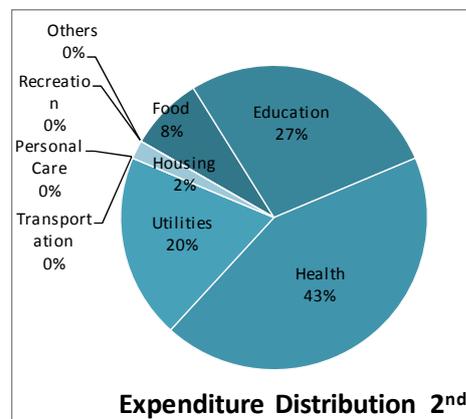
G2



G3



G4

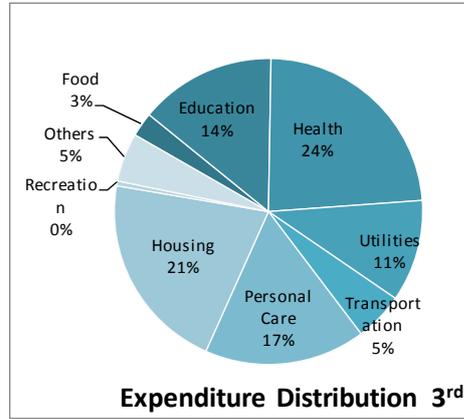


Note; G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and J. and GA is Group All Combined.

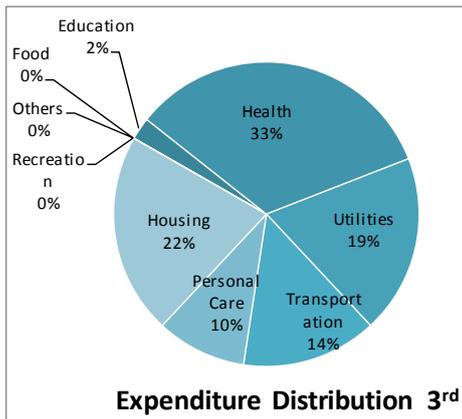
Q-15c. For which purpose did you / are you going to utilize the cash which you earned from LBT works participation? Please select 3rd one from following list;

3rd purpose of use of extra cash income varies as a whole. However, in G1, health composition reaches over 30% and that of transportation reaches almost 15% level which is triple of average. In G2, more goes to housing and personal care. In G3, more goes to education and health. In G4, distribution tendency among the purposes is very similar to that of entire groups.

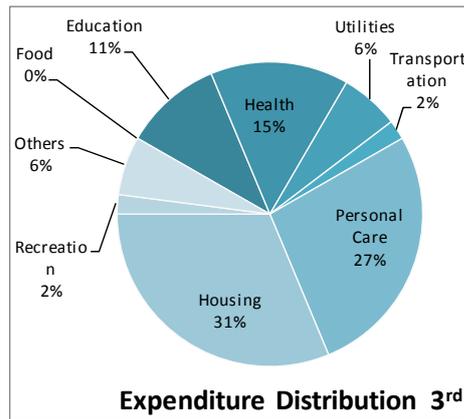
GA



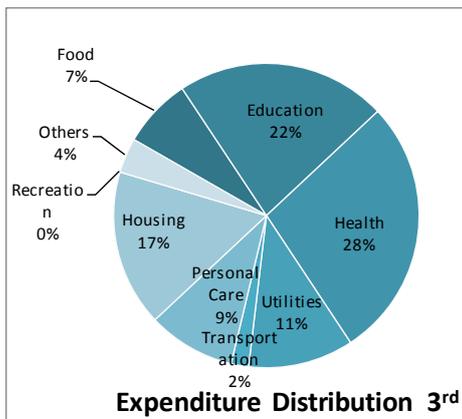
G1



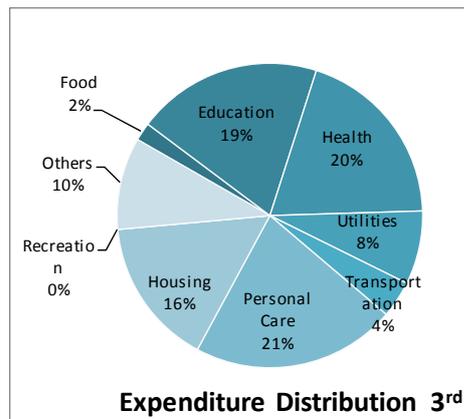
G2



G3



G4

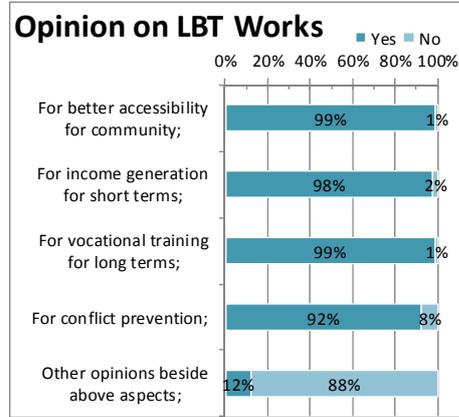


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA. G2 is Group-2, who lived along proposed LL Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC. and GA is Group All Combined.

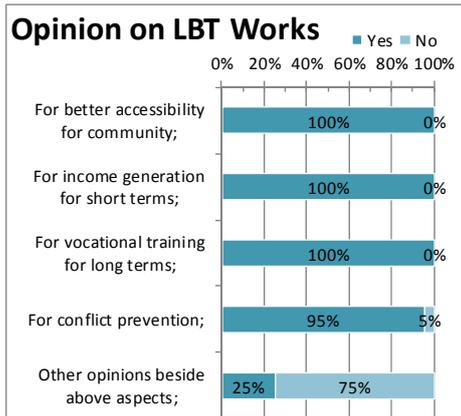
Q-16. How do you think about LBT (participatory community development works) done by JICA and/or USAID in Malakal Town?

Almost all of interviewees support LBT positive way in terms of better accessibility, income generation, vocational training, and conflict prevention. Other opinions suggest that necessity of water supply and hygiene control in those communities is also important.

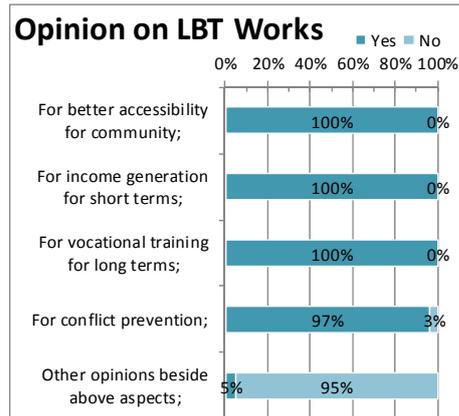
GA



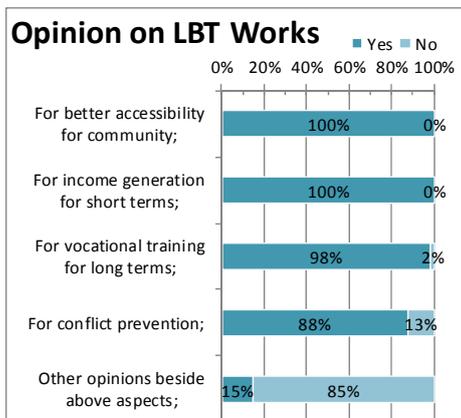
G1



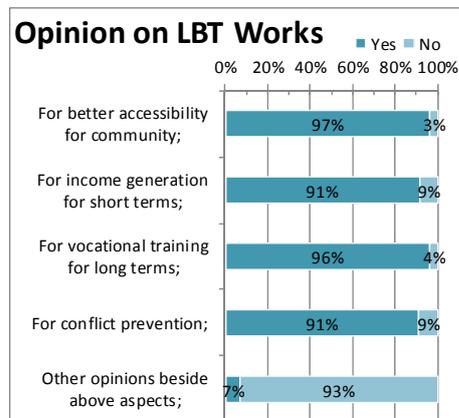
G2



G3



G4

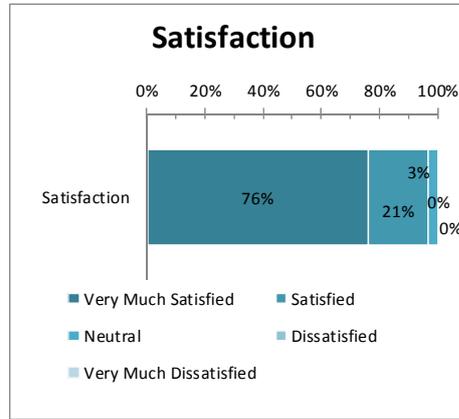


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JICA and GA is Group All Combined.

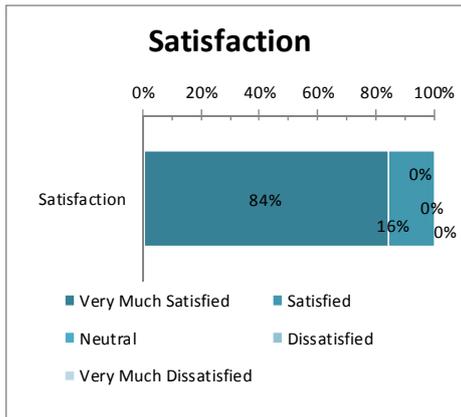
Q-17. How does your household feel about LBT works done by yourself and/or community people? Please select one;

Over three quarters of interviewees responded LBT works done by themselves and/or community people is very much satisfied, and followed by very satisfied with over 20%, and as a result, these two categories compose 97% as a whole. In G1, very much satisfied becomes 84% and together with satisfied, they compose 100%.

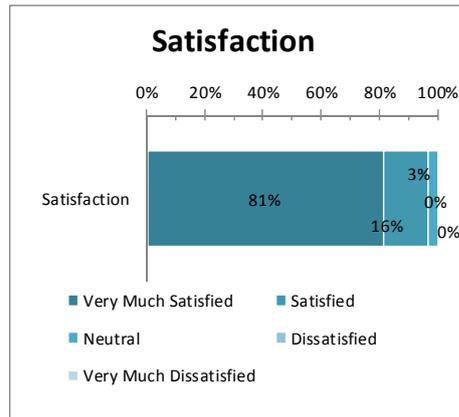
GA



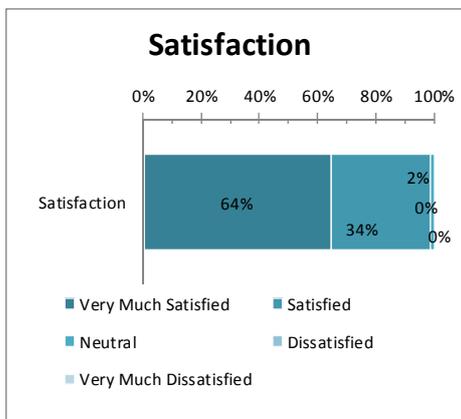
G1



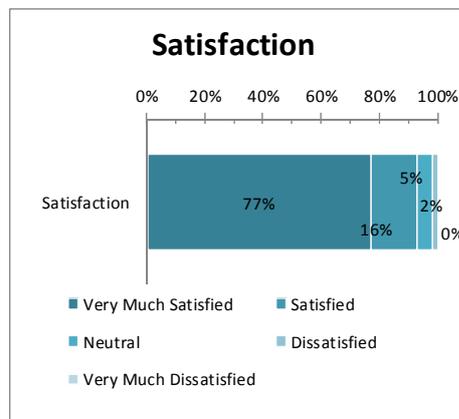
G2



G3



G4

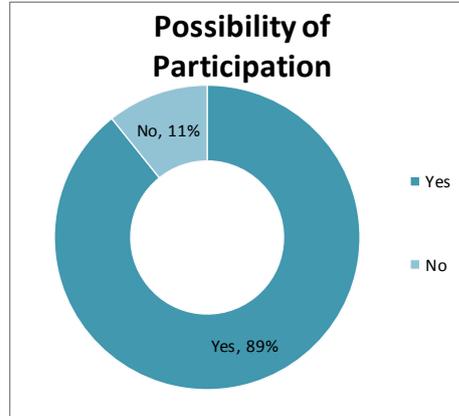


Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

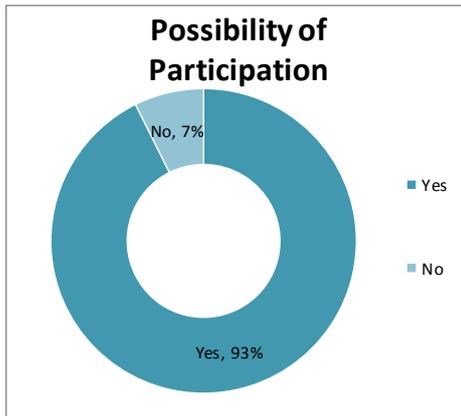
Q-18. Would you like to participate for further LBT works in your own community, if su chances are available?

Almost 90% of interviewees answered that they would like to participate proposed LBT works in their community as a whole. Those figures in G1, G2, G3 show more, although that of which in G4 is dropped 80% level.

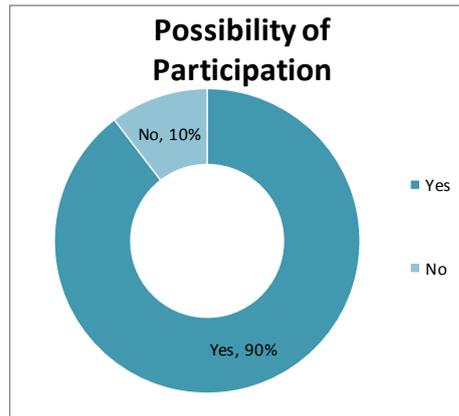
GA



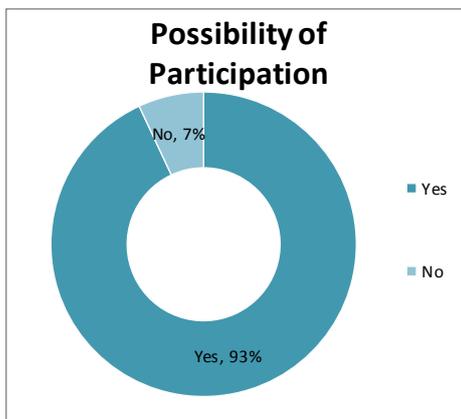
G1



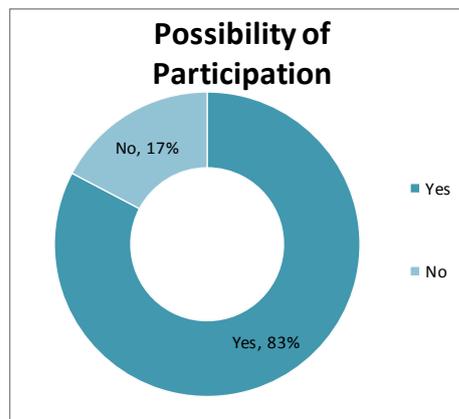
G2



G3



G4



Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JI and GA is Group All Combined.

Q-16.vi. If "Yes" for Q-16.v, please state what that is in short words;

GA

- 01 Because its good for community
- 02 Its development what JICA is doing
- 03 Because road is good
- 04 No water on road
- 05 It is very important because no water on road
- 06 treatment of water
- 07 I want clean water
- 08 in term of clean drinking water
- 09 constructing health care centres
- 10 It should be accurate
- 11 Youth to be involved more
- 12 it should be expended in terms of providing latrines
- 13 expend should be in terms of latrine
- 14 we need development

Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L. Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

Q-19a. If you have any comments and/or suggestions regarding Urgent Support (Quick Impact Project proposed by JICA , please feel free to write them down in the following space;

G1

- 01 Very good because it helped the family needs such as school fees, etc
- 02 I like it because it involves community along the road who are involved in construction
- 03 Now we need the road to be raised and made wider and longer
- 04 The work is good but need to cover the road with gravel
- 05 We beg you to expand your work to help the community
- 06 Malakal needs development so JICA to continue with the work
- 07 Jica should go ahead with the work
- 08 Jica can go ahead
- 09 It is very good indeed what Jica has done especially saving the community and also upcoming generation for the road
- 10 Very good work Jica should continue
- 11 The road done by Jica helping school going pupils and students
- 12 The work is satisfactory
- 13 Very interested in LBT work and the road is helping the communities living around that road
- 14 this road it useful for community
- 15 your work your are means
- 16 it will be very good if you open again I will be suppose to work with you
- 17 all thing good
- 18 all thing you full filled there is nothing bad else
- 19 continues the we are together with you
- 20 it will be very good if you open again I will be suppose to work with you
- 21 nothing bad from jica work
- 22 there 's no more word the work is good
- 23 if you open the work .i am ready to work
- 24 i will be with you if you open the work
- 25 your word we would liked
- 26 he said no word
- 27 no word to be said

Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

Q-19b. If you have any comments and/or suggestions regarding Urgent Support (Quick Impact Project proposed by JICA , please feel free to write them down in the following space;

G2

- 01 Continue with the good work
- 02 We love the road work as it has helped in draining the area
- 03 Extend the LBT work to other communities in Malakal. It helps a lot and help improve hygiene
- 04 Jica should continue with LBT
- 05 Extend the road to cover more communities
- 06 People are happy with the work of Jica since it has improved drainage and the work should continue
- 07 more thanks to JICA for the work they did
- 08 we are ready to participate in any work
- 09 there should be more chances for the community to get job
- 10 we love the work done by JICA
- 11 Jica have solve the problem of drainage
- 12 secure job for the poor and jobless people to help their families
- 13 continue in your work
- 14 it is good to continue in improving the road
- 15 we like Jica to continue their work they have started
- 16 we want JICA to complete the incomplete work by USAID for the benefit of the community
- 17 go ahead with the development
- 18 go ahead to support us
- 19 there is no problem with the work done by JICA
- 20 go ahead with your assistant
- 21 more thanks to JICA for the planning we ready to help in any time
- 22 we want water to be clean
- 23 we are happy for that JICA can go ahead in development planning
- 24 development is very good we welcome JICA
- 25 the development is very good for us
- 26 the planning is very good we are together
- 27 what you plan was not available before
- 28 we need more services in our community

Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed L. Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC and GA is Group All Combined.

Q-19c. If you have any comments and/or suggestions regarding Urgent Support (Quick Impact Project) proposed by JICA , please feel free to write them down in the following space;

G3

- 01 If you continue it will be good
- 02 I thank Jica for this work
- 03 I encourage Jica to proceed with the work they started to help the community
- 04 Jica has done a great job, I appreciate that.
- 05 Jica has done good job in the area
- 06 keep going on
- 07 we will be together as you are continue
- 08 very good job indeed
- 09 continue in road construction
- 10 when the time of work came, the workers are being employed base on tribalism although others came first they never being appointed
- 11 we need good and successful work for the benefit of the community
- 12 there must be bridges in order to prevent us from the flood
- 13 agencies in South Sudan should work hard so that people get job to help themselves
- 14 the work you have done make the place very clean
- 15 you have done a goo work for us

Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed LE Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and JIC, and GA is Group All Combined.

Q-19d. If you have any comments and/or suggestions regarding Urgent Support (Quick Impact Project) proposed by JICA , please feel free to write them down in the following space:

G4

- 01 It is a great chance for Upper Nile state and LBT should proceed
- 02 It is contributing to improving the situation of roads in Malakal
- 03 Continue with LBT it will help more families
- 04 The work is good for the community of the area and LBT should continue
- 05 Continue with the road improvement works
- 06 Continue with LBT works
- 07 It is better for LBT to continue
- 08 I thank Jica for the well done work
- 09 We need more services to be done by Jica
- 10 Keep going on and we will assist you
- 11 Very happy with LBT work and hope Jica will start to provide water soon
- 12 The work has been done well but very short and has not reached other areas
- 13 more appreciation for this work
- 14 the work is not completed
- 15 it will be very good if the community observe the work
- 16 you dig the side of the road levelled by soil at the middle of the road
- 17 nothing bad done by Jica
- 18 continue in your go work
- 19 I request jica to concentrate about the squares (open areas) in the town
- 20 continue making changing in Malakal town
- 21 the job jica provide should be given to the poor people
- 22 it is very important for jica to serve the community just go ahead
- 23 go ahead with the good planning
- 24 water should be improve to be clean

Note: G1 is Group-1, who lived along LBT Pilot Works Corridor and/or participated LBT Pilot Works by JICA, G2 is Group-2, who lived along proposed Corridor by JICA, G3 is Group-3, who lived along former LBT Corridor by USAID, G4 is Group-4, who lived outside LBT Corridors by USAID and J and GA is Group All Combined.

- Q-09. Do you know who is the leader in your community? Yes No
- Q-10. What type of transport mode are you using, when you need to go to other payam? Walk Bicycle Animal Cart
 Motor Bike Tuk Tuk Mini Bus
 Truck Pick-Up Sedan/Wagon

- Q- Who is/are currently working in your family? Please select which ever applicable, and please specify what kind of job, and how long have he/she been working at corresponding row(s)
- | | | | |
|-----|--|------------------|------------------------|
| 0. | <input type="checkbox"/> Nobody | <u>What Kind</u> | <u>How Long (Year)</u> |
| 1. | <input type="checkbox"/> Yourself | _____ | _____ |
| 2. | <input type="checkbox"/> Father | _____ | _____ |
| 3. | <input type="checkbox"/> Mother | _____ | _____ |
| 4. | <input type="checkbox"/> Brother(s) | _____ | _____ |
| 5. | <input type="checkbox"/> Sister(s) | _____ | _____ |
| 6. | <input type="checkbox"/> Grand Father(s) | _____ | _____ |
| 7. | <input type="checkbox"/> Grand Mother(s) | _____ | _____ |
| 8. | <input type="checkbox"/> Uncle(s) | _____ | _____ |
| 9. | <input type="checkbox"/> Aunt(s) | _____ | _____ |
| 10. | <input type="checkbox"/> Husband(s) | _____ | _____ |
| 11. | <input type="checkbox"/> Wife(s) | _____ | _____ |

- b. Who was/were working before in your family? Please select which ever applicable, and please please specify what kind of job, and how long had he/she been working at corresponding row(s)
- | | | | |
|-----|--|------------------|------------------------|
| 0. | <input type="checkbox"/> Nobody | <u>What Kind</u> | <u>How Long (Year)</u> |
| 1. | <input type="checkbox"/> Yourself | _____ | _____ |
| 2. | <input type="checkbox"/> Father | _____ | _____ |
| 3. | <input type="checkbox"/> Mother | _____ | _____ |
| 4. | <input type="checkbox"/> Brother(s) | _____ | _____ |
| 5. | <input type="checkbox"/> Sister(s) | _____ | _____ |
| 6. | <input type="checkbox"/> Grand Father(s) | _____ | _____ |
| 7. | <input type="checkbox"/> Grand Mother(s) | _____ | _____ |
| 8. | <input type="checkbox"/> Uncle(s) | _____ | _____ |
| 9. | <input type="checkbox"/> Aunt(s) | _____ | _____ |
| 10. | <input type="checkbox"/> Husband(s) | _____ | _____ |
| 11. | <input type="checkbox"/> Wife(s) | _____ | _____ |

- Q-12. What is the highest education level in your family? Please select one.
- | | | | | | |
|--|--|--------------------------------------|---|-------------------------------------|---|
| 0 | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> No Education Chance | <input type="checkbox"/> Elementary School | <input type="checkbox"/> High School | <input type="checkbox"/> Vocational Training School / Polytechnic | <input type="checkbox"/> University | <input type="checkbox"/> Post Graduate School |

- Q-13. What is the average monthly income of your household? Please select one.
- | | | | | | |
|---|--|--|--|---|--|
| 0 | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> SSP 499 or Below | <input type="checkbox"/> SSP 500-999 | <input type="checkbox"/> SSP 1,000-1,499 | <input type="checkbox"/> SSP 1,500-1,999 | <input type="checkbox"/> SSP 2,000-2,499 | <input type="checkbox"/> SSP 2,500-2,999 |
| 6 | 7 | 8 | 9 | 10 | |
| <input type="checkbox"/> SSP 3,000-3,499 | <input type="checkbox"/> SSP 3,500-3,999 | <input type="checkbox"/> SSP 4,000-4,499 | <input type="checkbox"/> SSP 4,500-4,999 | <input type="checkbox"/> SSP 5,000 or Above | |

Q-14. What is the average monthly expenditure of your household? Please select one.

- | | | | | | |
|---|--|--|--|---|--|
| 0 | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> SSP 499 or Below | <input type="checkbox"/> SSP 500-999 | <input type="checkbox"/> SSP 1,000-1,499 | <input type="checkbox"/> SSP 1,500-1,999 | <input type="checkbox"/> SSP 2,000-2,499 | <input type="checkbox"/> SSP 2,500-2,999 |
| <input type="checkbox"/> SSP 3,000-3,499 | <input type="checkbox"/> SSP 3,500-3,999 | <input type="checkbox"/> SSP 4,000-4,499 | <input type="checkbox"/> SSP 4,500-4,999 | <input type="checkbox"/> SSP 5,000 or Above | |

Q-15. For which purpose did you / are you going to utilize the cash which you earned from LBT works participation?
Please select top 3 from following list [if you utilize(d) for one or two purpose(s) only, please omit remainder(s)]

Purpose of Use;	1st	2nd	3rd
i. <input type="checkbox"/> Food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. <input type="checkbox"/> Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. <input type="checkbox"/> Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. <input type="checkbox"/> Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. <input type="checkbox"/> Transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vi. <input type="checkbox"/> Personal Care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vii. <input type="checkbox"/> Housing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
viii. <input type="checkbox"/> Recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ix. <input type="checkbox"/> Others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*1 Utilities include water, solid waste, and energy source for lighting and cooking, such as electricity, gas, kerosene, charcoal and firewood

*2 Transportation includes communication

*3 Includes materials for maintenance of dwelling, repair of household appliances, household utensils and cleaning articles

Q-16. How do you think about LBT (participatory community development works) done by JICA and/or USAID in Malakal Town?

- | | | |
|--|------------------------------|-----------------------------|
| i. It should be expanded in terms of better accessibility for community; | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| ii. It should be expanded in terms of income generation for short terms; | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| iii. It should be expanded in terms of vocational training for long terms; | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| iv. It should be expanded in terms of conflict prevention; | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| v. I have other opinions beside above aspects; | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| vi. if "Yes" for Q-16.v. above, please state what that is in short words; | | |

Q-17. How does your household feel about LBT works done by yourself and/or community people? Please select one.

- | | | | | |
|--|------------------------------------|----------------------------------|---------------------------------------|---|
| 5 | 4 | 3 | 2 | 1 |
| <input type="checkbox"/> Very Much Satisfied | <input type="checkbox"/> Satisfied | <input type="checkbox"/> Neutral | <input type="checkbox"/> Dissatisfied | <input type="checkbox"/> Very Much Dissatisfied |

Q-18. Would you like to participate for further LBT works in your own community, if such chances are available? Yes No

Q-19. If you have any comments and/or suggestions regarding above questionnaire and/or Urgent Support (Quick Impact) Project proposed by JICA, please feel free to write them down in the following space;

Thank you very much for your cooperation !!

Appendix A-11: LBT Implementation Manual



JAPAN INTERNATIONAL COOPERATION AGENCY

The Project for Comprehensive Planning and Support for Urgent Development
on Social Economic Infrastructure
in Malakal Town

LBT Implementation Manual

KATAHIRA & ENGINEERS INTERNATIONAL

11/30/2013

Table of Contents

1. General	A11-1
1.1 Background and Purpose.....	A11-1
1.2 Definition	A11-1
1.3 Targeted Fields and Construction.....	A11-1
1.4 Selection of Project Sites.....	A11-2
2. Roles and Responsibilities.....	A11-3
3. Design.....	A11-4
3.1 Design Policy	A11-4
3.2 Standard Cross Section.....	A11-4
3.3 Study of Pavement Structure	A11-5
3.3.1 Soil Improvement	A11-5
3.3.2 Soil Bag Method.....	A11-7
3.3.3 Brick Surface	A11-8
3.4 Comparison of the Construction Type.....	A11-8
3.5 Final Pavement Formation	A11-12
4. Construction	A11-13
4.1 Location Map	A11-13
4.2 Schedule	A11-14
4.3 Construction Method.....	A11-14
4.4 Quality Control.....	A11-20
4.5 Labor Control	A11-24
5. Summary of the Contract for Contractor.....	A11-25
5.1 General Condition	A11-25
5.2 Cost	A11-25
5.3 Sample contract.....	A11-27

LIST OF TABLES

Table 2-1 Roles of the Party Concerned	A11-3
Table 3-1 CBR w/ Yellow Soil	A11-5
Table 3-2 Swell w/ Yellow Soil	A11-5
Table 3-3 CBR w/ Cement Treatment	A11-6
Table 3-4 Swell w/ Cement Treatment	A11-6
Table 3-5 CBR w/ Lime Treatment	A11-7
Table 3-6 Swell w/ Lime Treatment	A11-7
Table 3-7 Construction Method Evaluation Matrix for Community Road Improvement Programme (1/3)	A11-9

Table 3-8	Construction Method Evaluation Matrix for Community Road Improvement Programme (2/3)	A11-10
Table 3-9	Construction Method Evaluation Matrix for Community Road Improvement Programme (3/3)	A11-11
Table 4-1	General Implementation Plan for Community Road Improvement Programme	A11-14
Table 4-2	Sample of Major Work Items Control	A11-22
Table 4-3	Sample of Inspection Check Sheet	A11-23

LIST OF FIGURES

Figure 2-1	LBT Implementation Structure	A11-3
Figure 3-1	Standard Cross Section Type-II (Community Roads).....	A11-5
Figure 3-2	Standard Cross Section Type-I (Local Roads)	A11-5
Figure 3-3	CBR w/ Yellow Soil.....	A11-6
Figure 3-4	Swell w/ Yellow Soil	A11-6
Figure 3-5	CBR w/ Cement Treatment.....	A11-6
Figure 3-6	Swell w/ Cement Treatment.....	A11-6
Figure 3-7	CBR w/ Lime Treatment.....	A11-7
Figure 3-8	Swell w/ Lime Treatment.....	A11-7
Figure 3-9	Typical Diagonal Herringbone Layout for Inter Locking Block Installation	A11-8
Figure 3-10	Actual Diagonal Herringbone	A11-8
Figure 3-11	Pavement Formation of LBT Road.....	A11-12
Figure 4-1	Location of LBT Roads	A11-13
Figure 4-2	Quality Control Activities.....	A11-21
Figure 4-3	DCPT Instruments	A11-21
Figure 4-4	Sample of Recording Method.....	A11-21
Figure 4-5	Relation between DCPT results, CBR and In-situ CBR.....	A11-22

1. General

1.1 Background and Purpose

Today in developing countries, such as those in many regions of Africa, Labour Based Technology (LBT) is the focus of attention as an infrastructure construction method used in community development. LBT is a community-participation project implementation method used in areas featuring underdeveloped infrastructure. It is considered to be an effective method, particularly in bringing recovery and stability to post-conflict countries.

JICA has implemented many community-development projects through community participation, and some have made use of LBT methods. This project is one of those JICA implemented project. This manual aims to summarize the activities of the Project for Urgent Development on Social Economic Infrastructure in Malakal Town in the Republic of South Sudan and disseminate it for the Organization concerned which will implement or are implementing similar type of LBT project throughout the entire the Republic of South Sudan.

1.2 Definition

LBT, according to the definition provided by the International Labour Organization (ILO), is method of construction work where the main power source is human labourers. Light equipment such as agricultural tractors is also used to enhance labour productivity.

The term LBT assumes the commonly used definition described above with the addition of the concept of community participation as a characteristic. In other words, LBT is defined as a labour based construction method that maximizes labour input with the use of light equipment while securing the minimum capacity, and also features the participation of the local community. The introduction of the construction with LBT method to the Republic of South Sudan is advantageous in term of the cost and the influence to the economy since the heavy equipment is very limited and many manpower is available in this area.

1.3 Targeted Fields and Construction

According to the study conducted to develop these guidelines, the targeted types of works in which LBT has been applied previously can be grouped into nine categories: gravel roads, soft-ground stabilization, small-scale bridges, bank protection, agricultural facilities, road surfacing works, urban streets/sidewalks, water supply and drainage/sewage. The majority of LBT targeted projects are categorized into road rehabilitation and maintenance works (particularly rural roads, and especially feeder or community access roads). Some documents define LBT as being community-level access road works, as cited in the paper “Effectiveness of LBT as a Road Construction Methodology in Developing Countries”.

With regard to specific fields addressed in these guidelines, the LBT project process is organized mainly with a focus on regional road works. LBT projects in other areas share many characteristics of project implementation and contract formation with regional road works and the lessons learnt

and expertise gained in these areas are also reflected in these guidelines.

1.4 Selection of Project Sites

The special attention on the equity of the employment among the communities shall be paid for the selection of the project sites since the LBT requires a lot of employment of labors from communities. The coordination with the counter parts and Boma chiefs is very important to avoid the possible conflicts.

New land acquisitions from private property should be avoided since the boundary and the land owner is not clear in this country.

2. Roles and Responsibilities

Roles and structure of the party concerned are shown as follows.

Table 2-1 Roles of the Party Concerned

Organization			Roles and Responsibilities
Sponsor	International Donor	JICA	<ul style="list-style-type: none"> • Overall supervision • Procurement of construction materials
Project Management Unit (PMU)	Consultants	Project Team	<ul style="list-style-type: none"> • Quality Control • Progress Control • Safety Control • Technical assistance to contractors
	Main C/P (Government)	MPI&RD	<ul style="list-style-type: none"> • Supervision with JICA Project Team • Adjustment of Alignment relating to ROW • Coordination with the government organizations concerned • Technology Transfer
Contractor	Local Construction and/or Trading company		<ul style="list-style-type: none"> • Employment of Labors • Preparation of tools and equipment • Labor Control • Construction Supervision
	Community		<ul style="list-style-type: none"> • Provision of Labors • Technology Transfer

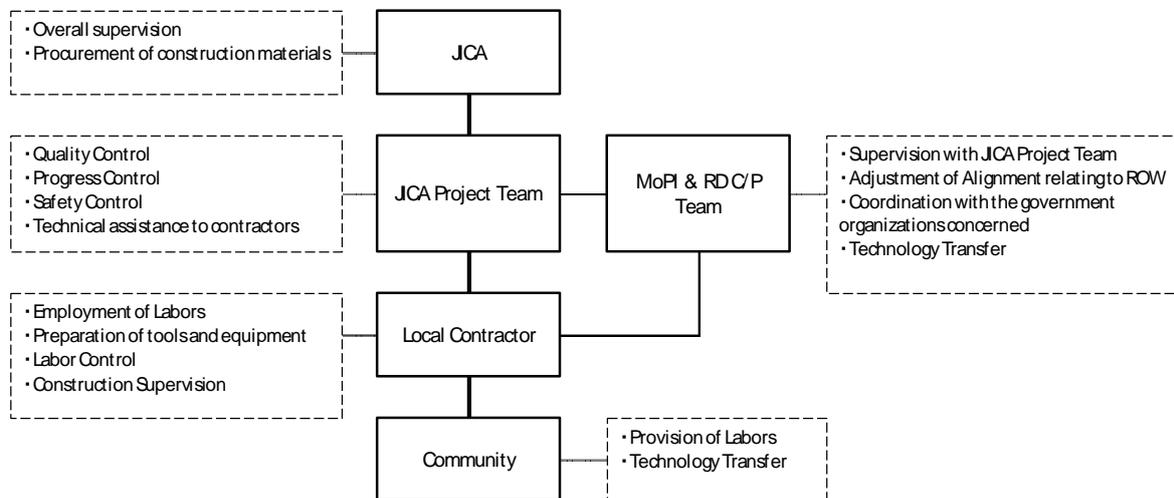


Figure 2-1 LBT Implementation Structure

3. Design

3.1 Design Policy

It was identified as a design policy that local and/or community roads shall bear the role of transport function including not only NMT (non-motorized transport, such as pedestrian, bicycle, and push / animal cart) but also light vehicle passage during the rainy season although those are untouched earth roads¹. Therefore several pavement / treatment types, such as BCS only, improved BCS, BCS plus cement or lime treatment and soil bag method, are adapted in terms of applicability of LBT works and durability for general passage during rainy season as pilot works. And those different type of pavement / treatment types are applied to one particular segment along J-13 just nearby other LBT section treated under USAID project previously since the community was involved in LBT works that time and therefore it would be straightforward for both JICA Project Team and MPI&RD C/P Team to implement again LBT works with same community as trial basis. The design should be finalised in terms of the required functions and technical feasibility considering the local circumstances. In case of this project, passable roads under any weather conditions with the existing black cotton soil is required for the design.

3.2 Standard Cross Section

The right of way of existing streets in Malakal Town is mostly between 15m and 20m wide despite its categories, except trunk and arterial class roads such as Link Road, Outer Ring Road, and those roads under improvement works. However, based on its proposed categories, JICA Project Team recommends improving community and/or local roads as following dimensions;

	Community Roads	Local Roads
✓ Carriage Ways:	2@3.00m = 6.00m	2@3.00m = 6.00m
✓ Shoulders:	2@1.20m = 2.40m	2@2.40m = 4.80m
✓ Storm Water Drainages:	2@1.80m = 3.60m	2@3.60m = 7.20m
✓ Verges / Utility Spaces:	2@1.50~3.00m = 3.00~6.00m	2@1.50~3.00m = 3.00~6.00m
✓ Total Width:	RoW = 15.00~18.00m	RoW = 21.00~24.00m

The width shall be limited to the existing road RoW not to occur the land acquisition problems. In case of this project, this width can be accommodated in the existing road width. The shape of side ditch shall be trapezoid in terms of the required cross sectional area, workability and durability.

¹ Surface soil in Malakal Town is basically so-called Black Cotton Soil (BCS) which 2~3 m deep is very common in East African Countries, or Vertical in both FAO and USDA Soil Taxonomy, in which there is high content of expansive clay known as montmorillonite that forms deep cracks during the dry season and it becomes very sticky and/or muddy during the rainy season

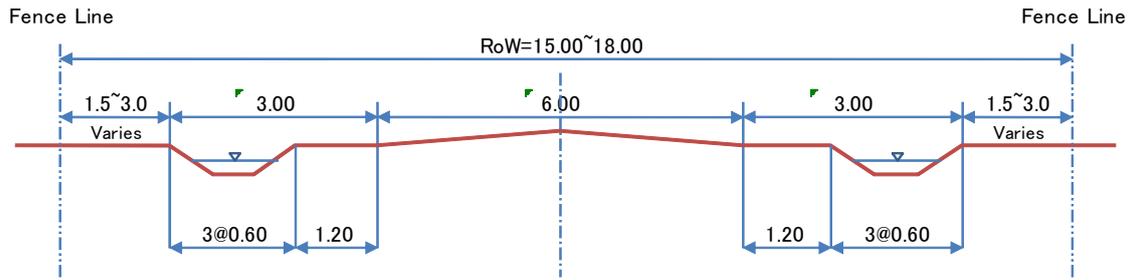


Figure 3-1 Standard Cross Section Type-II (Community Roads)

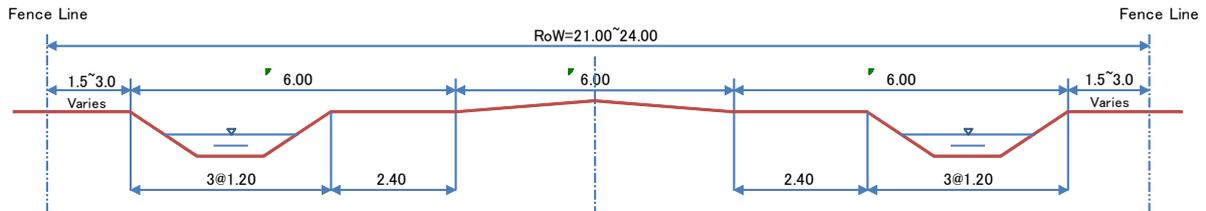


Figure 3-2 Standard Cross Section Type-I (Local Roads)

3.3 Study of Pavement Structure

3.3.1 Soil Improvement

(1) BCS with Yellow Soil

Before implementing the pilot works, Black Cotton Soil (BCS) samples from candidate routes and Yellow Soil (YS) from borrow pit were collected, and sent to the laboratory to find out their physical characteristics (such as soaked CBR² and Swell) together with or without cement and lime treatment. Results of laboratory tests are summarized in Table 3-1, 3-2, 3-3, 3-4, 3-5 and 3-6 as well as Figure 3-3, 3-4, 3-5, 3-6, 3-7 and 3-8 respectively.

Table 3-1 CBR w/ Yellow Soil

Report No.	1	2	3	Ave.	6	5	4	0
YS (%)	0	0	0	0	30	50	70	100
CBR w/ YS (%)	5.0	4.4	6.7	5.4	6.5	7.5	9.0	12.0

Table 3-2 Swell w/ Yellow Soil

Report No.	1	2	3	Ave.	6	5	4	0
YS (%)	0	0	0	0	30	50	70	100
Swell w/ YS (%)	9.9	9.6	9.6	9.7	9.9	10.2	9.3	6.8

² CBR (California Bearing Ratio) is a penetration test for evaluation of the mechanical strength of road subgrades and base courses. It was developed by the California Department of Transportation before World War II

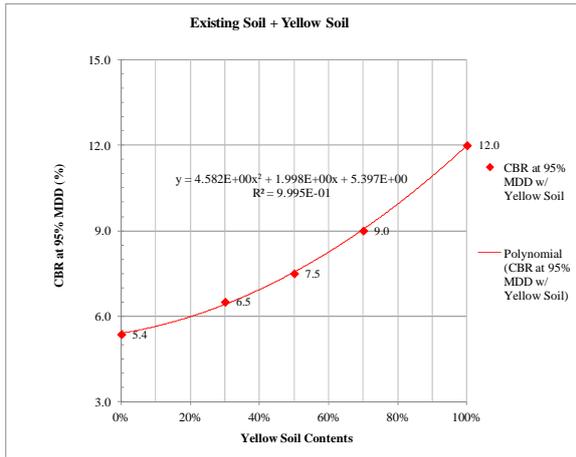


Figure 3-3 CBR w/ Yellow Soil

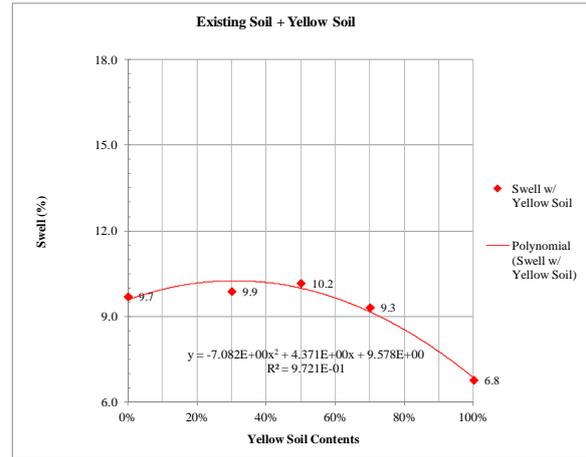


Figure 3-4 Swell w/ Yellow Soil

According to those results, BCS only shows average CBR of 5.4% and average swell of 9.7%, while YS only shows CBR of 12.0% and swell of 6.8%. And CBR will be gradually improved from 5.4% to 12.0% when YS is added to BCS and it depends on YS/BCS ratio. On the other hand, swell will be initially slightly worsened from 9.7% to 10.2%, and then improved from 10.2% to 6.8% based on YS/BCS ratio. Maximum swell of 10.2% is recorded when YS/BCS ratio is 50:50. From these results, YS can be used for improving CBR and reducing swell of BCS some amount; however its effects are not so significant.

(2) BCS with Cement Treatment

Table 3-3 CBR w/ Cement Treatment

Report No.	1	2	3	Ave.	7	8	9
Cement (%)	0	0	0	0	2	6	9
CBR w/ Cement (%)	5.0	4.4	6.7	5.4	13.5	35.0	52.0

Table 3-4 Swell w/ Cement Treatment

Report No.	1	2	3	Ave.	7	8	9
Cement (%)	0	0	0	0	2	6	9
Swell w/ Cement (%)	9.9	9.6	9.6	9.7	14.9	17.2	15.7

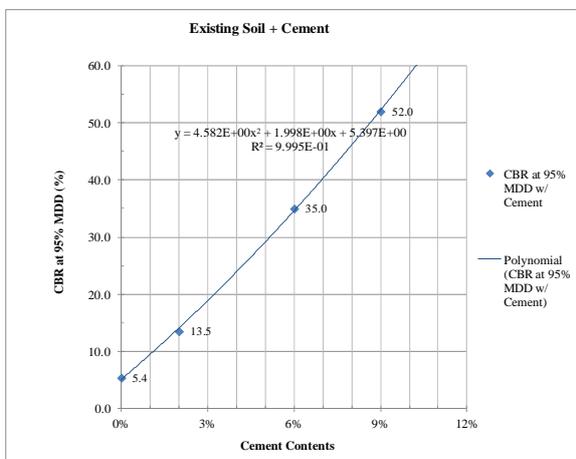


Figure 3-5 CBR w/ Cement Treatment

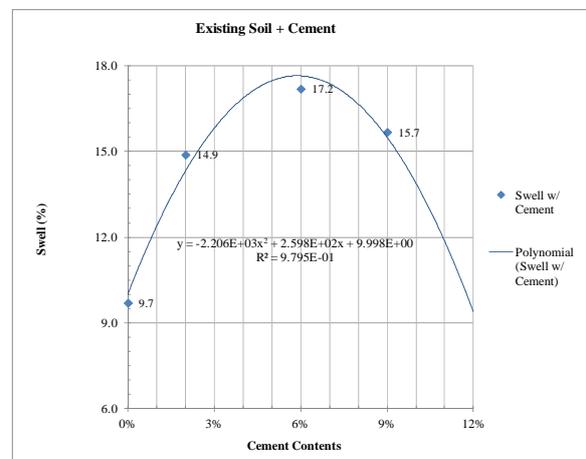


Figure 3-6 Swell w/ Cement Treatment

CBR of BCS is expected to be drastically improved from around 5% level without cement to 20% at 3%, 40% at 7%, and 60% at 10% level of cement ratios, respectively. However, swell is expected to be worsened up to around 18% level when cement ratio is around 6%, and then it will be improved again as its ratio is increased. From these result, cement can be used for improving CBR of BCS very well while special care of swell will be required.

(3) BCS with Lime Treatment

Table 3-5 CBR w/ Lime Treatment

Report No.	1	2	3	Ave.	10	11	12
Lime (%)	0	0	0	0	2	6	9
CBR w/ Lime (%)	5.0	4.4	6.7	5.4	11.5	25.0	38.0

Table 3-6 Swell w/ Lime Treatment

Report No.	1	2	3	Ave.	10	11	12
Lime (%)	0	0	0	0	2	6	9
Swell w/ Lime (%)	9.9	9.6	9.6	9.7	16.5	15.6	15.0

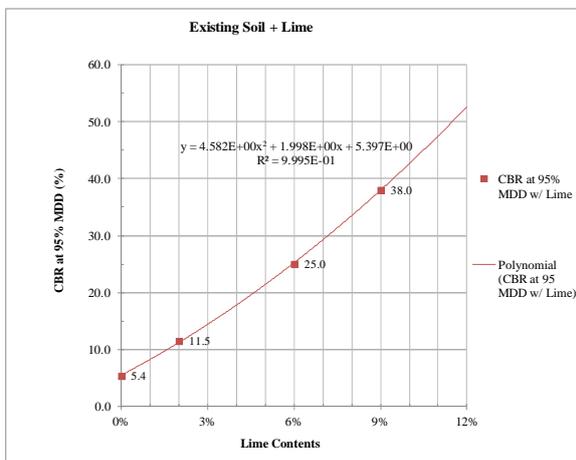


Figure 3-7 CBR w/ Lime Treatment

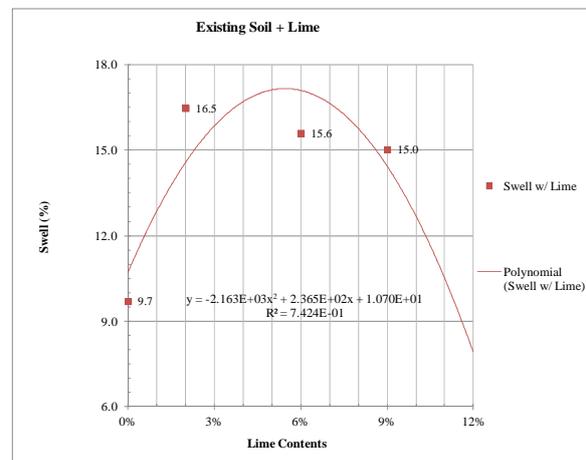


Figure 3-8 Swell w/ Lime Treatment

CBR of BCS is expected to be moderately improved from around 5% levels without lime to 20% at 5% and 40% at 10% level of lime ratios, respectively. However, swell is expected to be worsened up to around 17% level when lime ratio is around 6%, and then it will be improved again as its ratio is increased. From these result, lime also can be used for improving CBR of BCS well while special care of swell will be required.

3.3.2 Soil Bag Method

Due to difficulties and therefore it becomes expensive to obtain soil treatment agents, such as cement and lime, or good sub-base material such as laterite, throughout the year in Malakal Town, the soil bag method which is relatively cheaper and easy to handle, is also introduced as very experimental basis based on the similar projects in East African Community, such as Kenya and Uganda, by JICA. In this pilot works, diagonal herringbone style layout which is very common practice for Inter Locking Block (ILB) is experimentally introduced to make those soil bags inter

lock each other and therefore they would be much more durable than those of which at-random layout. On top of that, two layers of soil bags are also provided for easy compaction, handling, and vertical loads disperse, although it requires double numbers of soil bags to cover required area, and therefore it takes much longer period to complete.

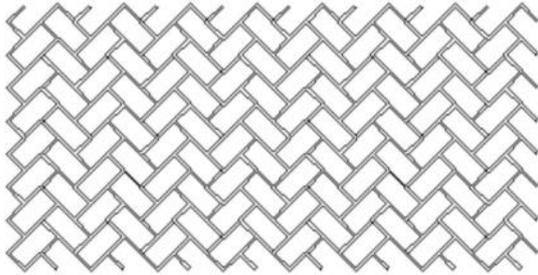


Figure 3-9 Typical Diagonal Herringbone Layout for Inter Locking Block Installation



Figure 3-10 Actual Diagonal Herringbone Layout for Soil Bags during LBT Works

3.3.3 Brick Surface

The black cotton soil with lime treatment for base-course is easily eroded by rainfall water. For this protection, the brick surfacing is provided on the surface since the broken bricks are available in this area.

3.4 Comparison of the Construction Type

Table 3-7 Construction Method Evaluation Matrix for Community Road Improvement Programme (1/3)

Evaluation Conditions	Descriptions
Objective;	The environmental improvement of community housing area and the distribution of employment by improvement of community roads with involvement of the community
Summary and Policy;	Out of the routes given to the candidates by UNS for Community Road Improvement Project, one route each from the northern, central, and southern district (about 25% of all the candidates) shall be improved with practical use of LBT (labour based technology) during the dry season within next 18 months (in 2012 and 2013).
Issues of Road Transport Sector and Procurement of Materials;	<ul style="list-style-type: none"> ✓ Whole area of Malakal Town is covered by the darkish colored poor soil so-called Black Cotton Soil (BCS) ✓ Community roads are completely in an untouched situation ✓ Poor road traffic system caused by poor storm water drainage system in the whole town area, especially in the housing blocks, many parts become impassable during the rainy season ✓ Defect of road management and maintenance system (both software & hardware) ✓ Defect of road traffic management and public traffic management system ✓ All road construction materials (main materials, such as good-quality soil, aggregates, bitumen material, cement, etc.) are supplied from domestic but very distant place and/or neighbouring and/or overseas countries ✓ In the present traffic transportation situation, even if the material and equipment are supplied from domestic or within the state, it becomes difficult to operate during the rainy season
Needs by Counterpart (Road Transport Sector);	<ul style="list-style-type: none"> ✓ Reservation of Road Traffic during Rainy Season (All Weather Type Road Construction and Improvement) ✓ Road Traffic Network Improvement at State Capital Malakal Town ✓ Link Roads Construction and Improvement between Malakal and Major Towns in the State ✓ Possession of Road Maintenance Machine, and Improvement of Maintenance Management System ✓ Capacity Building & Development of Personnel
Area of the Project;	Entire Malakal Town
Beneficial Population;	Approximately 3,000 households (=9,000 m / 120m * 10 plots * 2 blocks * 2 pairs)
Methods;	LBT (with Limited Use of MBT)
Proposed Standard Cross Section for Community Road;	<p>The diagram illustrates the proposed standard cross-section for a community road. It shows a central road section with a width of 6.00 meters, flanked by shoulders of 3.00 meters each. The total Right-of-Way (RoW) is 15.00 to 18.00 meters. On the left side, there is a 1.5 to 3.0 meter wide area labeled 'Varies' between the 'Fence Line' and the road edge. The road edge has a 3.00 meter wide shoulder with a 1.20 meter wide drainage ditch. The road surface is 6.00 meters wide, with a 1.20 meter wide drainage ditch on the right side. The right side also has a 3.00 meter wide shoulder with a 1.20 meter wide drainage ditch, and another 1.5 to 3.0 meter wide area labeled 'Varies' between the road edge and the 'Fence Line'. The diagram also shows a 3@0.60 meter wide drainage ditch on both sides of the road.</p>

Table 3-8 Construction Method Evaluation Matrix for Community Road Improvement Programme (2/3)

Alternative Methods	Existing BCS	Yellow Soil Mixture	Stabilization		Soil Bag	Geo-Textile	Sub-Grade Replacement	
			Cement	Lime				
Material & Equipment	Major Material	In-Situ Soil	BCS + Borrow Pit Soil (Yellow Soil)	BCS + Cement	BCS + Lime	BCS + Soil Bags	BCS + Geo-Textile	Borrow Pit Soil (Maram)
		From Site	From Malakal Suburb	From Neighbouring Countries	From Neighbouring Countries	From Juba and/or Neighbouring Countries	From Developed Countries	From UNS and/or Neighbouring States
	Equipment	Manual Labour and/or w/ Small Equipment	Manual Labour w/ Mixer	Manual Labour w/ Mixer	Manual Labour w/ Mixer	Manual Labour	Manual Labour and/or w/ Small Equipment	w/ Heavy Equipment
	LBT Application	Good	Fair	Fair	Fair	Good	Good	Poor
	MBT Application	Good	Good	Good	Good	Poor	Fair	Good
Practical Application of Community People (Possibility of Increase of Employment)	Fair	Fair	Fair	Fair	Good	Fair	Poor	
	Scale of Employment will be 100 people per day for LBT and 30~50 people per day for MBT LBT with Small Scale Equipment, and MBT with LBT inclusion would be possible							
Reliability of Quality Control (CBR Test Results & Estimation from Previous Experiences)	Poor	Poor	Good	Good	Fair	Good	Good	
	CBR = 5	CBR = 5~12 (depends on the YS Contents)	CBR = 23 w/ 4% Cement	CBR = 22 w/ 5% Lime	Limited Application	Wide Application	Wide Application	
Easiness of Material Procurement	Good	Good	Fair	Fair	Fair	Poor	Fair	
	Good; Available from Local, Fair; Available from Domestic and/or Neighbouring Countries, Poor; Available from Third Countries							
Speed of Construction Progress	Good	Fair	Fair	Fair	Poor	Fair	Fair	
	Standard Progress; Approx. 1km per month for LBT, Approx. 3km per month for MBT In addition, mixing and/or soil bag making & setting will be examined							
Rough Cost Estimate (M. USD / km)	LBT							
	MBT							

Table 3-9 Construction Method Evaluation Matrix for Community Road Improvement Programme (3/3)

Alternative Methods	Existing BCS	Yellow Soil Mixture	Stabilization		Soil Bag	Geo-Textile	Sub-Grade Replacement	
			Cement	Lime				
Additional Comments	Based on the USAID experiment, ordinal vehicle is passable during the dry season. With proper surface treatment and storm water drainage, NMT and light vehicles would be passable during the rainy season	Yellow soil is also sticky when it gets wet, therefore, improvement effect would be minimum	With 4% mixture, standard sub-grade CBR = 20 is achievable, therefore light vehicle would be passable during the rainy season. However, proper surface treatment might be required.	With 5% mixture, standard sub-grade CBR = 20 is achievable, therefore light vehicle would be passable during the rainy season. However, proper surface treatment might be required.	Based on the JICA experiment, ordinal vehicle is passable during the dry season. With proper surface treatment and storm water drainage, NMT and light vehicles would be passable during the rainy season	Based on the common practice, ordinal vehicle is passable during the dry season. With proper surface treatment and storm water drainage, NMT and light vehicles would be passable during the rainy season	Based on the common practice, ordinal vehicle is passable during the dry season. With proper surface treatment and storm water drainage, NMT and light vehicles would be passable during the rainy season	
Overall Evaluations	LBT	Fair	Poor	Fair	Fair	Good	Fair	Poor
	MBT	Fair	Poor	Good	Good	Poor	Fair	Good
	Notes	First of all, from the point of view of applicability and cost of equipment and material, LBT and MBT are evaluated. In addition, following three points (employment, quality control, difficulties of procurement) are evaluated, then overall evaluation is finalized. Moreover, considering stage constructions (especially for MBT), possibility of future paving is also evaluated. Based on the results of overall evaluations, For LBT, soil bag method is recommended, however, considering future pavement, cement and/or lime treatment methods are also recommended. For MBT, replacement of subgrade is recommended, however, as alternative solutions, cement and/or lime treatment methods are also recommended.						

3.5 Final Pavement Formation

Based on the study mentioned above, the pavement formation was finalised as below.

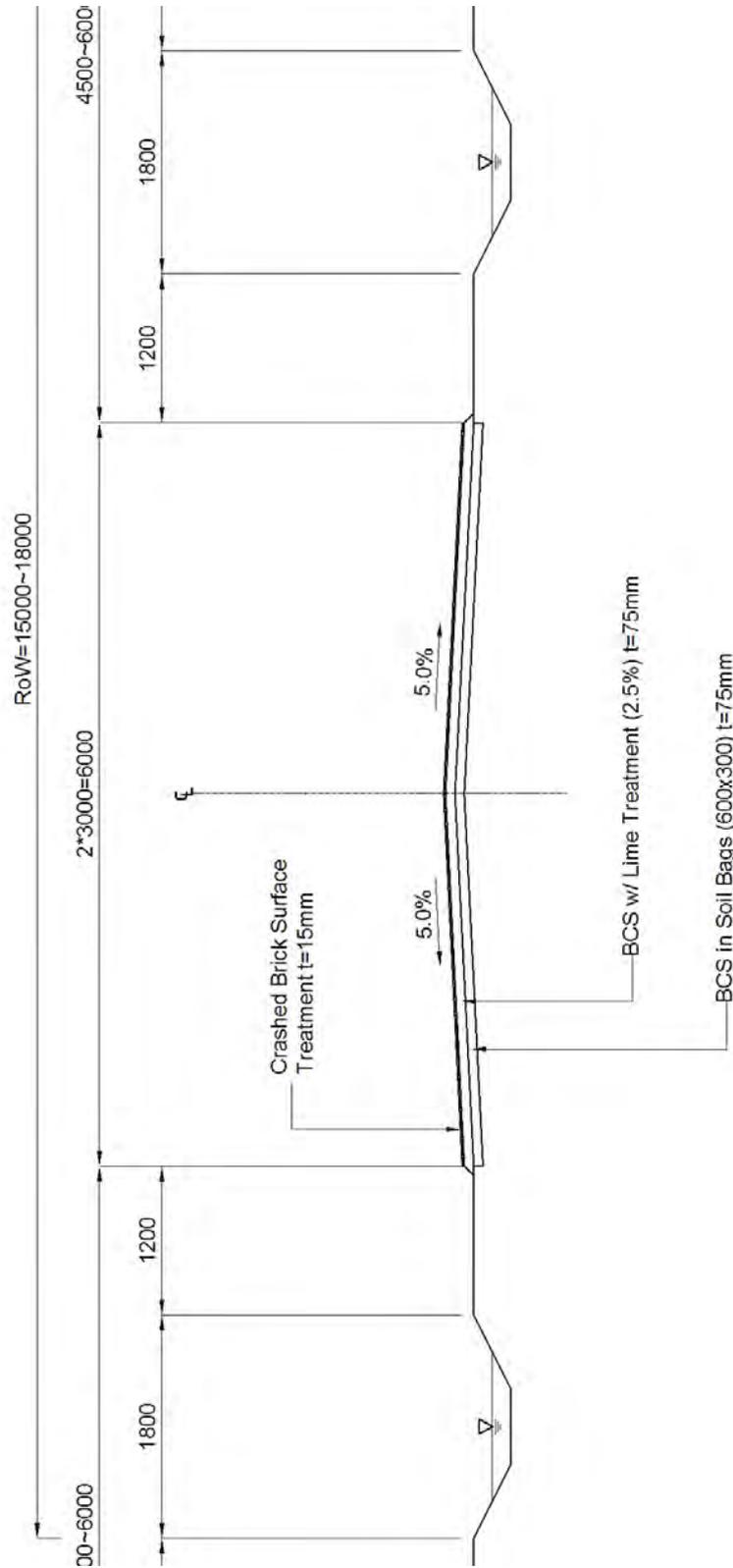


Figure 3-11 Pavement Formation of LBT Road

4. Construction

4.1 Location Map

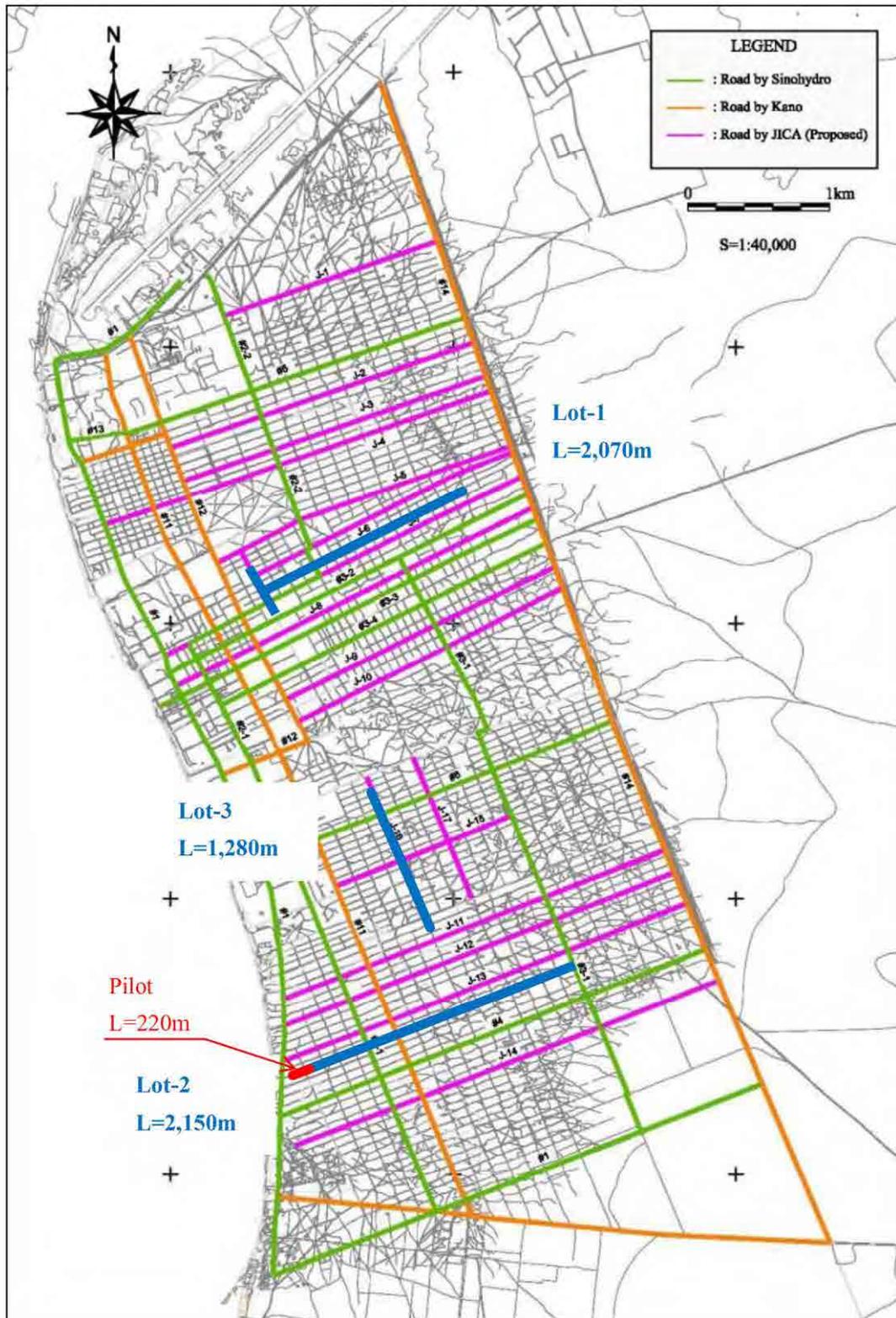


Figure 4-1 Location of LBT Roads

1. Setting out	2. Side ditch excavation
	
3. Sub-grade preparation	4. Soil Bag Preparation
	
5. Soil Bag Placing	6. Soil Bag Compaction
	
7. Spreading Sub base-course	8. Mixing lime
	

<p>9. Compaction of Sub-base</p>	<p>10. Surface</p>
	
<p>11. Compaction of Surface</p>	<p>12. Inspection (Thickness)</p>
	
<p>13. DCPT (Dynamic Cone Penetration Test)</p>	<p>14. Signboard Preparation</p>
	
<p>15. Installation of Sign Board</p>	<p>16. Concrete Mixing for Culvert</p>
	

<p>17. Pouring Concrete for Culvert</p>	<p>18. Curing Culvert</p>
	
<p>19. OJT in Classroom</p>	<p>20. OJT in Classroom</p>
	
<p>21. OJT on Site</p>	<p>22. Transportation of Materials</p>
	
<p>23. Setting out</p>	<p>24. Side ditch excavation</p>
	

<p>25. Sub-grade preparation</p>	<p>26. Soil Bag Preparation</p>
	
<p>27. Soil Bag Placing</p>	<p>28. Soil Bag Compaction</p>
	
<p>29. Spreading Sub base-course</p>	<p>30. Mixing lime</p>
	
<p>31. Compaction of Sub-base</p>	<p>32. Surface</p>
	

<p>33. Compaction of Surface</p>	<p>34. Inspection (Thickness)</p>
	
<p>35. DCPT (Dynamic Cone Penetration Test)</p>	<p>36. Signboard Preparation</p>
	
<p>37. Installation of Sign Board</p>	<p>38. Concrete Mixing for Culvert</p>
	
<p>39. Pouring Concrete for Culvert</p>	<p>40. Curing Culvert</p>
	

41. OJT in Classroom	42. OJT in Classroom
	
43. OJT on Site	44. Transportation of Materials
	

4.4 Quality Control

Quality Control Standard Code (QCSC) will be set up for the purpose of achieving traffic ability by light vehicles during the rainy season as community road to be used by community residents. As QCSC, the periodical CBR value observation by DCPT (Dynamic Cone Penetration Test) shall be utilized since it is relatively cheap and easy to carry out by even not qualified local staff. However, soil conditions have been changed by segment, therefore, when route is changed, laboratory test also shall be carried out. And such QCSC should be applied not only to JICA project but also other on-going project by UNS to control quality and consistency of road projects in Malakal and UNS.

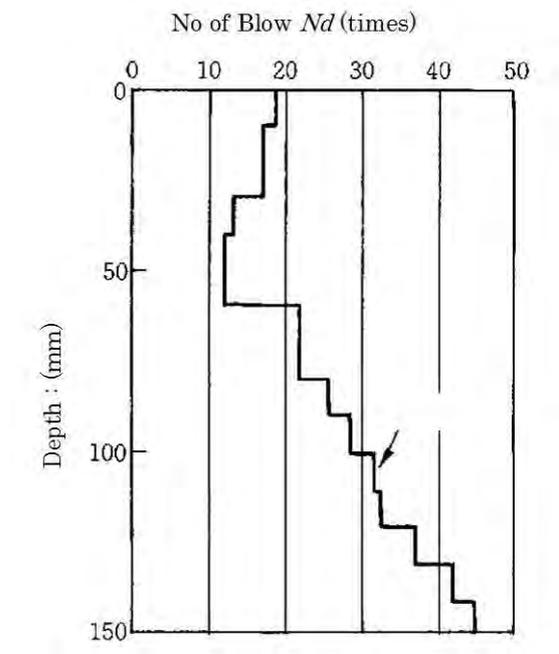
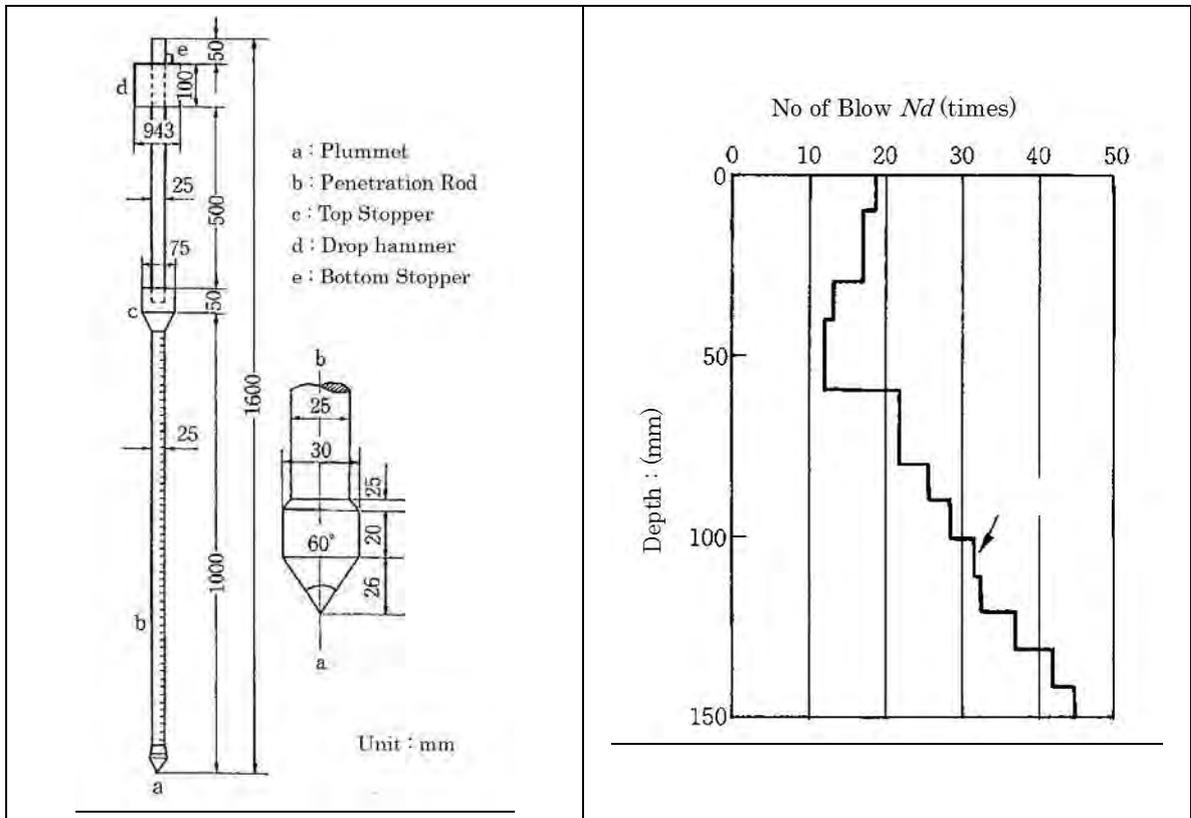
Quality Control Standard Code (Draft)

Field Test;	3 set of DCPT at Every 120m, Every Month
Laboratory Test;	3 set of CBR & Swell Test at Every 480m when Subject Route is changed
In Situ Test;	Cement and Lime Stabilization with 3%, 6%, and 9% case



Figure 4-2 Quality Control Activities

Dynamic Cone Penetration Test (DCPT) is very useful method to confirm the quality of the implemented works. The instrument and recording method and relation between DCPT results, CBR and In-situ are shown as follows.



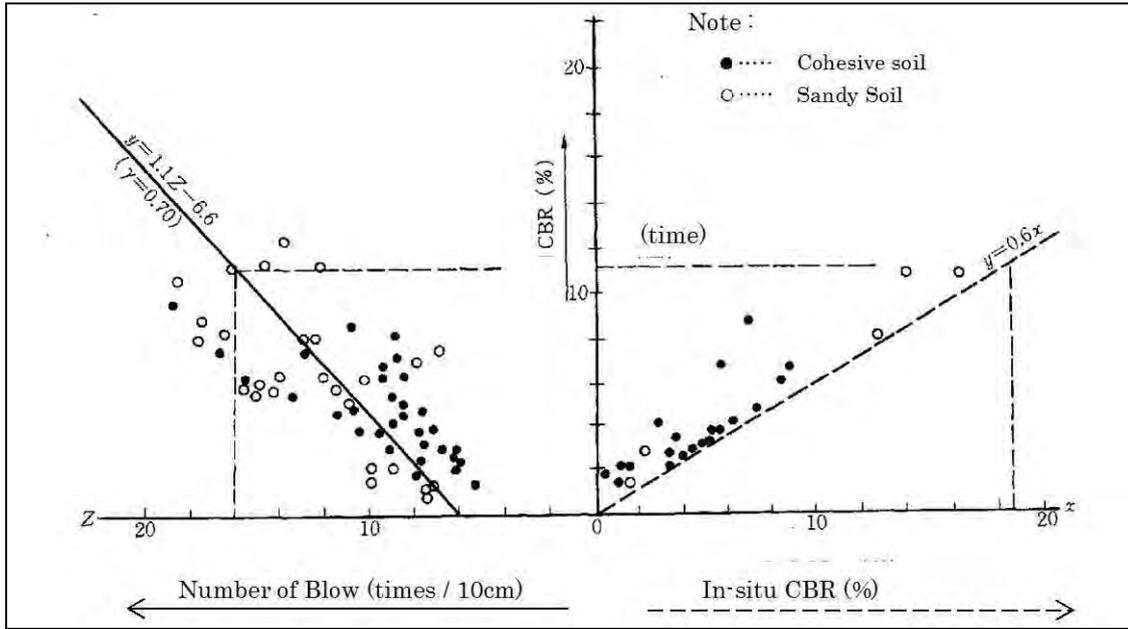


Figure 4-5 Relation between DCPT results, CBR and In-situ CBR

The Sample of Major Work Items Control and the Sample of Inspection Check Sheet which are used for the actual supervision work for this project are shown below.

Table 4-2 Sample of Major Work Items Control

Works	Work Item in BOQ	Items to be checked	Tolerance allowed	Frequency of checking	Quality Check Timing	To take Photo	Inspection
1 Earthwork							
1 Road Excavation	1.Preparation	Designed base EL	±50 mm	Every 25m at CL	Construction	-	-
		Designed base width	-100 mm	Every 50m at CL	Construction	Every 100 m	-
2 Road Embankment (if any)	1.Preparation	Designed top EL	±50 mm	Every 25m at CL	Construction	-	-
		Designed top width	-100 mm	Every 50m at CL	Construction	Every 100 m	-
2 Road work							
1 Sub-grade course (Sand bags)	2.Sub grade work	Thickness	Visible	At least Every 100m	Construction	Every 100m	-
		Width	Visible	Every 50m	Construction	Every 100m	-
		Layout	Visible	Every 50m	Construction		-
2 Sub-base course (Lime Treatment)	3.Sub base work	Designed EL	±50 mm	Every 25m	Construction	Every 100 m	-
		Cross fall	±2.0 %	Every 50m	Construction	Every 100 m	-
		Thickness	-15 mm	At least Every 100m	Inspection	Every 100 m	○
		Width	-100 mm	Every 50m	Inspection	Every 100 m	○
3 Soulder	-	Width	-100 mm	Every 50m	Inspection	-	○
4 Surface course (Crushed Bricks)	4.Crushed brick surface course	Thickness	Visible	At least Every 100m	Inspection	-	-
		Width	Visible	Every 50m	Inspection	Every 100 m	-
3 Drainage							
1 Road side ditch	5.Drainage	Designed EL	±10 mm	Every 25m	Construction	-	-
		Base-width	-100 mm	Every 50m	Inspection	Every 100 m	○
		Slope-width	-100 mm	Every 50m	Inspection		○
		Height	-50 mm	Every 50m	Construction		-
2 Ford	6. Ford Construction	Designed EL	±10 mm	Each Location	Construction	-	-
		Base-width	-100 mm	Each Location	Inspection	Major point	○
		Slope-width	-100 mm	Each Location	Inspection		○
		Height	-50 mm	Each Location	Construction		-

Table 4-3 Sample of Inspection Check Sheet

INSPECTION CHECK SHEET (No.3)											
J - 16										Date: 23 July 2013	
Work Item in BOQ	S.STA ~ ESTA		Inspection STA	Lengh (m)	Width (m)			Cross fall (visible)		Thickness (mm)	Remarks
					Shoulder (L)	Carriageway	Shoulder (R)	Left	Right		
1.Preparation	0 + 575	~ 0 + 775	-	200	-	-	-	-	-	-	Drainage work
2.Sub grade work	0 + 575	~ 0 + 710	-	135	-	-	-	-	-	-	
3.Sub base work	0 + 475	~ 0 + 500	0 + 500	235	1.1	6.0	1.2	OK	OK	100	L-Carriageway
	0 + 500	~ 0 + 550	0 + 550		1.3	6.0	1.2	OK	OK	110	R-Carriageway
	0 + 550	~ 0 + 600	0 + 600		1.2	6.1	1.3	OK	OK	120	L-Carriageway
	0 + 600	~ 0 + 650	0 + 650		1.2	6.2	1.3	OK	OK	130	
	0 + 650	~ 0 + 710	0 + 700		1.1	6.1	1.2	OK	OK	110	
	0 +	~ 0 +	+								
4.Crushed brick surface course	0 + 325	~ 0 + 350	0 + 350	385	-	6.2	-	-	-	-	
	0 + 350	~ 0 + 400	0 + 400		-	6.0	-	-	-	-	
	0 + 400	~ 0 + 450	0 + 450		-	6.0	-	-	-	-	
	0 + 450	~ 0 + 500	0 + 500		-	6.0	-	-	-	-	
	0 + 500	~ 0 + 550	0 + 550		-	6.0	-	-	-	-	
	0 + 550	~ 0 + 600	0 + 600		-	6.1	-	-	-	-	
	0 + 600	~ 0 + 650	0 + 650		-	6.2	-	-	-	-	
	0 + 650	~ 0 + 710	0 + 700		-	6.1	-	-	-	-	
	0 +	~ 0 +	-								
5.Drainage	S.STA ~ ESTA		Inspection STA	Lengh (m)	Left (m)			Right (m)			Remarks
					Slope (In)	Base	Slope (Out)	Slope (In)	Base	Slope (Out)	
	0 + 575	~ 0 + 600	0 + 600	200@2	0.6	0.6	0.5	0.7	0.7	0.9	
	0 + 600	~ 0 + 650	0 + 650		0.6	0.7	0.7	0.6	0.6	0.7	
	0 + 650	~ 0 + 700	0 + 700		0.5	0.6	0.6	0.5	0.6	0.6	
	0 + 700	~ 0 + 775	0 + 750		0.7	0.7	0.7	0.6	0.7	0.7	
	0 +	~ 0 +	0 +								
Total			-								
6. Ford Construction	Direction		Inspection STA		Width (m)	Left (m)			Right (m)			Remarks
				Slope (In)		Base	Slope (Out)	Slope (In)	Base	Slope (Out)	
	Longitudinal	/ Crossing	0 - 5		Not Completed						Inspection No.1
	Longitudinal	/ Crossing	0 + 5		Not Completed						Inspection No.1
	Longitudinal	/ Crossing	0 + 170		Not Completed						Inspection No.1
	Longitudinal	/ Crossing	0 + 190		Not Completed						Inspection No.1
	Longitudinal	/ Crossing	0 + 220		Not Completed						Inspection No.2
	Longitudinal	/ Crossing	0 + 475		Not Completed						Inspection No.1
	Longitudinal	/ Crossing	0 + 575		Not Completed						Inspection No.1
	Longitudinal	/ Crossing	0 + 625		Not Completed						Inspection No.3
	Longitudinal	/ Crossing	0 + 675		Not Completed						Inspection No.3
	Longitudinal	/ Crossing	0 + 725		Not Completed						Inspection No.3
	Longitudinal	/ Crossing	+								
Longitudinal	/ Crossing	+									
Total			-								
Notes:											
Contractor											
Employer											
Isaac Maina Ndirangu Director Damaki General Construction Co.,Ltd											
Takao MITSUSHI Project Manager JICA Project Team (JPT)											

4.5 Labor Control

There are various factors which need to be taken into consideration while deciding on how labour is going to be controlled. This is mainly crucial for the common unskilled labour recruited directly from the community.

There is need to adopt fairness in the recruitment exercise as most people in Malakal town are jobless and see such road construction works using LBT method as a vital employment opportunity and a source of income more so to the population who are not employed by the government as well as those who have no other source of income. The various categories of population to be considered and integrated in the LBT works comprised of mainly ethnic background, gender, age group, marital status (Widowed/orphaned), and proximity to the work front among others. Physical fitness was also a major factor which was considered by the Contractors in their recruitment exercise.

To ensure that the community was fairly mobilized, Community Leaders including Boma Chiefs were engaged in the exercise at the initial stages and whenever any dispute would arise for amicable settlement.

As for skilled labour, the Contractors were able to use their own company staff whenever necessary and to single source especially for foremen, assistant foremen and masons.

The number of casual labourers could also be informed by the targeted production output per day based on the submitted Contractor's Programme of Work. This number would be increased together with that of the hand tools whenever works needed to be accelerated or were behind schedule.

In most cases, the number of those seeking for employment by far outweighed those who would be employed at any particular period, therefore a method where the duration casual workers would be employed was restricted so as to give chance to other people to also get employed. To reduce cases of Contractors having to handpick workers during recruitment, a Yes/No system was adopted whereby limited number of Yes papers corresponding to the number of those to be recruited were marked while others marked No and randomly selected by those who were seeking employment. This recruitment exercise would be conducted on a two-week basis or whenever administrative/boma boundaries were crossed.

5. Summary of the Contract for Contractor

5.1 General Condition

Item	Description	Remarks
Subletting Work Items	Preparatory Works, Sub-grade(Soil Bag), Sub-base(Lime), Crushed Brick Surfacing Course), Drainage Works, Ford Works, Equipment	
Scope of Works	As mentioned in 4.3 Construction Method.	
Provided materials	Soil Bag, Lime	
Payment	Based on accomplishment Monthly billing	
Advance payment	Advance Payment requires bank guarantee.	※Contractor cannot get bank guarantee.
Labour Cost	50SSP(approx. US\$17)/man · day (stipulated in the Contract)	
Employment equity	It is instructed in the contract that the employment should be performed without any discrimination.	
Liquidated damages	Not required.	
Defect Liability, Retention	Not required.	

※ : Cash advance has been provided when the contractor requires.

5.2 Cost

Lot-1 : 2,070m

No	Description	Specs	Unit	Q'ty	Rate	Amount	Remarks
					(US\$)		
1	Preparation	Stripping and Grubbing	LS	1	52,659	52,659	
2	Sub-grade	75mm	m ²	12,420	5.5	69,055	Soil Bag
3	Sub-base	75mm	m ²	12,420	6.94	86,195	Lime(2.5%)
4	Crushed brick surfacing course		m ²	12,420	4.17	51,791	
5	Drainage	Excavation and trimming	m	4,140	5.56	23,018	
6	Ford Construction	23 locations	m	345	8.33	2,874	
7	Equipment		LS	1	17,250	17,250	
8	Overhead & Profit		LS	1	69,594	69,594	
Sub-Total (a)						372,436	US\$ 180 / m
7	Soil Bags		bundle	72,450	0.72	52,164	35bags/m
8	Lime	2.5%	bags	1,656	40.5	67,068	1bag/1.25m(25kg/bag)
Sub-Total (b)						119,232	
(a)+(b)						491,668	US\$ 238 / m

Lot-2 : 2,150m

No	Description	Specs	Unit	Q'ty	Rate	Amount	Remarks
					(US\$)		
1	Preparation	Stripping and Grubbing	LS	1	15,000	15,000	
2	Sub-grade	75mm	m ²	12,900	6.86	88,494	Soil Bag
3	Sub-base	75mm	m ²	12,900	7.00	90,300	Lime(4%)
4	Crushed brick surfacing course		m ²	12,900	5.25	67,725	
5	Drainage	Excavation and trimming	m	4,300	5.50	23,650	
6	Ford Construction	23 locations	m	345	24.3	8,384	
7	Equipment		LS	1	22,287	22,287	
8	Overhead & Profit		LS	1		69,039	
Sub-Total (a)						384,879	US\$ 179 / m
7	Soil Bags		bundle	75,250	0.72	54,180	35bags/m
8	Lime	2.5%	bags	1,720	40.5	43,000	1bag/1.25m(25kg/bag)
Sub-Total (b)						97,180	
(a)+(b)						482,059	US\$ 225 / m

Lot-3 : 1,280m

No	Description	Specs	Unit	Q'ty	Rate	Amount	Remarks
					(US\$)		
1	Preparation	Stripping and Grubbing	LS	1	16,574	16,574	
2	Sub-grade	75mm	m ²	7,680	4.75	36,480	Soil Bag
3	Sub-base	75mm	m ²	7,680	5.70	43,776	Lime(2.5%)
4	Crushed brick surfacing course		m ²	7,680	7.60	58,368	
5	Drainage	Excavation and trimming	m	3,160	9.50	30,020	
6	Ford Construction	23 locations	m	345		3,420	
7	Equipment		LS	1	25,000	25,000	
8	Overhead & Profit		LS	1	56,558	56,558	
Sub-Total (a)						270,196	US\$ 211 / m
7	Soil Bags		bags	44,800	0.72	32,256	35bags/m
8	Lime	2.5%	bags	1,024	40.5	41,472	1bag/1.25m(25kg/bag)
Sub-Total (b)						73,728	
(a)+(b)						343,924	US\$ 269 / m

5.3 Sample contract

(Omitted)

Appendix 12

Report on the Study for Establishing and Improving for the Management, Operation and Maintenance System of Water Supply in Malakal Town

Table of Contents

Abbreviations	A12-iii
Introduction	A12-1
1. Establishing and Improving of the Management, Operation and Maintenance System in “Urgent Support Project in Water Supply Sector”	A12-2
1.1 Background	A12-2
1.2 Survey Method and Issues to be considered.....	A12-2
1.3 Outline of Urgent Support Project in Water Supply Sector (USP-WS).....	A12-3
2. Water Supply and Sanitation Sector in South Sudan.....	A12-3
2.1 “South Sudan Development Plan 2011-2013” (SSDP)	A12-3
2.2 “Water Policy 2007”	A12-4
2.3 “Water, Sanitation and Hygiene (WASH) Sector Strategic Framework 2011”	A12-5
3. Legal Framework of Water and Satiation Sector in South Sudan	A12-6
3.1 “Water Bill 2013 Version 4, August 2013”	A12-6
3.2 “Laws of Southern Sudan, Southern Sudan Urban Water Corporation Provisional Order, 2011”	A12-10
3.3 “Laws of South Sudan, Public Financial Management and Accountability Act, 2011”	A12-15
4. The Policy of Decentralization and Water Supply in South Sudan	A12-16
4.1 Local Government Act and Other Official Documents Concerned.....	A12-16
4.2 Service Delivery and Local Governments.....	A12-18
4.3 Public and Private Sector Partnership	A12-19
4.4 Issues to be considered in Malakal Town’s Context.....	A12-19
5. Decentralization in Water and Sanitation Sector: Efforts of Other Development Partners..	A12-20
5.1 Decentrization and Privatization	A12-20
5.2 Attempt of USAID-SUWASA.....	A12-20
5.3 Attempt of GIZ.....	A12-21
5.4 Attempt of World Bank	A12-22
5.5 New Deal Compact 2011 in South Sudan (reference information)	A12-22
6. Public Goods Ownership in South Sudan	A12-23
6.1 Actual Situation in Upper Nile State	A12-23
6.2 Ownership of the Water Supply Facilities in this Project.....	A12-24
7. Actors of Urgent Support Project for Water Supply Service.....	A12-24
7.1 Actors in Government or Authorities	A12-24
7.2 Actors in Private Sector.....	A12-24
7.3 Actors in Community or Populations	A12-25
8. Urgent Support Program in Water Supply Sector.....	A12-25
8.1 Operation and Maintenance for Newly Constructed Facilities	A12-25
8.2 Operation of Water Tanker Trucks.....	A12-26
8.3 National Drinking Water Standards.....	A12-27
8.4 Alternatives Operators and Water Supply Service Provision in this Project.....	A12-27

9.	Private Sector Participation in the Provision of Water Supply Service.....	A12-29
9.1	Manners of Contracting Out the Water Service Provision to the Third Party	A12-30
9.2	Selection Procedure of Service Provider	A12-34
9.3	Scope of Service and Conclude an Agreement.....	A12-35
9.4	Example in the Other Countries of the Private Sector Appointment.....	A12-35
9.5	Examination from the Current Condition of the Institutional Aspects	A12-38
10.	Survey on Private Sector - Capacity Assessment of the Private and Public Sector as a Candidate of Service Provider.....	A12-39
10.1	Objective of the Survey	A12-39
10.2	Survey Method	A12-39
10.3	Time Frame of Survey	A12-39
10.4	Survey on the Possibility of Contract Out to the Third Party	A12-39
10.5	Candidates for Water Supply Service Provider	A12-40
10.6	Service Provider Survey	A12-40
10.7	WASH Supervisory Committee Meeting	A12-41
10.8	Radio Spot Public Notice	A12-42
10.9	Applicants and Candidates' Short List	A12-42
10.10	Capacity Assessment of the Private and Public Sector as a Candidate of Service Provider.....	A12-43
11.	Examination on the Operation System at the Public Water Stand.....	A12-47
11.1	Contract with Service Provider	A12-48
11.2	Consideration on the Selection of Service Provider	A12-49
11.3	Application of the Private Sector at the End Water Supply Facilities	A12-52
11.4	Umbrella or Board of Water Users Committee (Umbrella or Bard of Water User's Committee or Water Users Association: WUA)A12-54	
11.5	Appointment of Water Users Committee	A12-54
12.	Payment and Collection of the Water Fee	A12-55
13.	Consideration from Findings.....	A12-57
13.1	Possibilities of Private Sector Participation	A12-57
13.2	Beneficiaries Participation in the Public Service Delivery	A12-58
13.3	Water Purification and Distribution.....	A12-58
13.4	Problem about Water Supply, Examination and Coping Method.....	A12-59
14.	Conclusion.....	A12-61
15.	Proposition	A12-62
15.1	Water Supply Facilities Operation.....	A12-62
15.2	Water Tank Truck Operation	A12-62
15.3	Reading Water Meter.....	A12-62
15.4	Operation Structural Plan	A12-62
16.	Others	A12-64
16.1	References	A12-64
16.2	Annex	A12-64

Abbreviations

COSWOS	:	Community Owned Safe Water Supply and Sanitation Services Organizations
CPA	:	Comprehensive Peace Agreement
DEFID	:	Department for International Development
DUWSS	:	Development of the Urban Water and Sanitation Sector in South Sudan
JICA	:	Japan International Cooperation Agency
JPT	:	JICA Project Team
GIZ	:	Gesellschaft für Internationale Zusammenarbeit
MDGs	:	Millennium Development Goal
MOU	:	Minutes of Understanding
MP	:	Master Plan
MoWRI	:	Ministry of Water Resources and Irrigation
MoPI&RD	:	Ministry of Physical Infrastructure and Rural Development
NGO	:	Non-Governmental Organization
O&M	:	Operation and Maintenance
PPP	:	Public-Private Partnership
SSDI	:	South Sudan Development Initiative
SSDP	:	South Sudan Development Plan
SSP	:	South Sudan Pond
SSUWC	:	South Sudan Urban Water Corporation
SSUWC-Malakal	:	South Sudan Urban Water Corporation Malakal Branch
SUWASA	:	Sustainable Water and Sanitation in Africa
SWSRB	:	Safe Water Supply and Sanitation Service Regulatory Board
SWSRC	:	Safe Water Supply and Sanitation Service Regulatory Committee
SWSRD	:	Safe Water Supply and Sanitation Service Development Plan
TSS	:	Temporary Support Staff(s)
UNS	:	Upper Nile State
USAID	:	United States Agency for International Development
USP-WS	:	Urgent Support Project for Water Supply Sector
UWSS	:	Urban Water Supply and Sanitation
WASH	:	Water, Sanitation and Hygiene

Introduction

This is the report that put together the information, result of survey and analyze conducted in order to establish the good operation system of water supply service in the Malakal Town, Upper Nile State of Republic of South Sudan, concluded with the proposition.

The background and objective of this survey is to be stated, but the main purpose of this survey is to propose the most appropriate and applicable system of management, operation and maintenance for newly installed water supply facilities and provided equipotent such as water tanker trucks in the framework of the Urgent Support Project for Water Supply (UPS-WS) of this Project. With this system, safe and stable water supply provision will be realized for improving the actual situation in Malakal Town. Further, the proposition will be made with consideration of the next coming project (such as the amelioration and extend the existing water supply facilities of SSUWC-Malakal by the Japanese Grant Aid).

In the chapter 1, the background of the implementation of this survey, manners and objectives, overview of the contents of the UPS-WS are stated. From chapter 2 to chapter 6, actual situation of the water supply and sanitation sector in South Sudan, related development plan, policy, legal framework, or some attempts with in the sector is explained. In chapter 7 and 8, overall of the Urgent Support Project in Water Sector is described, especially in order to facilitate the smooth water supply service provision and to establish operation and maintenance system, required items are enumerate. Then in chapter 9, several types of privatization of the public service provision are stated and the required items in order to introduce private sector participation by those private companies or individuals, public entity pursuit the public interest, community based organization. In chapter 10 the service provider's assessment in Malakal Town is descried, survey items are as capacity of water purification and distribution knowledge and technology. Following chapter 11, examination was done for the water service provision at the public water stand where Malakal Town's residents receive directly the water, whether establishment of water users committee was appropriate for this Project as it was originally planned or not. Related to the result of chapter 11, following chapter 12 the water fee collection manners in order to efficient recover the recurrent cost was stated. In chapter 13, considerations from findings were made and the conclusion was stated in chapter 14 with the most appropriate operation and maintenance system for the Project. The proposition is stated in chapter 15 as a last chapter, required works and issued to be considered in order to embody the appropriate proposition are stated.

1. Establishing and Improving of the Management, Operation and Maintenance System in “Urgent Support Project in Water Supply Sector”

In this Urgent Support Project in Water Supply Sector (hereinafter indicated as USP-WS), safe and stable water supply for 6,000 populations in Malakal Town of Upper Nile States (UNS) per one day is settled as the objective of this activity. In order to accomplish this objective, technical support cooperation will be carried out to establish the appropriate operation and maintenance system that makes possible to sustain the water supply facilities based on the consideration for the social condition of Malakal Town and beneficially-pays principle.

1.1 Background

Upon commencement of carrying out the water supply service, JICA Project Team investigated the financial aspect simulation with four patterns of O&M before concluding Minute of Understanding (MOU)¹. After the investigation, operation and maintenance plan was agreed upon based on the three conditions such as; (1) the newly installed facilities shall be taken as project properties as of a pilot study in Upper Nile State, (2) Ring-fencing account system shall be introduced in South Sudan Urban Water Corporation Malakal Branch (SSUWC-Malakal), all income through the newly installed water supply facilities shall come into this ring-fencing account, (3) two of new section such as Water tank truck section and Unit type water treatment plant section shall be set up in the SSUWC-Malakal and required personnel shall be posted.

However, those five (5) important factors required re-examination on the water supply service management plan as; (1) Government of UNS is still vulnerable, (2) Decentralization of the water and sanitation sector goes on at the national level, (3) problems of the SSUWC as a public corporation, especially the fragility of the money paid system to central government, (4) by law ownership of the urban water supply facilities belongs to SSUWC Headquarter, and (5) strong request on the early commencement of water supply service from UNS government.

In such circumstances, operation and maintenance plan is required to re-setup to keep its quality being right for a particular purpose, so that the study for establishing and improving for the management, operation and maintenance system was started.

1.2 Survey Method and Issues to be considered

Those issues are fixed in the center of issues to be examined such as the decentralization and water supply provision with introducing public private partnership, as well as the its supporting legal framework. Also with the consideration of the assessment result of the actual situation and capacity of executing agency, of distinctive points of Malakal Town’s social condition, over all situation of the target area, the coping choices against those issues are exposed.

¹ “Plan of Operation and Maintenance (O&) for Urgent Support Project version 2” dated 7th August 2012, by JICA project Team

1.3 Outline of Urgent Support Project in Water Supply Sector (USP-WS)

Out line of the Urgent Support Project in Water Supply Sector (hereinafter stated as USP-WS) is indicated as follows.

- 1) Objective: To construct the small-scale water supply scheme in northeast and southern area in Malakal Town.
- 2) Expected output:
 - (1) Increasing safe and stable water supply ratio in Malakal Town.
 - (2) SSUWC-Malakal shall take responsible in order to manage, operate and maintain the small-scale water supply facilities with sustainable way after completion of the construction work.
- 3) USP-WS consists of those tow components stated below;
 - (1) Construction of the water supply facilities and provision of equipment and materials
 - (2) Technical assistance for commencement of the water supply service, to operate and do maintenance for the water supply facilities.
- 4) Planned water supply facilities, equipment and materials to be provided

Table 1-1 Planned Water Supply Facilities to be provided

Species	Specification
Raw water Intake facility	Pump (with engine driven by fuel): 1 unit
Purification facility	Unit type treatment plant (150m ³ /day) 1 unit Backwashing tank 1 set
Distribution facility (Equipment)	Distribution water tank: 1 set Distribution main (pipe line) in southern area: 1 set Water tank truck (5m ³): 3 vehicles Water filling station with 2 faucet in the purification plant: 1 unit
Provision facility	Public water stand with 4 faucets connect to distribution main: 10 sets in south area Small water storage tank (5m ³): 12 sets in north east area Public water stand with 4 faucets connect to small storage tank: 12 sets in north east area
Equipment and materials for commencement of operation	Dosing chemicals, fuels for vehicles and engine pump: 1 unit Equipment and materials for collecting water fee: 1 unit

2. Water Supply and Sanitation Sector in South Sudan

Sector Policy, Strategy, laws and legal framework in water supply and sanitation sector in South Sudan are stated as follows.

2.1 “South Sudan Development Plan 2011-2013” (SSDP)

The South Sudan Development Plan (SSDP) 2011-2013 is the nation’s response to core development and state building challenges during the first three years of independence, will be extended until 2016. In April 2013, the Government of South Sudan actually is under developing of South Sudan Development Initiative (SSDI), that is the concrete action plan for implementing the

SSDP².

In the SSDP, those points are taken as the important issues: equal distribution of the public service to all the nations, to clarify the responsibility of population based on the benefit principle that the beneficiaries share the cost, as well as to deepen the confidence between populations and local authorities.

In this Plan, outcome objectives for urban water sector are settled as follows.

Table 2-1 Service Delivery Ration of Urban Water Supply (baseline 2010)

Year	2010	2011	2012	2013
Access ratio	34%	35%	38%	45%

2.2 “Water Policy 2007”

Water Policy 2007 was developed by the Government of Southern Sudan, that covers whole sector of water and sanitation as of water resources management, rural water and sanitation, urban water and sanitation. The following are the 9 guiding principals of urban water supply and sanitation (UWSS);

- (a) Urban populations in Southern Sudan have a basic right to enjoy access to safe, affordable and reliable water supply and sanitation.
- (b) Improving sanitation and sewerage facilities is considered one of the highest priority in peri-urban
- (c) Planning and development of piped water supply and waste disposal infrastructures shall be carried out in an integrated manner.
- (d) Responsibility for regulation, delivery and management of UWSS services shall be decentralized to the lowest appropriate level, in accordance with the principle of subsidiarity.
- (e) Efficient management practices shall be required so as to ensure the operational sustainability of UWSS systems.
- (f) Involvement of private sector in the management and development of UWSS services shall be encouraged where appropriate.
- (g) The regulatory framework shall be designed to promote effective development of UWSS services, combined with transparency and accountability in operations.

Those are the UWSS problem issues raised in this policy;

- (h) In UWSS service, that should take account of higher levels of demand associated with increased population density. Specific strategies will be developed for those areas not covered by piped network, including informal settlements.
- (i) Opportunities exist for private sector participation in different aspects, such as service delivery with potential benefits in terms of efficiency gains or to operate and manage UWSS

² http://www.mofa.go.jp/mofaj/area/s_sudan/data.html

infrastructure. In order to create more conducive environment for private sector participation there is need to legally recognize the role for private sector within the institutional framework for UWSS and establish procedures and guidelines for monitoring performance of private operators.

- (j) An important principle guiding UWSS policy is that regulatory and service delivery functions should be carried out by separate institutions, in order to promote efficient and effective functioning and improve transparency and accountability in service delivery. The role and responsibilities of government, private sector and NGOs in developing and managing UWSS facilities shall be clearly defined. Where capacity exists, responsibility for development and management of UWSS service shall be progressively decentralized and Urban Water Corporations shall be supported to become semi-autonomy entities.

In this policy, decentralization and facilitation of the private participation in the water and sanitation sector is motivated to accelerate with the securing of the transparency and accountability. However, it lacks the authority by law, even if there is the statement of requirement of the framework bylaw, manners of the monitoring and evaluation as well as developing guidelines in the policy document. At this moment, by the technical cooperation of GIZ³, establishment of Water Bill is under taking in the central ministry. Besides the efforts made by many stakeholders, process is still on going and they do not achieve the mutual agreement among stakeholders. The reason seems to have possibilities of occurring the big change and the challenge inside water and sanitation sector such as the reorganizing the SSUWC, related with the situation above mentioned in (j). Also as the clause (c), in this policy, piped water supply is defined as “urban water supply”. As for Water Bill, details are stated in Chapter 3.

2.3 “Water, Sanitation and Hygiene (WASH) Sector Strategic Framework 2011”

The “WASH Sector Strategic Framework” is an outcome of a collective effort though a consultative process carried out across South Sudan by the Government and its Partners after their independence of year 2011. The purpose of this strategic framework is to operationalize the Water Policy established in 2007 through effective and technically sound strategic approaches. It shall enable this young nation to establish water and sanitation infrastructure and manage it in a sustainable manner for the delivery of WASH service as public goods to its citizens within the time frame up to 2015. Also, this framework shall pave the way to move from ad-hoc interventions to well-targeted development programmes. Hence it shall guide the sector towards achieving the MDGs and to contribute to the overall socio-economic development of South Sudan.

The overall goal for Urban Water Supply (UWS) is to ensure efficient rehabilitation, expansion, development and management of UWS services on a sustainable, equitable and cost recovery basis.

In this framework, piped water supply systems that can be considered as Urban Water Supply

³ “Development of the Urban Water and Sanitation Sector in South Sudan”

(UWS) technology only exist in some parts of Juba and a few regional capitals. Also it is stated that; by far largest share of the urban population relies on supplies that could be typically considered rural by nature, ranging from (some fairly recent) water yards to (motorized) community and private hand-pumps and even basic unprotected wells. In this way, it is heeded that in South Sudan there is no technical standard such as based on a water supply scale, a service population amount or other factors as the municipal statement to define the urban water supply except for the definition of “piped water scheme”.

3. Legal Framework of Water and Satiation Sector in South Sudan

Southern Sudan Government established the Water Policy and Local Government Act in 2009, and then both of them are still followed by the Government of Republic of South Sudan. Just, Ministry of Energy, Dam, Irrigation and Water Resources (MiEDIWR) set up the WASH Strategy Framework in year 2011, then now the MiEDIWR is under going to be established the Water Bill. Because of this actual condition, in the water and satiation sector (Urban, Rural, and provision of water and sanitation service), there is not clear definition concerning the roles and responsibilities of ministries, local governments, local authorities, communities, private sectors and beneficiaries, even the laws and regulations are still under establishment.

3.1 “Water Bill 2013 Version 4, August 2013”

In South Sudan, none of water law enacted but in the frame of DUWSS project supported by GIZ, the stakeholders have continued to work on the drafting the Water Bill since year 2012. The draft of Water Bill came into 4th version at the present. The Water Bill is consisted of Water Resources Management, Water supply and Sanitation service.

1) Arrangement of Sections

[Preliminary Provisions]

Chapter 1 Preliminary Provisions

Chapter 2 The Water Council

Chapter 3 Powers of the Minister

[Water Resources Management]

Chapter 4 Principles and Objectives of Water Resources Management

Chapter 5 The Management and Regulation of Water Resources

Chapter 6 Water Resources Planning and Protection

Chapter 7 Permits

Chapter 8 Financial Provisions for Water Resources Management

Chapter 9 Dam Safety and Flood Management

Chapter 10 Trans-Boundary Waters

[Water Supply and Sanitation]

- Chapter 11 Objectives and Principles for the Delivery of Safe Water Supply and Sanitation Services
 - Chapter 12 The Management and Regulation of the Delivery of Safe Water Supply and Sanitation Services
 - Chapter 13 Water and Sanitation Planning
 - Chapter 14 Rights and Obligations in the Provision of Services
 - Chapter 15 Licensing of Service Providers
 - Chapter 16 Financial Provisions for Safe Water Supply and Sanitation Services
 - Chapter 17 Community Owned Safe Water Supply and Sanitation Services Organizations (COSWOS)
 - Chapter 18 Financial Provisions for COSWOS
[General Provisions]
 - Chapter 19 General Provisions
 - Chapter 20 Offences Penalties and Juridical Proceedings
 - Chapter 21 Appeals
 - Chapter 22 Transition
 - First Schedule: Easements
 - Second Schedule: Conditions Relating to the Construction of Works
 - Third Schedule: Establishment of Institution for the Training and Certification of Sector Personnel
 - Annex 1: Water Bill Drafting Process
 - Annex 2: List of Main Contributors
- 2) Provision of Safe Water Supply and Sanitation Service (Through chapter 11 to chapter 18)
- The objective of this Act is to promote and ensure the right of every person in South Sudan to have access to sufficient water of acceptable quantity and basic sanitation service by taking into account the following guiding principles, namely; (i) creation of an enabling environment and appropriate incentives for the delivery of reliable, (ii) delegation of management functions of water supply and sanitation services to the lowest appropriate levels taking into account the local government administrative systems, (iii) promotion of public and private sector partnership in provision of water supply and sanitation service, establishment and enforcement of service standard, (iv) ensure that water supply and sanitation service provides are financially and administratively autonomous and sustainable, (v) protection and conservation of water resources and development and promotion of public health and sanitation. Further more, to support rural communities in taking an active role in planning, managing and financing rural water supply and sanitation schemes on a sustainable basis including establishment of mechanisms to ensure that communities meet the costs of operation and maintenance and contribute to the capital costs.
- 3) Attentively point of water supply and sanitation service provision
- (a) Establishment of Safe Water Supply and Sanitation Service Regulatory Board (SWSRB)

Articles of Chapter 12 stipulate the establishment of a Safe Water Supply and Sanitation Service Regulatory Board (SWSRB), which shall be a corporate body as a central organ of the water and sanitation sector in South Sudan. The membership of the Board shall be set out in its mandate as approved by the Minister. Various powers and functions of water supply and sanitation service are centralized to the Board. For example, set and monitor compliance with potable water quality standard, standards for service provision, developing of various guidelines and documents, develop guidelines for the setting of tariffs and charges for use by local government authorities and service providers, set standards for Service Provision Agreements between local government authorities and service providers, establishment of law and act, approve specific Service Provision Agreements between local governments and service providers as a condition precedent to their coming into effect, promoting training for enforcing local government authorities, establish and manage a national monitoring and information system, including relevant safe water supply and sanitation services sub-sector data. As well as to advise the Minister on any issue arising in aggregation of State/Local Safe Water Supply and Sanitation Service Development Plans into the Republic of South Sudan Safe Water Supply and Sanitation Services Development Plan, including the allocation of national funds to State/Local Governments. Also providing advice as required to the Water Council.

(b) Local government authorities

- i. A company or utility wholly owned by the Local Government Authority;
- ii. A private company owned partly by the Local Government Authority and partly by the private sector
- iii. A wholly private company
- iv. Any other organization approved by the Safe Water Supply and Sanitation Services Regulatory Board in consultation with the Minister.

Each layers of local authority shall establish the Safe Water Supply and Sanitation Service Regulatory Committee: SWSRC. SWSRC has a responsible to take his role as a mediator between the local authority and third party for concluding service contract. And local authorities are encouraged to establish a Consumer Committees. If the local authority is not able to provide safe water and sanitation service, state government shall take that responsibility in place of them.

(c) Safe Water Supply and Sanitation Service Development Plan

In chapter 13 it is prescribed that the safe water supply and sanitation development Plan shall be concluded by Ministry along with Water Bill, supervised by SWSRB.

(d) Asset ownership (Chapter 14)

Local Government Authorities shall not transfer ownership of any water supply and sanitation permanent assets to any Service Provider. Water supply and sanitation permanent

assets constructed or acquired by the Service Provider under such a Service Provision Agreement shall at or before the end of the contract or agreement become the property of the Local Government Authority, and provisions shall be made within the Service Provision Agreement which provide for appropriate compensation to be paid to the Service Provider for the transfer of ownership of such assets. A Local Government Authority, which requires the compulsory acquisition of land for any purpose in connection with the provision of safe water and sanitation services, may apply to the State Government, which may, and upon being satisfied that such compulsory acquisition is desirable, take any steps necessary to secure such lands in accordance with the applicable laws. Also, the Local Government Authority shall create or cause to be created Asset Management Plans and shall follow such plans, in order to ensure that the assets are properly maintained, or replaced in accordance with good practice.

(e) Community Owned Safe Water Supply and Sanitation Services Organizations: COSWOS

In chapter 17, establishment of COSWOS are stipulated as follows:

The COSWOS shall in the capacity have perpetual succession and common seal and shall have power, in any its corporate name, sue and be sued and, in the exercise and performance of its powers and functions, to do and permit all such things as may lawfully be done or permitted by a corporate body in furtherance of its objective under this Act. This COSWOS may be established by the agreement of the majority of the members of a community, with the consent of the Local Government Authority in whose area the community is located.

Powers and functions of COSWOS are as follows;

- i. Own movable and immovable properties including public outlets / latrines and works;
- ii. Manage, operate and maintain public outlets / latrines and or works and provide an adequate safe water and sanitation services to its consumers;
- iii. Make rules for the use of public outlets / latrines and works by consumers;
- iv. Install water meters for the purpose of measuring the amount of water supplied to a public tap or a consumer;
- v. Charge consumers for the water supplied from public outlets or use of a public latrine;
- vi. Limit the access of any person(s) to a public latrine or water form public outlets who are not complying with the rules, regulations or the constitution of the community organization;
- vii. Consult and cooperate with the village council or nay other institution responsible for land to plan and control the use of land in the immediate vicinity of the water points and or works;

From (a) to (e) of the above are parts of Water Bill. Acceleration for decentralization of the water and sanitation service is stated clearly in the latest Draft version. Once the Water Bill is established and comes into effect, all the responsibilities for water resource management including Integrated

Water Resources Management (IWRM) and water and sanitation service provision in Urban and Rural area is to be stipulated by 168 clauses⁴.

Thus, how asset management shall be set up between local authorities and SSUWC, or the manners of funds allocation from central government to state's government, way of technical cooperation from central to local administrative, station of the personnel, all those are still undefined. If the Water Bill comes into effect, it seems to be in a state of confusion. That is to say, the proposition of the system for management, operation and maintenance system for newly installed water supply facilities shall take the steps with keeping eyes on relationship between states government and SSUWC, or how things will turn out.

On the other hand, the Provisional Order that stated in 3.2 proclaims South Sudan Urban Water Corporation (SSUWC) establishment. SSUWC owns his assets by "Laws of South Sudan, Public Financial Management and Accountability Act, 2011" that is explained in 3.3 below.

3.2 "Laws of Southern Sudan, Southern Sudan Urban Water Corporation Provisional Order, 2011"

Presently, laws and ordinance concerning Urban Water Corporation is to be the "Laws of Southern Sudan, Southern Sudan Urban Water Corporation Provisional Order" that was issued on the date of 7th January 2011 (herein after indicates as "Provisional Order").

This Provisional Order has been vested upon his under Article 86 (1) of the Interim Constitution on Southern Sudan, 2005 the President of the Government of Southern Sudan, consisted by eleven (11) chapters. The purpose of Provisional Order is to provide for the establishment and governance of the Southern Sudan Urban Water Corporation, established by the Government of Southern Sudan to control the supply of water resources economically and to ensure that the short and long-term needs for urban water demand of Southern Sudan are met⁵. In the Provisional Order, objectives, functions, powers of the corporation, responsibilities, structures of the corporation, establishment of Board, employment of staffs, finance, accounts and auditing are stated.

1) Chapter

Chapter 1 Preliminary Provisions	Chapter 6 Board of Directors
Chapter 2 The Corporation	Chapter 7 Meetings of the Board and Quorum
Chapter 3 Administrative Body of the Corporation	Chapter 8 Tenure and Exemption from Liability
Chapter 4 Secretary and Conditions of Service of Employees	Chapter 9 Finances, Accounts, Auditing
Chapter 5 Objectives, Functions and Powers of the Corporation	Chapter 10 Liquidation and Arbitration
	Chapter 11 Miscellaneous Provisions

⁴ The Arrangement of Sections, "Draft Water Bill August 2013", The Ministry of Water Resources and Irrigation

⁵ Southern Sudan Urban Water Corporation is stated originally, but South Sudan Urban Water Corporation is the official name of the Corporation in the time of October 2013. Probably after issue of this Provisional Order, the Corporation changes his official name.

2) Body of the Corporation

As stated in Chapter 3 and 6, a Board of Directors that is appointed by President on the recommendation of the Minister directs the Corporation. The Board shall be composed of the Chair, General Manager⁶ and other nine (9) members; his terms of office shall be five (5) years.

- Chair: The Minister
- Deputy Chair: The General Manager
- Secretary General who shall be secretary to the Board
- Member: Undersecretary of Ministry, of ministry responsible for energy and mining, of ministry responsible for finance, of ministry responsible for Legal Affairs and Constitutional Development, Vice-chancellor of Juba University⁷, and Legal advisor to the Corporation

3) Appointment of Employees and their Terms of Service

In chapter 14, appointment employees are stipulated as below:

- (1) The General Manager, in consultation with the Minister shall, within the limits of the financial and other resources at his disposal, appoint and dismiss employees in conformity with the appropriated law.
- (2) The Southern Sudanese Staff who were serving in the National Urban Water Corporation shall continue in the service of Corporation and shall be treated as though they were recruited in accordance with the provisions of this Provisional Order.

In chapter 6, issues about support staffs or staffs post are indicated as follows:

- (3) The General Manager shall engage such other officers and support staff with the consent of the Board on such term, as he may consider necessary or desirable for the efficient and effective performance of the functions and duties of the Corporation.
- (4) On an annual basis, the General Manager shall prepare a detailed organizational chart reflecting the Corporation's staffing requirements for the next Fiscal Year, which shall be subject to approve of the Board.
- (5) All aspects of employment of officers and support staff of the Corporation, including but not limited to recruitment, employment, payment, promotion, and termination, shall be governed by the provision of Civil Service laws and regulations.

4) Objectives, Functions and Powers of the Corporation

Those are the provisions:

1 The objectives of the Corporation

- (a) Utilize the available water resources economically to provide for the Southern Sudan's long and short terms water demand and to realize its development in proportions to the growing needs;

⁶ In the time of August 2013, Managing Director is used officially instead of General Manager.

⁷ Vice-Chancellor is originally stated but in this context, words Vice-chancellor shall be used as its own meaning.

- (b) Benefit from international development in industry and water supply services to develop the industry and water supply services in Southern Sudan;
- (c) Produce safe drinking water for Southern Sudan;
- (d) Seek water investments that will enhance its efficient running of business and manufacturing of instruments;
- (e) Contribute in increasing the Southern Sudan's income and improvement of its services;
- (f) To realize annual revenues that will enable it execute its development plans at such rates that shall be fixed by the Board;
- (g) Concluding contracts with any person in accordance with the provisions of the law on procurement;
- (h) Any other objectives required by the nature of its activities or the Council of Ministers.

2 Functions, Duties and Powers of the Corporation.

- (1) In order to achieve its objectives, the Corporation shall set up and manage the Water Infrastructure in the consumption areas and carry out all assignments and decisions, according to the provisions of this Provisional Order.
- (2) Without prejudice with the generality of the provisions of subsection (1) above, the Corporation shall have the following functions, duties and powers -
 - (a) Production of safe drinking water and capable distribution network and sale, to any customer according to the agreements, contracts, tariffs and the conditions of supply;
 - (b) Provision of the consultancies, professional and technical services in the field of water to the private or public sectors inside or outside the Southern Sudan on commercial grounds;
 - (c) Employment of competent staff in accordance with the provision of this Provisional Order to enable it carry out its functions;
 - (d) Establishment of training and capacity building centers;
 - (e) Render capacity building services and training, to carders from specified firms or individual will cover the cost expenses as prescribed by the Corporation;
 - (f) Upgrade the productive capacity of the workers by the way of qualification, training inside and outside Southern Sudan and improvement of the work situation and modernization of its means and saving adequate service conditions or the helpful tools of work for plentiful product;
 - (g) Purchase and possessing of land and real estate on behalf of the Government of Southern Sudan with approval of the Council of Ministers and in accordance with the Public Financial Management and Accountability law and also constructing and maintaining buildings therein to achieve its objectives;
 - (h) Manufacturing and producing instruments and water equipment;
 - (i) Education of the people to use water supply equipment in accordance with the Regulations;

- (j) Establishment of companies inside or outside Southern Sudan to achieve business objectives;
- (k) Encouragement of scientific research especially in the development of water supply;
- (l) Perform any other functions and duties it may deem necessary for achieving of its objectives.

5) Finance, Accounts, Auditing

In chapter 9, finance, accounts and auditing are stipulated as follows.

- (1) To the extent possible, the Corporation shall use revenues collected from the sale of water in bulk⁸ and retail sales to finance all operating, administrative, commercial, and expenses related to plant maintenance. During the period when revenue collection is not sufficient to cover the cost water service, the Corporation shall prepare and present an annual budget to the Government to cover the supplemental cost that cannot be covered through revenue recovery, The annual budget will be reviewed and approved in accordance with the budget procedures established by the Government.
- (2) Each year, Corporation shall prepare and submit for approval a budget, in accordance with the Government budget process, for the following financial year. Such budget shall be subject to the review, revision and approval of the Assembly.
- (3) Without prejudice to the provisions of subsection (1), above, the Corporation may obtain additional funds from the following sources -
 - (a) Grants, donations and bequests from local or foreign bodies;
 - (b) Financial support from international donor agencies;
 - (c) Any other source that may be approved by the President.

Finance, accountant, and any other reporting are stipulated as follows.

- (1) The General Manager shall prepare and submit a financial report to the Board, not later than three months from the end of the previous financial year. The report shall include -
 - (a) A financial statement of income and expenditure during the financial year;
 - (b) A statement of assets and liabilities of the Corporation for the financial year, prepared in accordance with generally accepted accounting principles, submitted to and audited by the Auditor-General; and
 - (c) A financial audit report.
- (2) The General Manager shall ensure that, for each financial year, the accounts of the Corporation are audited by the Auditor-General or such other audit firm approved by the Auditor-General in writing and authorized by the Board.
- (3) The Board shall ensure that within four (4) months from the end of the financial year, or such other period as the Government may require in writing, an audited statement of accounts, in accordance with provision of section above is submitted to the President and the Ministry of

⁸ Originally in this act, words "electricity in bulk and retail sales" are stated, however it shall be understood as "water" in this context (Chapter IX, 30. "Sources of Funding's").

Finance.

6) Other Reports

- (1) In addition to the Financial Audit Report, when required by the Ministry of Finance, the Corporation shall also prepare an Annual Report of its activities during that financial year.
- (2) The Annual Report shall, inter alia, include the following information -
 - (a) A copy of the auditor's report;
 - (b) A statement of financial performance and of cash flows;
 - (c) The budget for the coming financial year;
 - (d) A description of the activities of the Corporation during the previous year;
 - (e) An analysis of the extent to which it has met its objectives of the previous year;
 - (f) An evaluation as to the extent to which the advice and directives of the Corporation have been complied with;
 - (g) Its objectives for the coming year; and,
 - (h) Any recommendations on the matters governed by this Provisional Order.
- (3) The Corporation shall publish and disseminate widely the Annual Report, along with its audited accounts. In the event the Corporation fails to distribute the Annual Report, it shall be distributed by the Ministry of Finance.
- (4) The Board shall submit to the President and the Assembly such other reports on its activities or any other matter that may from time to time be required.

7) Liquidation of the Corporation

In chapter 10, the Corporation shall not be liquidated unless in accordance to the law.

8) Miscellaneous

In chapter 11, inspection and setting water tariffs are stimulated as follows.

- (1) The Corporation shall have the authority to inspect departments and other units of the Corporation and may have access to such official documents or may obtain such information from heads of those department or units or from other officers in the service of those departments or units, as may be necessary for the performance of the functions of the Corporation under this Provisional Order.
- (2) The Corporation shall adopt regulation governing the process for conducting inspections and securing official documents, which do not unduly interfere with the operations of the department or unit.
- (3) The General Manager from time to time shall revise the water tariff and submit the same to the Board for approval on the approval of the Ministry of Finance and in accordance with the law.
- (4) The Board shall make such by-laws, rules and procedures as may be necessary and appropriate for the effective operation of the Corporation.

9) Actual situation of SSUWC

According to Local Government Act in chapter 4, the responsible organization for the water and sanitation service provision shall be local authorities, but no other issues stated clearly. As for the Water Bill still requires some time to be established, none of the water facilities besides those assets of SSUWC-HQ and other SSUWC branches does not have the legal basis. Actual organogram of SSUWC is stated blow.

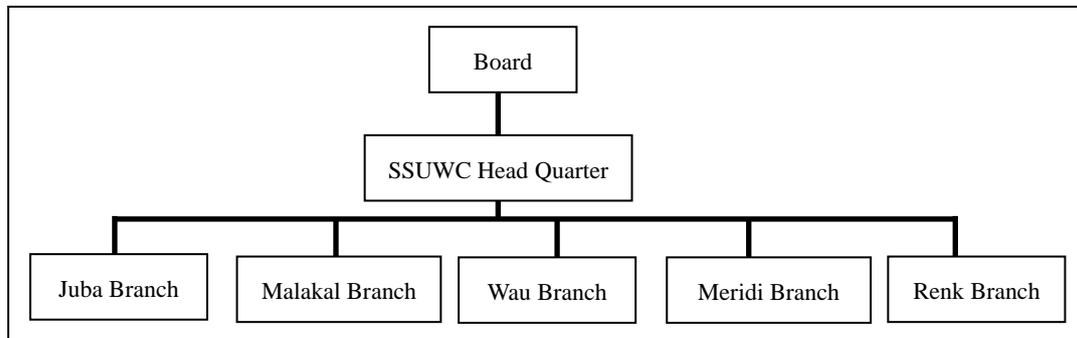


Figure 3-1 Organograms of South Sudan Urban Water Corporation (SSUWC)

3.3 “Laws of South Sudan, Public Financial Management and Accountability Act, 2011”

In accordance with the provisions of Article 55 (3) (b) read together Article 85 (1) of the Transitional Constitution of the Republic of South Sudan, 2011 (dated 23rd December) the National Legislative Assembly, with the assent of the President of the Republic of South Sudan hereby enacts the following.

1) Contents

This is the public financial management law of each ministry, committee, public corporation, organization, and public entity. The Financial Year shall cover a period of 12 months, which shall run from 1st of July to 30th of June each year. That states those manners taking by those Spending Agency of application, planning, and approval by the General Assembly. The Minister shall present preliminary annual estimates of resources and revenues, consistent with the Governmental fiscal and monetary programmes and plans, together with indicative budget ceilings for each year of forthcoming three year Medium Term Expenditure Framework period to the Council of Ministers for approval by the 15th November each financial year. The budget proposal shall be presented to the President who shall cause it to be submitted to the Assembly by not later than 15th May of each financial year. In the event that the Assembly fails to pass the budget within forty-five (45) days of submission to the Assembly, the President shall issue a Presidential Decree on the Budget for this year. Further, budget application by the state governments and local authorities, as well as the manners for using fund from international development partners or international NGOs.

2) Bank Accounts and others

In terms of bank account, no Spending Agency shall have more than one operations account, this clause is stated in chapter 9 Article 63 (4). And in the same chapter Article 64 (1), the Budget shall

be made in the South Sudan Pounds (SSP), the official legal tender in use.

3) Penalties and Surcharges

Whoever commits an offence under the provisions of this Act, and in addition to any penalty provided under any applicable law, shall upon conviction be liable to a fine not exceeding Fifty Thousand South Sudan Pounds (50,000SSP), or imprisonment for a period not exceeding ten (10) years, or with both.

4. The Policy of Decentralization and Water Supply in South Sudan

In South Sudan, after CPA of year 2005, decentralization has been proceeded based upon "The Local Government Framework for Southern Sudan, October 2006", that was settled with in Government of Southern Sudan. The jurisdiction base as the "Local Government Act 2009" clearly states the powers and responsibilities starts being enacted.

4.1 Local Government Act and Other Official Documents Concerned

This Act was enacted in the time of governance of Southern Sudan Government, who has a characteristic. That is, two parallel system of government have been established at the community level in Southern Sudan with both statutory and traditional authorities.

Table 4-1 Federal System of Government

Government level	Local Government Institution	Responsibilities
1. GOSS	Local Government Board	Corporate policy making, legislation and regulation
2. State	State Ministries of Local Government and Law Enforcement	Functional policy making, legislation, regulation and coordination
3. Local Government	Local Government Council	Service delivery planning, programming and implementation

Source: "The Local Government Framework for Southern Sudan, October 2006"

1) Objectives of the Local Government⁹

- (a) Promote self governance and enhance the participation of people and communities in maintaining law and order and promoting democratic;
- (b) Establish the local government institutions as close as possible to the people;
- (c) Encourage the involvement of communities and community based organizations in local governance and promote dialogue among them on natters of local interest;
- (d) Promote and facilitate civic education;
- (e) Promote social and economic development;
- (f) Promote self-reliance amongst the people through mobilization of local resources to ensure

⁹ Southern Sudan Law, Local Government Act 2009, Chapter II, 12.

the provision of services to communities in a sustainable manner;

- (g) Promote peace, reconciliation and peaceful co-existence among the various communities;
- (h) Ensure gender mainstreaming in local government;
- (i) Acknowledge and incorporate the role of traditional authorities and customary law in the local government system;
- (j) Consult and involve communities in decision making relating to the exploitation of natural resources in their areas;
- (k) Create and promote safe and healthy environment; and,
- (l) Encourage and support women and youth activities and the training of local cadres.

2) Local Government Council and its category

Basically local government authorities have two types as for urban and rural authorities, both of those are based on Bomas, as an integrated basic administrative unit of local governments shall be the domain of the traditional authority, with the Chief/Executive Chief holding the position of Boma Administrator.

In October 2006, two types of local government authorities are defined as follows.

- ✓ Urban authorities comprised of Town, Municipality, City Councils
- ✓ Rural authorities comprised of Counties which are sub-divided into Payams (coordinative units) and Bomas (basic units of local government)

According to this definition, 83 Local Government Council was to be established in October 2006 the detail is as stated below.

- ✓ Seventy (70) Counties in ten (10) states
- ✓ Except Central Equatorial State that has national capital city Juba, Town Council for States capitals shall be post in nine (9) states
- ✓ For Juba, 1 City Council is post.
- ✓ And three (3) Town Councils shall be established in the Counties that have assumed Town status.

In the time of year 2006, the Local Government Board recommended for establishment of a local government system based of the former system as follows:

Table 4-2 Proposed Local Government Grades (Year 2006)

Grade A	Local authorities established in former Town Council
Grade B	Local authorities established in the former District headquarter and are now State capitals or fast growing towns
Grade C	Local authorities in the former Area Councils and have existing but ruined infrastructure
Grade D	Newly created local authorities, some of which lack basic infrastructure

On the other hand, actual local government systems (came into effect in year 2009) categorized as follows

Table 4-3 Grades of Local Government Councils (Year 2009)

Category A	City Council, Municipal Council
Category B	Town Council
Category C	County Council 1
Category D	County Council 2
Category E	Industrial Councils

Urban and Rural Council divided into three categories as show in in the table below.

Table 4-4 Categories of Urban and Rural Local Governments

	Urban Councils		Rural Council
Authority	City and Municipal	Town	County
Administrative unit 1	Block	Quarter	Payam
Administrative unit 2	Quarter		Boma

Source: The Local Government Framework for Southern Sudan. October 2006

3) Type of Local Government Councils¹⁰

- ✓ Urban Council is a Council established in an urban or a cosmopolitan area where more than sixty per cent of its economic activities are non-agricultural, with a considerable level of urban infrastructure and public utilities.
- ✓ Rural Council is a Council established in a rural settlement or area whose economy is predominantly agricultural, pastoral or mixed, with a strong base of traditional administration and cultural practices.

4) Criteria for creation of a Town Council

According to the Local Government Act, a town council shall be created as follows¹¹.

- ✓ Population: 50,000 - 100,000
- ✓ Economic viability of total annual budget (55%- 65%); common interest of communities (based on growth potential); and the administrative convenience and effectiveness (capacity of a growing rural centre to successfully manage the local council as an authority with potential to assume the status of a Town Council
- ✓ The Quarter Council of a Township shall have a population of: 5,000 - 10,000; and,
- ✓ About five (5) quarter Councils shall constitute a Town Council.

4.2 Service Delivery and Local Governments

Service delivery functions of local government are stated in "The Local Government Framework for Southern Sudan, October 2006". Each service and responsible authorities are defined as follows. Water supply and sanitation service is included in service G), Water supply for industrial use and Dam is included in service H).

¹⁰ Southern Sudan Law, Local Government Act 2009, Chapter III, 16.

¹¹ Appendix I , 4 "Criteria for creation of local government councils as corporate bodies".

Table 4-5 Service Delivery Functions of Local Government

- | | |
|---|--------------------------------------|
| A) General | E) Housing and Town Planning |
| B) Security, Justice and Civil Protection | F) Transport and Communication |
| C) Education | G) Environment and Public Sanitation |
| D) Health | H) Economic Functions |

Service	National	States	County	Town	Payam	Boma
Water and Sanitation	○	○	○	*	Nil	○
Water Supply/Dams	○					

* Municipal Councils would be obliged to provide a water supply service either directly or by contracting private businesses. Town Councils may provide a similar service. County Councils may install wells and boreholes, and maintenance would be a community-based activity.

4.3 Public and Private Sector Partnership

In the event of participation into public service delivery, any Local Government Council shall maintain public private partnership through which non-government organizations, community based organizations and the private sector institutions may deal with accordance of provisions of Partnership and Contract. As for all non-governmental organization (or associations) settled in partnership with the Local Government Council shall be registered with the relevant government institution and abide by values, norm and best practice of the business¹². In this way, private sector 's participation into the water supply service provision could be realized as it is encouraged by this Act, also have some possibilities. However, the important issue for the acceleration of the private sector's intervention is that the late performance on the establishment of institutional system that concerns how to keep their service delivery quality before introduction starts.

4.4 Issues to be considered in Malakal Town's Context

The target area study, which based on the view of Town Profile/Conflict Prevention Consideration¹³, it proves that the Malakal Town started the municipality (Town Council) in January 2012 under the declaration of Upper Nile State Governor. From Makal County that originally consists with 6 Payams, 4 Payams such as Central Malakal, Eastern Malakal, Northern Malakal, Southern Malakal except Lelo and Ogot, are divided and formed the City or Municipal Council of Malakal City. However, at the time of October 2013, the City or Municipal Council of Malakal City has not been obtained the Warrant Establishment of the President of the South Sudan, thus the Town Council is not officially approved by the central government.

¹² Local Government Act 2009 Chapter XIV, 132.

¹³ Refer to the activity report in October 2013, by the member as Town Profile II/Conflict Prevention Consideration of JPT

5. Decentralization in Water and Sanitation Sector: Efforts of Other Development Partners

5.1 Decentralization and Privatization

Decentralization in the water and sanitation sector is stated in both Water Policy and WASH framework in South Sudan. This tendency is backup by the Local Government Act, but there still remains the establishment of legal background to unify whole the water sector yet. At this moment establishment of Water Bill is undergoing with 4th version of the draft, all the stakeholders have kept the discussion, however this version still does not go to the parliament in September 2013. When the Water Bill approved by the assembly and enactment, all the right of assets shall be transferred to the local authority (especially City Municipality or County level), SWSR will be imposed the obligation of the water and sanitation service, all the authority will be transferred to SWSR.

According to a technical advisor of MoEDIWR, various lobbying is carried out in order to let pass the assembly, the preparations for budget measures situation from the central government to the local executive branch seems to become the big condition for the deliberation in the assembly. In addition, it is necessary to follow, and to watch a trend how secure the postponement duration for transfer when the Water Bill is a place taken effect, or whether the proprietary rights of facilities are transferred instantly. Those are many ambiguity elements.

As for the acceleration of the prioritization of water supply service, some statement is provided in the WASH framework. Those other development partners have already started trying to introduce the privatization. Some pilot projects are under implemented through their project, started from July 2011. Thus, at the present, there remain many problems and challenges such as the lack of capacity of the private sectors, or maturity of the whole sector of water and sanitation. For example, in those cities in rural area except Juba, it is difficult to obtain the purification chemicals, as well as the fuel for engines. The water utility is compelled to depend on the support from UNICEF or project itself for those two elements indispensable for operation and maintenance for the water supply service. However it could not be improved by the effort made by only the water and sanitation sector own. Consequently, realization of the privatization water sector shall take some times.

Effort and attempt made by other development partners are introduced as follows.

5.2 Attempt of USAID-SUWASA

In the project named USAID—SUWASA (Sustainable Water and Sanitation in Africa), aiming at reconstruction of the water sector frame work with using approach of decentralization and public-private partnership, Improvement of the operation and maintenance system in water supply as a pilot case study. Both SSUWC-Meridi and Wau branches is target of their support activity. Also, support for the central government for the improvement of institutional framework, the

SUWASA proposes to both of SSUWC-HQ and MoWRI in order to define and minimize the range of those roles and responsibilities of local governments. Facilitating the conclusion of entrust contract (performance contract) between service providers including SSUWC branches and local authorities, it implements the water service provision. Local authority issues the water service provision license to the service providers within the project prescription, imposes an obligation of submission their business plans and report on service providers, and monitors their activities continuously.

Expected service providers are three types such as (1) SSUWC branch, (2) public entity (3) private operator. At the water provision point, Kiosk or public water stand, person in charge (SUWASA calls it as *Géré, Gérant / Care Taker, Tap Operator*) shall be stationed for water provision, each individual will conclude the outsourcing contract with the service provider. As for (2) public entity, is the public corporation set under the Meridi Chamber of Commerce and Industry that was established through the SUWASA project.

Concerning the urban water supply system in Meridi was left un operated after construction was finished. Before staff arrangement, independence of Southern Sudan from Sudan was declared. So, the facilities remains good condition as brand new, water supply service could be started without any problem and now functions well. One hundred public water stands are constructed with Meridi system, 49 was functioned at the time of SUWASA project started. Now 39 among 49 are selected to operate efficiently. In Wau, besides the 850 water provision point with water meter were installed but there are so many problems. At the survey time, water supply service provided in Meridi is much better than in Wau case.

In the point of view of the recurrent cost, in both Meridi and Wau, the SUWASA project support those fuel and chemicals at the starting point. Recently, SUWASA judges any service providers could not apply complete self-supporting account system. Subsidy from local authorities and SSUWC-HQ or central government is indispensable for the water service provision.

5.3 Attempt of GIZ

GIZ implements the DUWSS (Development of the Urban Water and Sanitation Sector in South Sudan) project as support for the urban water supply sector improvement. It consists of four components that; (1) support for MoWRI, (2) Reform of SSUWC (privatization), (3) Pilot project for privatization of water supply service; with establishment of Yei Town Water & Sanitation Services Ltd. (YTW&SS) in Yei Town as the public corporation and construction of piped water supply system with Kiosk (borehole is the water source), and (4) human resources development. As for the privatization trial of Component (3) in Yei Town, there is no SSUWC branch in the area, then piped scheme with ground water source targets 240,000 population of the Town per day, with self-support financial system by the public corporation.

However, all the recurrent cost at the time of YTW&SS establishment, fuel and chemicals are still

supported by GIZ, so that it could not be said as it functions by complete self-support financial system.

5.4 Attempt of World Bank

There still needs the detailed confirmation, but the project for facilitation of the decentralization that targets 4 states 8 County Council, named as “Local Governance and Service Delivery Project” is pledged.

Date of approval: 28th March 2013 / End of the project: 31st December 2018, 5 years duration

Project budget: USD98.5 million (Commitment by WB: USD50.0 million)

Components: 4

(1) Grant aid for Payams and County, (2) community development, (3) institutional strengthen, (4) support for project management

The support activity aims at the capacity development of local authorities of County, Council and Payam level, those shall be the public service provides in the near future. Especially, it targets the establishment of the public service delivery system of local authorities, so that all required capacity for their autonomy such as developing the development plan and action plan by themselves, budget planning, and financial management would be supported. Allotted budget execution, supervision capacity will be improved. Upper Nile State is one of target state in the first year (2013/2014), Makal County and Bayet County are selected. (Malakal Town Council is not included at this time.) In this project, the issues of water and sanitation sector will follows the Water Bill (draft), so that the institutional framework defined in the Water Bill shall be applied then, one of the project objective will be set for the confirmation of the possibilities to embody of the Water Bill’s contents. As seen above, in the water and sanitation supply sector, decentralization becomes the main stream. In the New Deal Compact, it is stated to take the steps forward to the next development stage in South Sudan; now many development partners make the lobbying effort for decentralization of water supply sector. In order to secure the SSUWC its reason for being, each branch is required their independently sustainable operation.

5.5 New Deal Compact 2011 in South Sudan (reference information)

The “New Deal”, which builds on the vision and principles articulated from the Millennium Declaration to the Monrovia Roadmap, process key peace building and state building goals, focuses on the new ways of engaging and identifies commitments to build mutual trust and achieve better result s in fragile states. The consultation activities in South Sudan has been done since signed the agreement in 2011, and after the Fragility Assessment in 2012, New Deal Compact In South Sudan made another step to the next stage, starting with Consulting meeting with the result of Needs Assessment in August 2013. In South Sudan, the aid stage shall be transformed from

Urgent Support for the population to developing support for peace building and social stability. With this regard, local governments such as Upper Nile State are required that, to take initiative for local development, harmonizing and establishing the confidence between population. Viewpoint of peace building as well as three manners of “New Deal” shall be paid attention as for starting the development support.

- (1) Peace building and State building Goals (PSGs); as important foundations to enable progress towards the MDGs guide our work in fragile and conflict-affected states. PSGs are focuses on legitimate politics, security, justice, economic foundation, and revenue and faire service delivery.
- (2) FOCUS on new ways of engaging by supporting inclusive, country-led transitions out of fragility.
- (3) TRUS; a new set of commitments to provide aid and manager reforms for better result with strengthen transparency, risk management, using country system, strengthen capacities, providing timely and predictable aid.

(URL: <http://www.newdeal4peace.org/about-the-new-deal/>)

6. Public Goods Ownership in South Sudan

According to the Local Government Act in Chapter 4, the main actor of the water supply service provision is defined as each government authority level such as national, state, county or state capital, city councils has their responsibility. But as for ownership on those water supply facilities is not clearly stated in any official documents in South Sudan because the legal background such as the Water Bill has not been enacted yet. With this situation, each project has own arrangement.

6.1 Actual Situation in Upper Nile State

Actual situation in Upper Nile State is as follows.

Table 6-1 Ownership Stats for Water Supply Facilities in Upper Nile State

Facilities	Owner has rights
Piped urban water supply facilities in Malakal Town	SSUWC head quarter
*Small Scale facilities with purification unit along with the Nile river in northern part of Malakal Town	Water and Sanitation Department of MoPI&RD **
Rural water supply facilities such as a borehole with hand pump.	Water and Sanitation Department of MoPI&RD, or County. (O&M provided by community)

* French NGO Solidarités International constructed in the Urgent Support framework.

** Solidarités International provided this small water supply facility under the Urgent Support framework as equipment, so the way of usage, or the future operation and maintenance plan was not required at the time of handover.

As for water supply facilities in Upper Nile States shall be constructed in those utility zone owned by MoPI&RD, Upper Nile State. If the construction would not be possible at the technical view, mutual agreement between landowner and population has to be obtained.

6.2 Ownership of the Water Supply Facilities in this Project

According to the above concerned documents and definition of “piped urban water supply in state capitals” small-scale water supply facilities will be handed to and owned by SSUWC head quarter. (Refer to the MOU dated October 2013 signed between JICA South Sudan office, Energy, Dam, Irrigation and Water Resources, and SSUWC Head quarter, witness by MoPI&RD of Upper Nile State Government and SSUWC-Malakal)

7. Actors of Urgent Support Project for Water Supply Service

7.1 Actors in Government or Authorities

MoPI&RD of Upper Nile State Government and SSUWC-Malakal are the executing organ or this Project. Those three concerning ministries are the important stakeholders in this Project, as Water and Sanitation and Rural Development Department of MoPI&RD, Community and Public Health Department of Ministry of Health, Focal Point of Water, Sanitation and Hygiene Promotion activity in Ministry of Education.

7.2 Actors in Private Sector

1) Water vendors

Water vendors with donkey cart or water tanker truck runs their own business informally. However, according to the result of social condition survey in the Preparation Survey for Grant Aid that was conducted in August to September 2013, many populations in Malakal Town do not have the sense of purchasing water from water vendors. Thus, they tend to pay the transportation fee to donkey cart or water tanker trucks in case of populations do not fetch the water by their selves. The reason why they pay the fee with acknowledgement of un-safe, low water from Nile River is that, traveling to and fetching their water from Nile are too hard burden for the populations.

2) Group worked with French NGO “Solidarités International”

Those staffs now working on the small-scale water supply facility with purification plant in northern part of Malakal Town operates those facilities with water fee collecting from donkey cart water vendors and water tanker truck drivers. After the complete handing over to MoPI&RD in year 2011, all of the staffs were to be employed by Water and Sanitation Department of MoPI&RD. Now the procedure comes to deadlock, then they come to a group of individuals depends on the collecting water fee and UNICEF’s grant supporting for chemicals, barely runs those facilities without any authority’s back up.

3) Water bottling company

There is one bottling water company in Malakal Town. According to the result of social conditions survey, 0.3%, less than 1% of house hold buy bottled water. For the Malakal citizens, bottled water is a stranger or an alien. As for comparison reference, the selling price of bottled water in Market is

about SSP 2-3 for 0.5-0.6lit. Buying price of treated water of Nile River from water vendor with donkey cart in Malakal Town is about SSP9-10 for 220lit. So to say, bottled water must be 100 times as priced as treated water from Nile River.

4) Construction company or individuals

Construction Company or individuals are the one of the candidates who would participate in the water supply service provision even though they have not experienced yet.

5) Situation overview

Because legal status is not established yet in water and sanitation sector, so that introducing private participation seems slightly difficult unless otherwise to start as a pilot case. Also from the viewpoint of assessment of private sector, many candidates do not have the legal background as a company. Furthermore, according to the Malakal Town's social condition stated in the 7.3 below, it would be difficult to introduce the private participation into water supply service, in a manner of all the initiative would be given to the private sector.

7.3 Actors in Community or Populations

2.8 % of household responded as there is some community based organization (CBO) or committee at water point in Malakal Town, but almost all of the house hold do not have the experience to be a member of Water Committee or the other CBO.

Malakal populations understand that relationship between the community and neighbors living in same Boma is very essential. They have kept their living deeply rooted in Boma since then. Under these circumstance, it is strongly required that when the project concerns public goods as safe water provision with the portion of facilities construction, to make local authorities as a starting point, namely Payam who acts as an intermediary between residents and state governments and Boma as basic administration.

Through the soft component activities (population mobilization, selection and training of hygiene promoters, or school water, sanitation and hygiene activities), Malakal population think the close united with community, avoiding the conflict inside the community very essential issues to keep their life in Malakal Town. This point shall be taken into account when the new system would be introduced.

8. Urgent Support Program in Water Supply Sector

8.1 Operation and Maintenance for Newly Constructed Facilities

Operation and maintenance for the newly constructed facilities are summarized in Table 8-1 below.

Table 8-1 Operation and Maintenance Tasks

Facilities	Operation and Maintenance
Intake	Daily operation: Operation of intake facilities, pump operation, management for intake volume, fuel add, daily inspection of water intake, any other works required Daily maintenance: Daily inspection and maintenance for the pump and generator Repair: counter measure for brake down and some trouble
Purification (Unit type)	Daily operation: Work for daily operation such as check the backwashing status, chemical dosing, pumping and distributing volume, water quality control (refer to 8.3), check production and distribution volume, any other related to water production. Daily maintenance: Inspection for purification plant (unit type), maintenance for valves and fittings, cleaning inside plant, any other works required. Repair: counter measure for brake down and some trouble
Transmission/ Distribution	Daily operation: Regulate of intake and distribution, meter reading, pressure regulation, distribution at water tanker truck filling station, checking the distribution amount, check balance of production and distribution, any other works required. Daily maintenance: Cleaning of water storage tank, maintenance for valves and fittings Repair: counter measure for brake down and some trouble
Distribution (by equipment as water tanker trucks)	Daily operation: Operation of water tanker truck, distribution for northeastern part of Malakal Town along Ring road. Daily maintenance: Cleaning for water tanker and vehicle, maintenance and any other work required. Repair: counter measure for brake down and some trouble
Provision (supply)	Daily operation: Provision of safe water, collection water fee, book-keeping Daily maintenance: Cleaning around the public water stand, maintenance for tap, valves and meter, any other works required. Repair: counter measure for brake down and some trouble
Water meter, Accountant	Issue the invoice and billing based on the meter reading, collecting water fee, financial management based on the ring-fence system, inventory materials, any other work required.

Daily maintenance work is required in order to distribute the safe and stable water in sustainable manner. Especially, water quality analysis and control is important work for the purification plant operation.

8.2 Operation of Water Tanker Trucks

The function of water tanker trucks in this Project is to distribute (conduct) water to the northeastern part of Malakal Town along Ring road. As for the planning stage, recurrent cost of this small-scale water supply system is calculated including fuel cost of the vehicles. This fuel cost covers only round trip ride to small distribution tanks with 5 tons volume. In this Project, water fee should be collected by the population based on the benefit principle that the beneficiaries share the cost, so that some sensitizing activities shall be made to mobilize the beneficiaries accustomed to this safe and stable water supply from public water stand based on the pay for it. So it is desirable to operate the water tanker trucks only for the conduct at the beginning stage of but for the other function such as direct water provision to the customers.

Further, water supply at the water tanker filling station that will be installed in this project frame,

the three (3) Project water tanker trucks have the priority to be supplied. Now it is under consideration when the production volume would have the surplus, eight (8) existing private owned water tanker trucks could use the water filling station. In order to implement this new system, license system that could oblige each private owned water tanker truck to supply safe water with hygienic water tanker is under consideration in this Project.

8.3 National Drinking Water Standards

Produced potable water from small-scale water supply facilities shall conform to the Draft National Drinking Water Standard. As for temperature and ammonia those are not yet defined, WHO guideline shall be conformed to.

Table 8-2 Target Water Qualities

Constituent	Unit	Guideline Value
pH	—	6.5- 8.5
Temperature	°C	Normal range ^{*1}
Turbidity	NTU	5
Chromaticity	TCU	15
Electric conductivity	μS/cm	1500
Residue on evaporation	mg/L	1000
Residual chlorine	mg/L	0.2 - 0.6
Alkalinity	mg/L	—
Dissolved oxygen concentration	mg/L	—
Odor	—	Acceptable range
Ammonia	mg/L	1.5 ^{*1}
Nitrate (NO ₃)	mg/L	30
Hardness	mg/L	200
Iron	mg/L	0.5
Manganese	mg/L	0.4
Zinc	mg/L	3
Copper	mg/L	1.5
E-Coli	CFU/100mL	

Source: Draft of South Sudan National Drinking Water Standard

*1 is according to WHO guideline

8.4 Alternatives Operators and Water Supply Service Provision in this Project

As for analyzing the most suitable framework of water supply service, basic alternatives of operation and maintenance systems as well as the type of water supply service provision are summarized in Table 8-3.

Table 8-3 Alternative Operation Systems for Each Facility in this Project

	Option 1	Option 2	Option 3	Option 4	Option 5
Operation System	Direct Management System	Partial contract	Section contract	SSUWC Semi-direct management	SSUWC Semi-direct management with partially out-sourcing contract
Purification plant	Contractor	Contractor	Contractor	SSUWC Temporary support staff (TSS)	SSUWC TSS
Transmission/Distribution	Contractor	Contractor	Contractor	SSUWC TSS	SSUWC TSS
Distribution with Water tanker truck	Contractor	Contractor	Contractor (existing vendor with water tanker in Malakal)	SSUWC TSS	Contractor (existing vendor with water tanker)
Water Point	Contractor	Caretaker	Caretaker	Caretaker	Caretaker
Meter reading	Contractor/SSUWC Malakal	SSUWC Malakal	SSUWC Malakal	SSUWC TSS	SSUWC TSS
Issues to be considered	<ul style="list-style-type: none"> • Operation Capacity of the Contractor • Financial accountability of the Contractor until the stability of income 	<ul style="list-style-type: none"> • Operation Capacity of the Contractor • Financial accountability of the Contractor until the stability of income 	<ul style="list-style-type: none"> • Operation Capacity of the Contractor • Required to conclude the contract separately for each contract section. 	<ul style="list-style-type: none"> • How to manage the responsibility of water tanker filling station in purification plant. • Required labor management for Temporary Staffs • Reliability of Operation and Maintenance for the Water tanker Trucks by SSUWC 	<ul style="list-style-type: none"> • How to manage the responsibility of water tanker filling station in purification plant. • How to manage the responsibility of water tanker filling station in purification plant.

Source: Draft made by JICA South Sudan Office and some update by Project

9. Private Sector Participation in the Provision of Water Supply Service

The range of private sector participation (PSP) in provision of water supply service arrangements exists various way, according to each type of contract as of the Figure 9-1 and Table 9-1 those summarized with referred to other countries experience¹⁴. In South Sudan, water privatization has just started the discussion between stakeholders through the Draft of Water Bill 2013. In this Project, at the present time, it is appropriate to introduce that the arrangement of partial contract such as Operation and Maintenance contract or Service provision contract between the public authority represented by Upper Nile State or public corporation represented by SSUWC- Malakal as a Client (or Owner), and Private Sector, such as private company, NGO, private operators consist by technicians or private business.

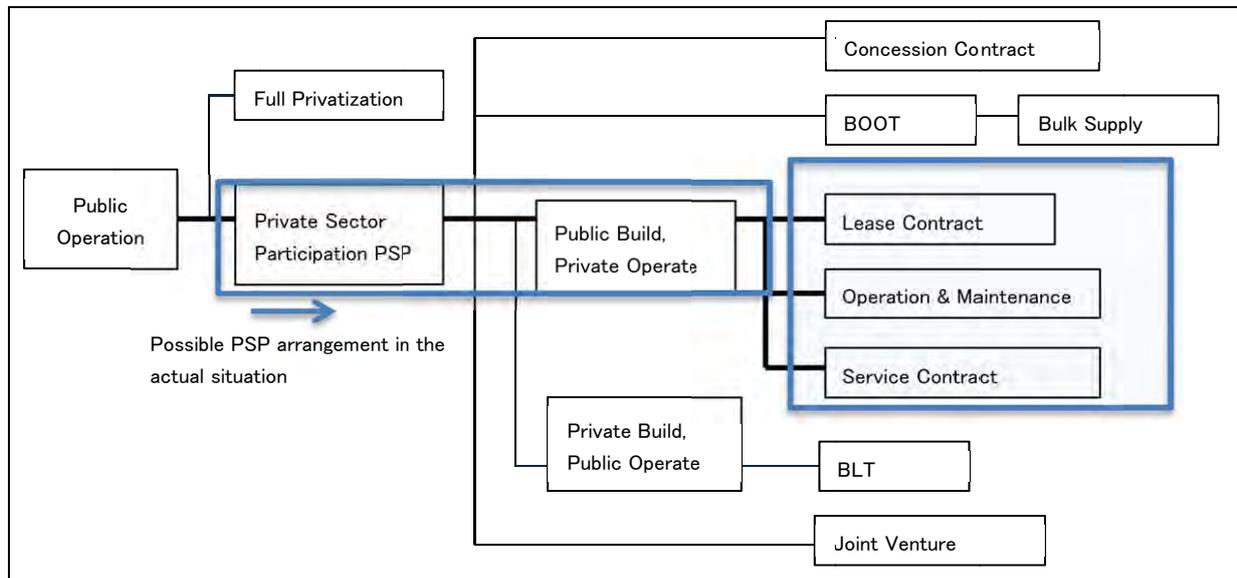


Figure 9-1 The Possible Range of Private Sector Participation in Water Supply Service

¹⁴ “Sturdy report on introducing private management method in water supply service” Japan Water Works Association, January 2007

Table 9-1 The Range of Private Sector Participation in Water Supply Service

Series	Substance	Right to Operate	Right to Property	
Full Privatization	Assets are permanently sold to a private investor. Private runs the license service permanently.	Private	Private	
Public Private Partnership	Concession Agreement	To have exclusive right to operate, maintain and carry out investment in a public utility for a given numbers of years. (Duration of the agreement shall be 25 - 30 years)	Private authority / Private	
	Build Own Operate Transfer (or BOO)	Private entity constructs, owns and operates the facilities during the concession contract period. After termination of the contract, asset will be transfer to public authority. However according to the conditions BOO (whereby assets remain with the private sector indefinitely) has some possibilities to be introduced.	Private	
	Bulk Supply	Private entity newly constructs the plants, owns, operates and sells the water to the public authority. (Duration of the contract will be 15 - 20 years)	Private	Private
	Lease Contract	Under assets are leased to the private operator who receives a share of revenue. Investment fully or mostly financed and carried out by the public sector. Public Sector Duration will be 5 -15 years.	Private	Public authority
	O&M Contract (Operation and Maintenance)	Private sector covers the width range of service provision, with a responsibility of operation and maintenance of the facilities. No investment shall be left to Private sector. Duration of the contract will be 10-20 years.	Private	Public authority
	Management Contract	Grant of rights for operation of whole or part of facilities to boost senior capability and introduce new concepts. Duration of this Contract shall be 5 - 10 years. Private will make no investment.	Private	Public authority
	Service provision Contract	Contract concludes between the owner of water supply resources or facilities (generally a government body, such as a national state or a municipality) and a water services provider (which may be either a public or a private company). Duration will be 2-3 years for one contract. In the event of water service provider concludes other agreement, it shall be called as an out-sourcing contract.	Private	Public authority
	BLT (Build Lease Transfer)	Private or Project Company newly constructs facilities for public service provision in public utility, Existing public organization (government body) will lease the facilities to operate.	Public authority	Private
	Join venture agreement	Public authority and Private sector come into agreement to provide public services	Public authority / Private	Public authority / Private

9.1 Manners of Contracting Out the Water Service Provision to the Third Party

In this Project, those three (3) contract such as lease contract, O&M contract and service provision contract (those O&M and Service provision contract in water sector often called by French term *affermage*) have the possibilities to be introduced as a method of contracting out the water service

provision. They could be divided into two categories as stated in table 9-2. As for the operators for public water stand (kiosk) stated in Option 2 through Option 5 in Table 8-3 will be examined separately in the late chapter. Examination details are stated in chapter 11 and chapter 12.

Table 9-2 Possible Manners of Entrust to the Third Party for Water Service Provision

	Management contract with private operator	Affermage
Overview	<ul style="list-style-type: none"> Under supervision and support from the Water Utility (as SSUWC-Malakal) and local authority (as Upper Nile State), water supply service will be contract out partially to the (each) private operator(s). Contract duration will be one (1) to two (2) years (short-term contract). 	<ul style="list-style-type: none"> All the work concerning water supply service in Malakal such as operation of purification plant, distribution the safe water, operation of water tanker trucks and taking care of the public water stand as facility for end-customers shall be entrusted as a package to other water utilities (note*), or private company, including responsibility by law. Contract duration will be some long-term as five (5) to ten (10) years, to be extended.
Notes	<ul style="list-style-type: none"> In case of responsibility will be remained to SSUWC-Malakal, and each staff will be hired under some condition as “temporary support staffs”. Caretakers who will be in charge of public water stand are to be under this management contract. 	<ul style="list-style-type: none"> Concession contract to a private company, NGO, or public entity.

Note*: There is no other water utility in Malakal Town at this moment.

1) Back ground of the consideration on the Third Party Trust Contract

Aiming on the completion of alternatives of the strengthen those manners of management system of water utilities such as SSUWC or local authority by performing appropriate operation and maintenance of the water supply facilities with concluding of service agreement between the third party, that technical capabilities. However it is foreseen that the capacity of SSUWC-Malakal remains some uneasiness to manage, operate and maintain those new installed water supply facilities such as a unit type water treatment plant or three water tanker trucks. Then, in order to secure the sustainability and independence of those new facilities, it is needed to examine whether water service provision by interlocution of service agreement with the private sector as a third party trust contract would be possible or suitable under the actual situation.

2) Issues to be examined for Third Party Trust Contract

Originally, those contents and ranges of the tasks that will be entrusted are followed to act or municipal regulation concerns water supply. Those depends on the water service area, scale and type of water supply facilities, but in the process of selection for the entrusted operator final scope and range of tasks shall be decided by the mutual agreement between customer and trustee.

3) Scope of the work and share of the risk

It is desirable that to have an agreement on how share the additional cost caused by contingency. Especially, it is necessary to state the responsibility clearly when the facilities have a serious problem, requires some large-scale repair, or unsafe water which does not satisfy the standard.

Both parties shall agree upon issues concerning the risk share during the contract negotiation as follows.

Scope modification, impossible for contract conclusion, amendment of the law, addition or modification of the contract clause, compensation (when the water quality turns worse), beneficiaries suite, accident, disaster, inobservance of a contract, financing crisis, price fluctuation, injustice and crime of the trustee side, arrest, environmental problem, cancellation of the business, plan change, increase in expense.

4) Range of responsibilities between SSUWC Malakal and Service Provider

Scope of responsibilities for this project of each SSUWC-Malakal and Service Provider is proposed as follows. Responsibilities and authorities for each party should be set up through the mutual agreement between Upper Nile States Government and SSUWC-Malakal. This final agreement on the contents of responsibilities and authorities shall be reflect upon the contents of Service Provide Agreement.

Table 9-3 Scopes of Responsibilities of SSUWC-Malakal and Service Provider in this Project

SSUWC Malakal	Service Provider
<ul style="list-style-type: none"> • Supply of safe and stable water up to the end of distribution pipelines and to public water taps, to water tanker filling station with the uniform water pressure constantly. • Selection of Outsourced Contractor, conclusion of Contract with service provider, providing permission of the exclusive use of facilities under the contract conditions. • Settle water tariff (selling price to service provider) and retail price (at the distribution point), approve retail price of Service provider. • Reading water meters, billing, and collecting water fee • Suspension of water supply and termination of contract against those service providers and consumers • Monitor and evaluate on service provider’s activity • Periodical check and repair on the facilities 	<ul style="list-style-type: none"> • Personnel arrangement at public water stand such as an Operator and a Collector during water supply service hours, operating water supply systems in a given period time. • Daily inspection and maintenance for water supply facilities (public water stand and water tanker filling station). • Collecting water fee from beneficially within the regulation-selling price. • Payment water tariff for SSUWC-Malakal • Improving water fetching environment and dealing with complaints from water user. • Promote the importance of using safe and stable water against users. • Payment wage for Operators and Collectors, small repair and maintenance cost

5) Monitoring

During contract implementing, monitoring (observation and supervise) is required. Monitoring items are; daily inspection, water quality analysis, performance indicator, securing the facilities sustainability, and to keep the water provision.

Monitoring manners:

- (1) Receive the report from service provider
- (2) Facilities inspection by themselves and water quality analysis

6) Report contents

Report summarizes the contract contents range and actual implementation of the service provider. Service provision contract shall define the technical level, in other words, service provision quality in order to agree between Client and service provider.

Table 9-4 Report Contents of Water Purification Plant Operator

Issues	Contents
Daily log at intake facility	Generator power (voltage, current, power factor), pumping water level, distribution volume, etc.
Daily log at purification plant	Water level, treatment amount, temperature, chemical dosing quantity, stock of chemical, used amount of fuel, generated power, etc.
Daily log of water quality control (Water quality laboratory log)	Water analysis record on raw / treated water, Activity logging at laboratory
Daily maintenance log	Daily maintenance for each facility, repair log, Stock record
Trouble, damage, repair	Record for counter measures for trouble, damage, repair record
Meteorological dairy	As much as possible
Others	Customer service record (complaint, visitor note, instruction from Consignor/ Owner)

Table 9-5 Report Contents of Water Distribution Operator

Issues	Contents
Inspection on distribution	Record of inspection on the conduit pipe, distribution pipe, and distributed water volume.
Daily maintenance log	Daily maintenance for each facility, repair log, Stock record
Trouble, damage, repair	Record for counter measures for trouble, damage, repair record
Meteorological dairy	As much as possible
Others	Customer service record (complaint, visitor note, instruction from Consignor/ Owner)

Table 9-6 Report Contents of Water Tanker Truck Operator

Issues	Contents
Vehicle operation daily record	Mileage, water distribution point
Daily Operation log	Service hours, distribution times per day, Total distribution volume
Daily inspection log	Tank washing, daily maintenance and repair record on equipment
Trouble, damage, repair	Record for counter measures for trouble, damage, repair record
Meteorological dairy	As much as possible
Others	Customer service record (complaint, visitor note, instruction from Consignor/Owner)

Table 9-7 Report Contents of Water Provision Point (at public stand, water tanker filling station)

Issues	Contents
Daily operation record	Service hours, received water volume, water provision volume
Daily account log	Collected water fee amount, un-paid water provision volume and amount
Daily maintenance log	Daily cleaning, daily inspection record and small repair record
Trouble, damage, repair	Record for counter measures for trouble, damage, repair record
Meteorological dairy	As much as possible
Others	Customer service record (complaint, visitor note, instruction from Consignor/Owner)

9.2 Selection Procedure of Service Provider

Generally, selection procedure for service provider is stated in the related laws and regulations such as the water bill, water service provider regulations or local government act however it is under preparation in South Sudan. In this regard, Japanese regulations in Local Government Act or selection procedure by JICA are stated below, for the reference.

Table 9-8 Selection Procedures, Advantage and Weak Point as for Reference

	Process	Overview	Advantage	Weak point
Based on the cost	General competitive bidding	Method to make a contract with the person who applies with the lowest bid price from the unspecified number of competition participant.	Possible to choose the company that made much of trust, lowest costs by securing competition environment.	Remains possibility of the unnecessarily evaluate the technical ability of the bid participant enough, because of selecting only for trust costs.
	Tender by nominated bid	Method to make a contract with the person who are appointed as a competition participant nominee in a bid and offers the lowest price.	Compared to the General competitive bidding, there is little risk to suffer damage by the bid participant that a technique, ability is insufficient. Because a bid participant is identified, it is effective in the following procedure.	Compared to the General competitive bidding, because the range of the participant is identified, effects of the competition might decrease.
Technical quality and the cost	General evaluation competitive bidding	The method to make a contract with the person selected by not only trusts costs but also the quality of the technical suggestion (proposal) of the participants.	Possible to combine an economy evaluation with the evaluation of suggestion contents in a good balance.	It is difficult to secure objectivity about the choice of evaluation items and to perform addition by performing weighting to calculate an overall evaluation.
	Publicly advertising for proposals	Method to make a negotiated contract through to demand suggestion from the person or company, and to select based on his proposal contents.	Possible to be made much of contents of the proposal to selected the person or company.	About the evaluation criterion of the proposal contents, it is necessary to state them clearly at the time of offer beforehand in order to secure objectivity. Because a person or company will be selected and became a trustee, as the proposal contents are the best so that it might not be expected the reduction of the costs for commissioned work than other methods.

Ref: "Guideline for the Outsourcing of Service Provision, 2008", Water Supply Division, Health Service Bureau, Ministry of Health, Labor and Welfare "Guideline for sub-contract with local contractors", April 2012, Procurement Division, JICA

9.3 Scope of Service and Conclude an Agreement

Clarification and definition of the scope of work and range of the responsibility would become the contents of the Contract. So that, the contents of contract has an important role. According to the Water Bill or other water and sanitation service provision law, composition of the Agreement will be fixed mostly as follows:

- ✓ Parties to a contract
- ✓ Remunerations / Contract price
- ✓ Purpose of Contract
- ✓ Scope of service (or work)
- ✓ Executing organogram of the Contract
- ✓ Prior of execution of the Contract
- ✓ Early termination
- ✓ Disobey
- ✓ Payment terms
- ✓ Risks
- ✓ Warranties
- ✓ Inspection and monitoring
- ✓ Disputes and arbitration
- ✓ Others

9.4 Example in the Other Countries of the Private Sector Appointment

1) Case study in Rwanda

In 2005, Rwanda government strongly facilitates their decentralization movement in many sectors, in order to achieve the realization of small government. The decentralization was supported by DEFID at that time. However, limited number of local authority staffs should take their too many tasks to accomplish their daily work. In water and sanitation sector, national program for water and sanitation was established in year 2001 as PNEAR (Projet National Eau et Assainissement Rural)¹⁵. In PNEAR, promotion of the rural water supply with Public-Private Partnership (PPP) was defined. However institutional frame work setting up as Water and Sanitation Unit for each district is promised in the policy, but none of the district had that unit. Existing Infrastructure unit staffs in the district concurrently work for this sector.

In year 2006, in Kayonza District in Eastern Province of Rwanda it was carried on the selection of service provider in order to accelerate the decentralization and PPP of water supply business implemented the general competitive bidding. The first tender took so much long time to evaluate the offer documents, but ended in failure. After more than two times tender proceeded in six months, then contractor was selected and concluded the service provision contract. Consignor was

¹⁵ At that time of planning, French was the official language in Rwanda.

Kayonza District, all the authority of the selection procedure was owned by the infrastructure unit (2006), all the procedure as calling for bidders, distribution of the tender documents, and the infrastructure unit executed tender opening ceremony. Contractor was the Cooperative that has a juridical personnel established under the District approval, with a joint investment by the community population. The contractor obtained the right to operate whole the water supply facility and adopted that the public water stand management by the tap operators selected from the population living around the public water stand. Although this was the first trial but the contractor did not performed as expected level, the first contractor could not sustain the contract and terminated.

Water sources exists much lower level in Eastern Province than the other three provinces in Rwanda. That is because water supply facilities should depend on the powers. Indispensable condition of power for the water supply facilities made difficult to introduce the private participation in the water supply sector in Eastern Province of Rwanda. On the other hand, especially in Western and Southern Province, World Bank and EU have started the cooperation with public-private partnership since year 2000. The support activity continues to transfer the water supply service to private operators as a package contract. Including spring water, there are rich water resources, an easiness to use the water source, the geographical advantages for intake and distributing water only by gravity, those are the most important reason why Cooperatives established and invested by community populations or Opérateur Privé that consists of a few members of individual could continue their water service provision. In addition, at the same time, those two Provinces strongly promote the PPP policy, that is accepted and cooperated by the end-users as the population, with not only providing the hygiene and sanitation sensitizing but also giving the repeated social-marketing approach.

There is some information concerning the water supply service provision in Rwamagana District in Eastern Province. At the time of 2012, electrical company started power supply in that area and water supply facilities could become to use that power. This improvement of the power supply contributes the recurrent cost decrease, so the ex-water users committee based on the community organization changed into the Cooperative with Districts approval, then provides the water supply service by public-private partnership.

2) Case study in Senegal

In Republic of Senegal that locates most western part of the African continent, village formed by the big families is the basic administration unit in rural area. Protocol type of Water supply facility in rural area of Senegal is; water source as a deep borehole fitted with the submergible pump with the capacity covers one or more than one village, pumping up to the elevated water tank with height of 10m to 25m that has a capacity of 50m³ - 300m³, distributing by gravity with pipeline to the target villages. This is the national standard rural water supply facility stated in PEPAM (Program

d'eau potable et d'assainissement du Millenaire¹⁶) technical standard, in which the location of the ground water could be sufficiently pumped up.

In Senegal, since early 1970, responsibility of operation and maintenance of the rural water supply facilities have been belonged to Division Regional de l'Hydraulique (DRH: regional division of water supply) and Direction d'Exploitation de Maintenance (DEM: directorate of maintenance). Under the supervision of both of two directorate, three Sub Division Maintenance (SM: subdivision maintenance center) are established in the three divided areas, sixteen Brigade du Maintenance de Puis et Forage (BPF: shallow and deep well maintenance branch) are positioned in each district level in all over the country. These technical centers are under the central government and they provide some high levels maintenance in the time of required. Daily operation and maintenance, water provision are implemented by the Comité du Gestion (CG: management committee formed by the village population).

However, in proportion with the increasing numbers of water supply facilities, the burden owed by DEM and BPF increased, personnel, budget and materials arrangement reached to the limit. In the midst of this situation, to achieve the MDG's, PEPAM as the highest development plan in water and sanitation sector was launched in 2005. By this program, the idea called "Maintenance zero-level", which proposed that; operation and maintenance for the water supply facilities shall be transferred from the central government to the private sector, and gradual re-construction (or disband) of DEM was advocated. In addition, decentralization of water supply service, traction of PPP is proposed. And in the community to reform the management committee from CG to "Association des Usagers de Forage" (ASUFOR: Water User's Association) is the other important pillar for achieving to the maintenance zero-level. ASUFOR shall be re-established by the approval of State government, re-structured the existing committee into new organization that should secure the transparency and accountability in order to conclude the service provision agreement with private operator on the water supply provision and operation and maintenance of the water supply facilities by ASUFOR it-self. Enthusiastic follow-up by the PEPAM, disband of CG and transaction to the ASUFOR are moved forward in village level, but in the central ministry and administration level, there has been little progress in gradual disband of DEM and reform of the maintenance system.

As for the preparation for making private operators (Opérateur Privé) participation into water supply service, such as developing the guidelines for the tender procedure, contract format and the license system by the state government has been made steady progress with the assistance made by the development partners. But in 2010, the agreed contract numbers between ASUFOR and Opérateur Privé were much less than that was expected. Data is not latest one but, whole county (except in Casamance area) Private Operator Assessment was done in the framework of the JICA's technical cooperation in 2004. As the result of that survey, the private operators in rural area could cover daily maintenance, but there scarcely existed the private company in capital city of Dakar

¹⁶ Water and Sanitation Program for the Millennium

with the same or above technical level (including personnel, owned materials and equipment) as DEM, SM, and BPF. Even only one company was interested in providing the service, but the cost would be much higher than expected. At that time, none could come into making agreement.

In rural area of Senegal, deep borehole with depth of 200m to 300m is mainly used as a water source of the water supply facility. So that in order to maintain such deep borehole, some high-level technic and knowledge shall be required and also needed the special equipment and materials. Additionally, those grand villages possess the water supply facilities are located too far from the rural urban area to be maintained by the private operators from the point of view of motivation keeping, because where could be accessed by the pist in the desert 70-80km apart from asphalt pavement national road. At the time of 2010, DEM under the ministry still took their role as a main technical organization to continue the high-level maintenance work.

9.5 Examination from the Current Condition of the Institutional Aspects

1) Delay of the system establishment

As stated in the above, there are many systems that should be set up before the commencement of private appointment, but there still remains under preparation or before the preparation stage in South Sudan. And like in other countries cases, it is required the national level's policy for private appointment and the implementation through the program aligned to that policy shall be a driving force.

2) Pay-back system of SSUWC and Ring-fenced system

Until May 2013, each SSWC branch needs to pay back to the SSUWC-HQ some ratio from the sold amount. The rate always changes in the short term and unstable such as sometimes 20% of total sold amount, sometimes 80%. As for those branches, if they pay back to the SSUWC-HQ but they scarcely obtain their subsidy, or fuel and chemicals as the support by Headquarter, so they took this payback system is as an obstacle in order to establish the smooth management. (At the time of June 2013, this payback system was abolished). At this time, it is agreed on among the South Sudan side and Japanese side that this Project will be took as a pilot study in order to make successful case of water supply management and introduce the self-supporting accounting system (ring-fenced system). When ring-fenced system adopting, it would be essential that the commitment of South Sudan side, conformity with their policy and strategy, as well as manners of institutional setting up. Concurrently, capacity development for the South Sudanese staffs to continue the operation of these system them-selves is absolutely essential. Before starting management of newly installed water supply facilities, it becomes considerably important to get ready for those sequential preparations.

10. Survey on Private Sector - Capacity Assessment of the Private and Public Sector as a Candidate of Service Provider

10.1 Objective of the Survey

This survey was carried out in order to implement the sustainable water supply service by the smooth operation and maintenance. Those were settled as main issues as; decentralization and water supply service; decentralization of water supply by introducing of the private participation; and the law and systems what support to those issues.

10.2 Survey Method

During the survey, face-to-face interview with questionnaire, open discussion and with the spot survey in order to obtain the information concerning the candidates' willingness, knowledge and technology for water supply service.

10.3 Time Frame of Survey

- i. July 2013: Examination on the possibility of private and public sector intervention as a service provider
- ii. August 2013: Service provider survey started with 8 places, visiting and interview were conducted.
- iii. September 2013: With a result of above service provider survey, through the discussion with Upper Nile State Government (MoPI&RD), survey on the possibilities finding of making partnership, co-working with private and public sector was started.
- iv. September 2013: Making announcement for gathering those candidates of service provider by radio spot. Concluding short list of the candidates.
- v. October – November 2013: Based on the short list, interview and on-the spot survey of the candidates started.

10.4 Survey on the Possibility of Contract Out to the Third Party

In order to manage, to operate and to maintain the newly installed water supply facilities including the equipment, especially three (3) water tanker trucks as pivots of the conduct of water, to select a recipient organization and mother body for operation and maintenance of the water supply facility, as well as to establish the management body are the urgent important issues.

However, until the time of conclusion of the contract for facilities construction and procurement of the equipment with the contractor, among those three main actors of the Project as MoPI&RD of the UNS, SSUWC-HQ and SSUWC-Malakal did not come to a conclusion which organization will bear the main responsibility of the O&M, or who is the main recipient of the facility and equipment. At the time of first planning stage of this Project, those facilities and equipment should be handed

over upon the condition of that, each responsibility shall be set up through the discussion among three of them, O&M shall be continued under the supervision of the UNS. At the same time, in the central government, the trend of decentralization of the water supply service through private participation made the government policy being un-fixed, then confusion continued in the SSUWC-HQ.

In order to correspond these circumstance, at first, it is important to take the steps for establishment of O&M system with embroder the alternatives and selecting the appropriate one for the current situation within limit the period as the Project implementation. But still, the objectives such as to assist human resources development of UNS government and SSUWC-Malakal staffs, to formulate the peace and safe town with attempting to establish harmonious relationship between populations through implementing the Project, originally lay in the foundation of O&M planning. Aiming at the achievement of these principal objectives, the examination is to be conducted.

10.5 Candidates for Water Supply Service Provider

Those are the six (6) categories of the candidates of service provider.

- A. Private Operator (Private Company)
- B. Individual Operator /Individual Operators Body
- C. NPO
- D. NGO
- E. Public Owned Utility or Cooperative (POU or Cooperative)
Community Based Organization (CBO)

10.6 Service Provider Survey

【Overall】

- 1) Time: 16th to 30th August 2013
- 2) Method: Visit and face-to-face interview
- 3) Survey respondent:
 - 1 Name: Kano Construction (Construction company, category A)
Person in contact (PIC): Mr. John (Tel:0918-105-009) Mr. Daniel Dhanho Yowin, (0956-626-518)
 - 2 Name: Solidarités International International NGO (category D)
PIC: Mr. Arthur Amollo (0912-105-259)
 - 3 Name: Northern area water scheme (installed by Solidarités International) Management Body (Category B)
PIC: Mr. Peter Thomas (0954-299-381)
 - 4 Name: Sharpe International (owned by Jagan Drilling SS Co.Ltd.) Ice and water bottling

- company (Category A)
PIC: Mr. Bala Murugan (0955-938-323)
- 5 Name: Jagan Drilling SS Co. Limited (owner company of Sharpe International) Drilling company (Category A)
PIC: Mr. Sendhil Raj (0959-103-060, 0926-609-969, 0959103-061)
- 6 Name: Crystal hotel Eritrea Water bottling company (Category A)
PIC: Mr. Danik Kidane (0956-200-962, 0955-889-097)
- 7 Name: Technician Nial Malong Biech Plumber (Category B)
- 8 Name: Care International South Sudan International NGO (Category D)
PIC: Mr. Eremugo Henery Local Staff (0955-004-799)
PIC: Mr. Sasi Luxmanan Programme Director (0954-514-273)
- 4) Survey result

At this stage, survey was conducted in order to grasp overall situation and their willingness to cooperate with this Project under the contract system of the private operators in Malakal Town, rather than details of the duties or responsibilities of the O&M. Particularly, to understand if they could operate the purification plant as an operator of safe water production. Among eight (8), only 3) 1. Kano Construction staff touched on the water tanker truck operation. That staff has a perception that to implement the privatization has an obstacle currently in UNS, with an outlook for extension of SSUWC-Malakal, then it would be very difficult to do the O&M for new small-scale water supply facilities under the contract. Bottled water company above 3) 3. has his interest in operation the purification plant. Individuals assume that to formulate a personal aggregate for the Project and operate as a management mother body. Solidarités International and Care International are not interested in their participation in O&M for those facilities directly. They have their strong interest in supporting the human resources development based on their importance of existence as an International NGO,

10.7 WASH Supervisory Committee Meeting

With the members of WASH Supervisory Committee, that established within this Project framework, as a highest supervisory committee of this UPS-WS implementation, discussion concerns private participation or PPP introduction for water supply service in UNS was done. Members are of Director of MoPI&RD, director of water and sanitation directorate, focal point of water and sanitation issues and School inspector in Ministry of Education, Director of Community and Public Health of Ministry of Health, Area Manager and Vice Area Manager of SSUWC-Malakal, and the JPT. As a result of discussion, those members tend to answer in negative. Three (3) common concern matters are; the possibility of increasing selling price of water to the population, there is no measure to control those unreasonable selling price or other issues, as well as the possibility of in-equal provision of safe water. In addition, there is serious apprehension that

if the private company or individuals intervene from outside into the community to monopolize the profit, so that could trigger off conflict inside the community.

These apprehensions could have come from lack of experience and information on private participation in water supply service sector both in Upper Nile State and in Malakal Town. Further, the members did not show their understanding the reason why the third party contract system introduction is based on the idea for relieve the burden of SSUWC-Malakal. As for the members, it is thought as the proper duty that SSUWC-Malakal should take rather than a burden adversely. After this meeting, the Project explained to the Director of MoPI&RD about the commencement of survey for possibility of introduction of PPP in USP-WS on 18th September 2013. With his approval, the Project announced the public notice through a radio spot.

10.8 Radio Spot Public Notice

Public notice, expecting to make broaden the candidates of service provider, was made by radio spot of catholic mission radio station Voice of Love that stays in Malakal Town during two days at the end of September 2013. Contents of the spot are as follows.

[Script for Radio Spot by Voice of Love]

General announcement of JICA's activity

Japan International Cooperation Agency, JICA, and the Government of Upper Nile State has commenced the multi-sectorial project in Malakal town, "Project for Comprehensive Planning and Support for Urgent Development on Social Economic Infrastructure in Malakal Town." in February 2012.

The project includes construction of a Small-scale Water Supply System in Malakal Town. Construction will start in October with completion in early next year.

Currently, the system of operation and management for the water supply system including unit type of plant, and public taps is under consideration. This is the survey stage in order to explore the different options. One of the options is to outsource these works to the private sector.

Organizations, companies or firms interested in this project, should visit the JICA Malakal project office for more information. Interview will be done for data gathering purpose only.

The JICA Malakal Project Office is located in Al-Asoosa Street; Block 8D, next to Seventh-day Adventist church.

Contact person is Mr. Inoue; his telephone number is 0955-314-878.

10.9 Applicants and Candidates' Short List

After the public notice by radio spot until 15th October 2013, with those 17 juridical persons who were interested in the work and made their application for the candidates through the experts of JICA Malakal Compound, long list as "Name" in Table 10-1 are developed. After checking and processing their application form, 8 juridical persons as of "X on the shortlist" was selected as the respondents of further survey.

Table 10-1 Service Provider Short List (candidates of respondent for further survey)

No.	Name	Category*	Specialty / Experienced work							On the short list	
			Plant	Machinery	Water tanker	Water tap management	Water mobilization	People promotion	Hygiene development		Capacity development
01	Juliano John Othiang	B		X**	X			X			
02	Gatweij Makuj	B						X			
03	Luwanga Charles Vitale	D/B	X	X	X	X					X
04	Prime Trust & Construction	A	X	X	X						X
05	Nile Foundation Aid	D						X	X		
06	Kuonbek General Contractors	A		X	X			X		X	X
07	Youth Agency for research & development	D						X	X		
08	Duop Reath Koryom	B							X		
09	Ayob Osman Hassn	A	X	X	X						
10	Ishag Adam Adoom	B									
11	Isaac Gatkuoth										
12	Eskallade Technology South Sudan	A	X	X							X
13	Ice production factory under Jagan Drilling (SS)	A	X	X							X
14	Aqua Crystal	A	X								
15	Nial Malong Biech and his friend	B	X				X				X
16	CARE International South Sudan	D						X	X	X	X
17	Kano Construction	A									X

*Category is as of the previous stated in chapter 10.5

** X means "experienced"

10.10 Capacity Assessment of the Private and Public Sector as a Candidate of Service Provider

According to the short list, capacity assessment of the private and public sector as a candidate of Service Provider was conducted. The contents of the survey are; personnel, expertise, numbers of eligible persons, qualification, as for companies, equipment and materials posses, financial status, or whether they have an acknowledgement on the project or business plan so to assess their capacity to make them intervene into this Project as a service provider. In annex, questionnaires and fact sheet used in this survey are attached.

1) Survey status

From 30th of October, the Project team tried to make interview survey for 8 private operators on the short list. Results of the survey until 5th November 2013 shows as follows.

Table 10-2 Survey Status

Serial No.	Name	Category	Survey Status
03	Luwanga Charles Vitale	D/B	Twice of interview has been done
04	Prime Trust & Construction	A	No one answered on the contact number, interview impossible.
06	Kuonbek General Contractors	A	No one answered on the contact number, interview

Serial No.	Name	Category	Survey Status
			impossible.
12	Eskallade Technology South Sudan	A	Cut off the contact number, interview impossible
13	Ice production factory under Jagan Drilling (SS)	A	Responsibility was abroad; no other staff could be interviewed instead of the responsibility.
14	Aqua Crystal	A	Visited interview was done, information obtained.
15	Nial Malong Biech and his friend	B	Cut off the contact number, interview impossible
16	CARE International South Sudan	D	Visited and exchanged the information
17	Kano Construction	A	Contact number alive but all the staffs worked in other state, interview was impossible. Visited their office inside town but no interview.

2) Visited or interview

Those three (3) private operators coped with the request for interview.

1 Care International / International NGO, category B

- Technical skills of the staffs: not asked (other skills for the Care's own activities =sufficient)
- Equipment and materials: not asked (others for the Care's own activities =sufficient)
- Spare parts stock: not asked
- Financial status: not asked (no problems for the Care's own activities)

Meeting was done with the presence of the Project Manager in Upper Nile State. They understand overalls of the USP-WS by JICA in Malakal Town.

Care International aims those four (4) main objectives through their support activity.

- (1) Reduction of child poor (2) improvement for the accessibility to the market by the populations (3) improvement of live hood by the introducing of micro finance (4) safe water supply and sanitation

Especially human resources development of local administrative and community based organization and women group. Until the time of interview, they had worked on the urgent support stage in Upper Nile State, but they are required to sift their activity on the development stage doing by the community development by the long –term view. For our explanation of this survey objective as seeking the collaborator of the public or private sector in order to manage the newly installed water supply facilities, they gave their opinion that it would be the best way to hire some local staffs and operate by them. Care international has a large number of the experiences to provide training for those staffs; they could collaborate with the Project in this way. Care international is not interested in the water supply management by their own as an organization.

2 Aqua Crystal / Bottling water company category: A

- Technical skills of the staffs: low
- Equipment and materials: Factory goods shed and purification unit type equipment. No

transporter as vehicle is owned.

- Spare parts stock: Not sufficient for water supply as a service provider.
- Financial status: Not asked because it is not private company.

It is a private company that possesses the factory for bottling water production along White Nile in the north area of Malakal Town. Interview made with factory manager instead of the owner was out of office. Twenty-two (22) staffs on the production line work by two sift system. Because it is an automated factory, the main tasks of workers are checking if those pet-bottles are clean, set on the right position, carrying the bottled water to stockyard and packing the bottled water. Some works like checking the engine and water pump require a technician, but there is only factory manager with some knowledge about technique. They need regular spare parts for purification unit equipment, and then they do not seem to have general tools. This company borrows the water pump and engine from some private owner in Malakal Town, that lease fee and fuel cost are much higher than the business plan. In addition, market demand in Malakal Town has been kept in much smaller amount than they planned, unless sometimes the customer from neighbor state purchase by barge boat, but their business is slack since then.

3 Mr. Luwanga Charles Vitale

A technician had operated the water supply facilities in northern west in Malakal Town that was installed by Solidarités International, as a member of the organization formulated for that water supply facility as of public sector. Already transferred his position to the successor then left the organization. This time, he formed the personal aggregate as an operation mother body in similar circumstances and applied as the responsibility of the aggregate. There is a possibility from B to D, E or F.

- Technical skills of the staffs: sufficient, experienced to operate the purification unit and water tanker trucks.
- Equipment and materials: No equipment owns
- Spare parts stock: No spare parts owns
- Financial status: Refused to respond, but in negative condition.

At the time of installed the water supply in northern west area, Solidarités International provided four (4) months training local population in order to develop their capacity as the operators. They worked as temporary staffs of NGO Solidarités International. For this Project, he gathers the personnel in order to operate the newly installed water supply facility including water tanker trucks, and each personnel have sufficient skills. This staff has enough English ability to work with the Project. Proposed staff number is much bigger than the JPT planned, so that there requires to reduce the staffs or to work in shifts. As for this time, they do not have their intention to work as a private sector, but will keep their operation mother body and work in public sector for their population in Malakal Town, would like to keep provision of safe water in cheaper price as much as possible.

3) Local NGO as a Service Provider

At the time of the Project commencement after the first survey completion in 2012, the JPT had a plan to have a local NGO as Caretakers of public water stand under sub-contract. After the UPS-WS had began in earnest in April 2013, the JPT made Local NGOs assessment in order to confirm their capability to consign the work as a caretaker. And also further assessment whether the local NGO has their skills and experience for providing soft component activity in water, sanitation and hygiene sector, such as to establish the water committee, to mobilize the population, to organize the community under conducting a sub-contract though the tender process. As for this time survey, those six (6) local NGOs are targeted and direct interview was conducted with five (5) NGOs among six as shown in Table 10-3.

Table 10-3 Capacity Assessment on Local NGOs in April 2013

	Name	Interview	Person who introduce
1	Community Hope Agency for Development South Sudan (CHADSS)	Done	JICA M/P Project
2	South Sudan widows And Orphans Charitable Organization (SSWOCO)	Done	CHADSS
3	Lead Development Agency (LDA)	Done	JICA M/P Project WASH Cluster Focal Point
4	South Sudan Development Agency (SSUDA)	Done	WASH Cluster Focal Point
5	Youth Agency for Research and Development (YARD)	Done	JICA M/P Project
6	Nile Hope Development Forum (NHDP)	Not yet	JICA M/P Project WASH Cluster Focal Point

Source: Result of survey in April 2013

Capacity assessment was done by those two methods as follows.

1 Interview and open discussion

- (1) General information as establishment, background, experience, working partners or clients.
- (2) Overview of water, sanitation and hygiene (WASH) issues in Upper Nile State and Malakal Town.
- (3) Information and presentation on their WASH activities (in order to understand how they implement their activities relating to the WASH concept)
- (4) Relation between WASH Cluster in Malakal, understanding and participation situation.
- (5) Possibilities of co-working with JICA Project based on the time frame and implementation organization.
- (6) Willingness and possibilities for participation into the tender procedure for selecting of sub-contractor who will be a field implementer of the WASH activity.
- (7) Possibilities for submit their Pre-estimation (cost estimate for reference) and their profile documents before tender procedure.

Table 10-4 Result of Assessment for Local NGOs

	Name / contents	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	CHADSS	○	○	○	○	○	○	○
2	SSWOCO	△	○	X	X	○	○	○
3	LDA	○	○	○	○	○	○	○
4	SSUDA	○	○	○	○	○	○	○
5	YARD	○	○	○	X	○	○	○

Source: Result of survey in April 2013 / Contents number (1) to (7) are defined as of above mentioned in 1.

- 2 Document analysis (Organization profile, Pre- estimation and belief technical proposition based on Pre- Terms of Reference)

Pre-Terms of Reference (TOR) was sent to three NGOs ask submission within 3 days of Pre-estimation as highlight in Table 10-4 of (7). Only CHADSS responded and sent the Pre-estimation.

Mostly among the above mentioned NGO have been working in the water, sanitation and hygiene activities as of the urgent support project. However, they have their experience mainly in rural water supply. In the project with water supply facility construction, installations of the borehole with hand pumps, or water provision by the water tanker trucks are their main outputs. They do not have the experience in the construction of piped water scheme, nor to support the operation and maintenance of the facilities, nor mobilization sensitization of the population. All of the targeted NGOs have their experience to make their action plan, to submit the proposal in order to obtain their activity budget from International NGOs, to work through the Project.

Even they do not have the experience of establishing water committee, they work for the community in the manner of mobilizing people and establishing the agriculture community based organization in order to introduce of Co-Harvesting, or formulating the population group for effective distribution of sanitation kit for prevention of communicable disease. That is, there are some staffs that have the basic knowledge of water, sanitation and hygiene (they call these staff as “WASH Officer”), but there is no civil or water supply engineer who has the technical background on urban water supply. In other words, technical range could be handled by the local NGOs staff is limited in general understanding, planning, monitoring and follow-up of those water supply facilities such as boreholes fitted with hand pump, or small scale piped water supply facilities.

So it could be said that provision of the specialized technical training concerning water supply would be impossible for local NGOs, and also it would not be suitable for them to be a water service provider especially in the part of water production with purification and distribution at this moment.

11. Examination on the Operation System at the Public Water Stand

In South Sudan, there are some exiting cases for the public water stand operation with other DP’s project as USAID and GIZ as stated in previous chapter. A community-based organization selected

and established from the community, a public business entity or a private company performs operation and maintenance depending on a local characteristic. All of them shall be an entrust-contract to individuals or to third party. In this Project, entrust-contract shall be taken as a manner of contract out, so here it is considered that which choice is the most suitable form from a right example.

11.1 Contract with Service Provider

1) Service Provider

It is strongly desired that the most important public service namely water supply service in Malakal Town where is the target area of this Project, shall be conducted with the cooperation between National, State Government and population, aiming to bring about and sustain the mutual confidence. Therefore, according to the actual situation in Malakal Town, those two types of management bodies could be counted as the candidates or the Service Provider above mentioned; those organizations established among the community such as Water Users Committee or Private Operators, such as private companies or private enterprise, as well as cooperate bodies of enterprise.

2) Selection manner for Service Provider

Selection manner, procedure, criteria, their water supply regulation and details of Service Provision Agreement are made by reference to the “Water Bill 2013 Version 4” and the achievement of JICA’s technical cooperation project. In this Project, that selection procedure is proposed on the basis of the consideration.

(A) Selection of Management body

Water Users Committee	Based on the responsibilities and tasks that are shown by Upper Nile State Government, select members as a Water Users Committee among the community, through general assembly of the community with the support from local authorities as Payam and Boma. Then State Government would approve the Water Users Committee.
Private Operator	Based on the responsibilities and tasks that are shown by Upper Nile State Government, tender will be announced. After Pre-qualification (technical evaluation), Tender, and Tender evaluation process, State Government selects the service provider and concludes Service Provision Agreement with him.

(B) Selection of Caretakers

Water Users Committee	Based on the technical qualifications that defined by State Government, persons will be selected, and to be approved by the community with the support from local authorities as Payam and Boma. Then assigned them.
Private Operator	Based on the service provision agreement, service provider assigns them by their own responsibilities.

Caretakers should have some technical knowledge of the public water stand (Kiosk, conventional public water taps, and water tanker filling station), to inspect the condition or to define if those

facilities need some repair. Also some knowledge of book keeping of the water fee and water supply log are required. SSUWC-Malakal needs to support technically to the management body and monitors their activity at any time. Besides, when the Water Users Committee is assigned as a management body, those existing water fetchers with their own engine pump alongside of Nile River are taken into account to be participated in the operation and management system. It will be desirable to promote them to be a member of Water Users Committee or caretakers as much as possible.

11.2 Consideration on the Selection of Service Provider

As Chapter 9, 9.1, Table 9-3 shows the proposed scope of responsibilities of SSUWC-Malakal and Service Providers. Table 11-1 makes comparison between both two types of Service Provider candidates, which against the actual situation in Malakal Town.

Table 11-1 Comparison between Both Two Types of Service Provider Concerning Operation and Maintenance for Water Supply Facilities

Factor	Water Users Committee	Private Operator
Way of contract out	Local Society (community) selects the management body	Tender process selects the management body
Advantage	<ul style="list-style-type: none"> • Members will be selected by the mutual agreement among the local population, on the base of pre-condition that indicates clearly those beneficiaries' participation in the provision of public service. Accordingly, it would be rare to create some unfair among the population. • This pre-condition is one of the development policy of the South Sudan, so that the process would not be required some special application or preparation. 	<ul style="list-style-type: none"> • It could be confident on the technical advantage because Private Operators would be selected as a Service Provider of public service through Tender Process. • At the point of view of the client, administrative work and supervision could be simplified.
Disadvantage	<ul style="list-style-type: none"> • In Malakal Town, population does not have their enough experience in water supply service, although there is one system that constructed by French NGO under their previous urgent support program. So there is a strong need to provide technical training and continuous support to make outsourcing to the community for operation and maintenance of water supply system. • From the view of the client, it should be their obligation to supervise without a break until community will become skilled in their task. • When some miss-leading will be occurred in the process of the selection of caretakers and members of WUC, it would be possible to have some risks for causing unfairness between community members. 	<ul style="list-style-type: none"> • At this moment, nothing of tender manners and regulations has not been established at local government level; such as of announce of tender, of technical pre-qualification, evaluation process, and criteria. So that, parties concerned shall make a lot of effort on tender preparation. • And as for tender evaluation, the client has to show that they secure the transparency and the equity through every process. Client shall feel loaded with his duties without any regulation. • Actually in Malakal Town, there is very little possibility to find private operator that has ability to operate and arrange personnel on those twenty-two public water stands (after year 2017, 70 + 2 points will be installed, and totally 94 points), besides private operators need to hire new staffs in order to participate

Factor	Water Users Committee		Private Operator	
				in operation and maintenance. In this regards, there will be occurred some doubt if private operators continue to have their technical and financial quality. Then as for having more than one candidate for selecting service provider from private operator will be a difficult issue.
Evaluation	○	If the management body will be selected from Community with clear and fair selection criteria, this body would have been expected to be a mother body or community based organization for the next development stage.	△	Actually it could be very hard because there is no law or regulation related to contract out to private operators in the target areas, so the preparation will require much effort and great labor for the related parties.
Water supply service provision		Under the support of SSUWC-Malakal, water supply service will be provided by the Water Users Committee with cooperation of the community		Water supply service will be left to the private operators discretion along with Service Provision Agreement.
Advantage		<ul style="list-style-type: none"> The Caretaker selected within community, who is one of the water users, participates in the water supply service, so that the client could support and lead him smoothly into the safe and stable water supply provision with the manner of respect the public convenience. Community and neighbors could supervise and check the caretakers' activities against the job regulations, so that community itself could secure the transparency. Re-selection of the caretakers or members of WUC aiming at the better service provision 		<ul style="list-style-type: none"> A selected service provider has enough capability of supplying safe and stable water. As it is the commercial base activity, working incentive for staffs seems to be increased much easier.
Disadvantage		<ul style="list-style-type: none"> When those caretakers do not fulfill their duty (neglect the water supply time, not showing at the work place), it could be happened that the users' inconvenience as they are not able to have good enough service. From the view of the client, it should be their obligation to supervise without a break until community will become skilled in their task. When some miss-leading will be occurred in the process of the selection of caretakers and members of WUC, it would be possible to have some risks for causing unfairness between community members. 		<ul style="list-style-type: none"> There is a risk that private operators would not deal the water supply service as a public service. There are other risks of price control by the monopoly, of un-fair water distribution, as well as of unreasonable service provision, although community or neighbors could not have responsibility of direct supervision against those issues. Although their staffs such as caretakers do not fulfill their duty (neglect the water supply time, not showing at the work place), community and neighbors could not control directly, so that it would require much burdens for resolve when complaints and dissatisfaction arises from users and populations. Because of the water supply provision is limited by service time, the selling water amount will be limited in proportion. Thus, keeping caretakers' incentive will be difficult.
Evaluation	△	Clients will be required to follow up the management body carefully until they are	△	There is a risk that private operators would not deal the water supply service

Factor	Water Users Committee	Private Operator
	getting enough skills on the water supply service provision.	as a public service, so that the client needs to brush up and to obtain enough skills in order to monitor the service provider's activity.
Selection of caretakers	Caretakers will be selected through the manner of community's decision making.	Caretakers are the employees of private operator.
Advantage	<ul style="list-style-type: none"> • Caretakers are one of representatives of the community who are selected by and with the agreed criteria within the community, so that makes much smooth to secure the public interest. • Each responsibility is clear between the client and a caretaker, who is an individual population. 	<ul style="list-style-type: none"> • Selection and to assign those caretakers who are their employee, are completely handled by private operators own responsibility. • Each responsibility is clear between the private operators and a caretaker, who is an individual population. • As for the client point of view, all the administrative process shall be covered by the private operator, so it will contribute to simplify the client's documentation works.
Disadvantage	<ul style="list-style-type: none"> • From the view of the client, it should be their obligation to supervise without a break until community will become skilled in their task. • Because the contract numbers will be certain amount (at last some 190 contracts), so when some miss-leading will be occurred in the process of the selection of caretakers and members of WUC, it would be possible to have some risks for causing unfairness between community members. 	<ul style="list-style-type: none"> • Because selection and to assign those caretakers who are their employee and, the process will be completely handled by private operators own responsibility, there is possibility that employees are not Malakal citizens, to come from another place. • In this case, the community is not only able to take any action, but also there could be any conflict between service provider and community who are dissatisfied with a series of his action. That will affect on the client and makes client to spend labor for settling the situation. • Then, the population has some risk not to use the stable water from the public water stand.
Evaluation	<p>△ Clients will be required to follow up the management body carefully until they are getting enough skills on the water supply service provision.</p> <p>As for contract (documentation work), it could be simplify with establish the Umbrella organization of WUC at each Payam level. The client will conclude the unification agreement with each Umbrella organization, and then Umbrella makes each contract between caretakers.</p>	<p>△△ The most crucial risk is the population would not select the safe and stable water from public water stand, and this risk absolutely needs to be avoided. In order to avoid the risk, the client must develop his capacity concerning the settlement of conflict, the regulation with any other issues including manners of negotiation and reinforcement of personnel arrangement.</p>
Water selling price	Water selling price shall be decided by the mutual agreement between community and WUC, under the guidance of SSUWC-Malakal.	Under the guidance of SSUWC-Malakal, the private operator will decide selling price.
Advantage	<ul style="list-style-type: none"> • Because water supply service would have much more tendency as a public service, so that could be possible to secure the cheaper selling price. • After the completion of this Project in year 2017 when the water supply service in Malakal Town will be integrated with 	<ul style="list-style-type: none"> • SSUWC-Malakal, or Upper Nile State Government, who is the client, could leave the private contractor to set the selling price at his or her own responsibility under the client's supervision.

Factor	Water Users Committee	Private Operator
	<p>providing through individual connection and by those public water stands, it could be possible to preserve the well-balanced selling price between two supply scheme.</p> <ul style="list-style-type: none"> When it would be needed to revise the selling price to the population, the process of consultation with and to obtain the agreement from water users is to be an important condition. 	
Disadvantage	<ul style="list-style-type: none"> From the view of the client, it should be their obligation to supervise without a break until community will become skilled in their task. 	<ul style="list-style-type: none"> There is a risk of having un-reasonable selling price, when the private operator has an exclusive marketing in Malakal Town. If the selling price will be an unreasonable price (will cost much higher than affordable price of population in Malakal Town), there will be high risk that; users are not going to select (use) the safe and stable water from the water supply facilities.
Evaluation	<p>○ Participation of the Malakal Town's population (users) to set up the water selling price could make sure the population' responsibilities on the water supply service. Then ownership of the population could contribute to improve the ratio of collecting water fee.</p>	<p>△△ The most crucial risk is the population would not select the safe and stable water from public water stand, and this risk absolutely needs to be avoided. In order to avoid the risk, the client must develop his capacity concerning the settlement of conflict, the regulation with any other issues including manners of negotiation and reinforcement of personnel arrangement.</p>
General evaluation	<p><Propose ○> Introduction of faire share of public property and reasonable distribution of public service could contribute to build up the nation that keeps its peace as well as not going back to a disturbance. Also, to tie population to each other by a community ownership to make them selves as a mother body of local development is an important aspect in order to implement future program. Through the water supply service that is urgently required for the life of Malakal Town's population, to establish the local development body, and to strengthen the bond between the communities, those are the important factors for the sustainable development in Malakal Town.</p>	<p><Shelve> South Sudan Government is under consideration to introduction of Public-Private Partnership, then the privatization of the water supply and sanitation service. So as for the near future project, it is strongly required to make a constructive consideration on private sectors participation. However, in this Project, it is shelved to introduce of private sector participation especially in the Operation and Maintenance of newly installed water supply facilities. Those are the reason; the legal framework and regulation setting is at a temporary standstill not only by the Upper Nile State Government, but also by the Central Government; the number of candidates of private operator in Malakal Town is very little and hardly make short list to do tender process.</p>

11.3 Application of the Private Sector at the End Water Supply Facilities

1) Water Users Committee

Those are the staff's organization and duties of the Water Users Committee.

Table 11-2 Composition of Water Users Committee

Staffs	Person	Duties
<Management Committee> President (Chair person) Treasure / Secretary Member	1 1 1	<ul style="list-style-type: none"> To support the conclusion of the agreement and to supervise for the Caretakers (Operator and Collector) in order to distribute safe and stable water to the population. To supervise those existing private sector such as water vendors in order to make sure the water selling price is reasonable without seeking unreasonable profit by private sector. To sensitize the population in order to make water supply activities smooth and efficient at the Kiosk, and to avoid some conflict between the population. To provide some promotion activities for improving the environmental hygiene through water and sanitation issues. To promote the preventive maintenance for water supply facilities. To manage to expense for some repair on water supply facilities
<Caretakers > Operator Collector	1 1	<ul style="list-style-type: none"> To Operate and to manage the water supply facilities (Kiosk, water tanker filling station), daily maintenance, monitoring and record keeping. To collect water fee at the water supply facilities, book keeping

The members of Management Body in the above table will be selected as the representatives of the area / community, expected to work on a voluntary basis. At the Kiosk and conventional public stand two caretakers will be selected and the water tanker filling station needs one caretaker. Each caretaker will be a wage worker. As for the management body consists of three members, if we came to the conclusion that the selection of three members at each 200 meter (at each Kiosk) would be got into difficulties after getting started this Project, it could be possible to establish an Association body (Umbrella or Board of Water User's Committee) at each Payam level which composed by three representatives of Boma or area.

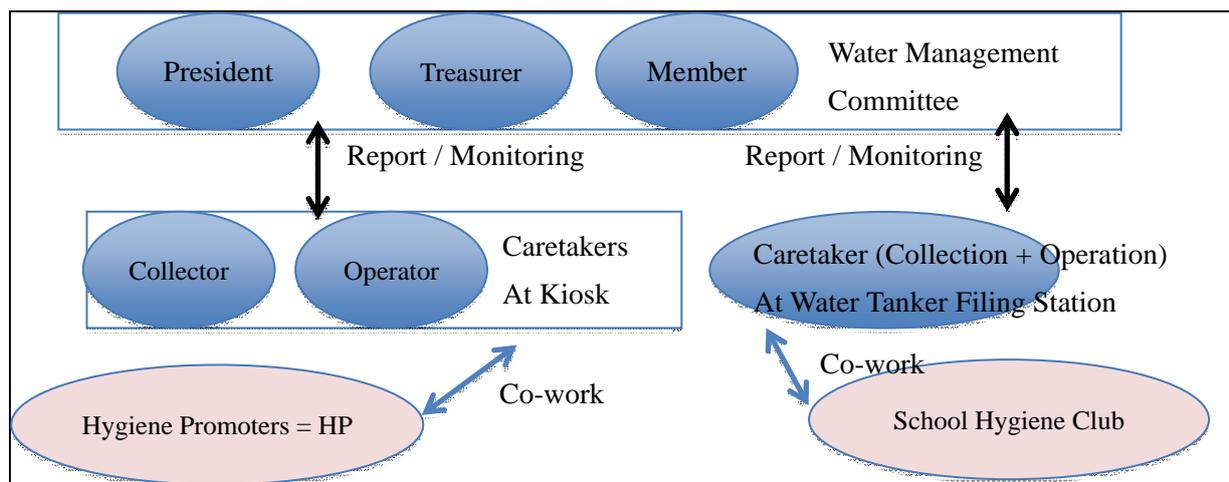


Figure 11-1 Composition of Water Users Committee
(In case of caretaker at water tanker filling station is selected separately)

11.4 Umbrella or Board of Water Users Committee

(Umbrella or Bard of Water User’s Committee or Water Users Association: WUA)

In this Project, establishment of Umbrella or Board of Water Users Committee, which will act as a bridge organization between SSUWC-Malakal and management bodies at the Kiosk (Water Users Committee), is to be proposed. This Umbrella is one of management organization that would be established, as a pilot case in the framework of JICA’s Urgent Support Project in M/P. Umbrella would have the function of centralized management for the numbers of Kiosks that would be constructed widespread in Malakal Town, by the area or local community. To reduce the documentation process of SSUWC-Malakal, to bring about a self-direction of the population, and to establish a good relationship between local society and local government are the aims of introduction of Umbrella in Malakal Town. The basic idea of the Umbrella establishment is as follows.

Table 11-3 Basic Idea of the Umbrella Establishment

Basis of the establishment	At a Payam level that is the division of a local government in Malakal Town
Establishment manner	Each Water Users Committee will be the members, and from Management Committees (the voluntary staffs) would be organized at each water point, shall be selected as a Bureau members of the Umbrella.
Composition of Bureau of Umbrella	Three staffs of President, Accounting Supporter, and Secretary will basically compose the Bureau.
Selection manner of Bureau	Those members will be approved by General Assembly that will be organized by the Boma chef, the Chair of Payam and those representatives of the community at each Payam.
Management cost	Membership fee by the Water Users Committee will cover the management cost
Monitoring and Support	General Assembly that will be organized by the Boma chef, the Chair of Payam and those representatives of the community at each Payam will monitor and support those activities.
Main duties	<ul style="list-style-type: none"> • Support for the Water Users Committee’s operation and maintenance activities • Function as a bridge between SSUWC-Malakal and a local society (community) • Reduce of the contract documentation duties of SSUWC-Malakal with unified conclusion of service provision agreement between caretakers at the public water stands and SSUWC-Malakal. • In case of one Water Users Committee takes care of more than one public water stands, support for the operation and maintenance activities for that Water Users Committee • Monitor and supervise those activities done by each Water Users Committee and existing water vendors in Malakal Town, in order to secure their reasonable water distribution to the communities.

11.5 Appointment of Water Users Committee

As of the comparison in above Chapter 11.2, and result of social condition survey implemented in September 2013 in the framework of ” Preparatory Survey for Grant Aid Project”, entrust-contract with individuals (in other words, with representatives or selected person by the community) through the Water Service Committee as a caretaker is the most suitable way to operate and to maintain the public water stand.

12. Payment and Collection of the Water Fee

Based on the introducing of the ring-fence system, also to take the adjustment with the future project by the Japan's Grant Aid Project, those are the principle for water fee payment and collection as stated below as of the planning stage.

1) Application of the volumetric system

SSUWC-Malakal collects the water fee based on the fixed tariff according to the pipe's diameter of each private connection. In this Project, unit water rate is calculated based on the water fee's collection by volumetric system (for example as a unit rate for one 20 little Jerri can), separated from existing fixed rate which is a bad expense recovery, on the premise of the introduction of ring-fenced system. The Project aims at smooth operation and maintenance being continued by collecting this water fee appropriately.

Specifically, SSUWC-Malakal shall issue the water bill according to the water consumption rate, which will be grasped by the water meter installed at each public water stand. Each public water stand's caretaker will pay the water fee according to the bill. By the context of the Project, volumetric system is to be defined as the water fee collecting system based on the multiple calculations with the unit rate and water consumption volume. Increasing-Block Tariff or Decreasing-Block Tariff, in those system unit rate will be increased or decreased according to the water consumption, shall not be applied.

2) Manners of water fee payment

During this survey, those two of manners as cash payment and token (substitute money) payment at the public water stand have been examined. For this time, token payment is proposed as a pilot case.

Table 12-1 Manners of the Water Fee Payment

Comparison	Cash	Token system (substitute money)
Advantages	Payment will be done by the same value, so operation could be very simplified.	<ul style="list-style-type: none"> Water proofed materials It will be easy to grasp the sold water amount by the caretakers, because of those words like "20 little" or "1 Jerri can" will be written on the surface of token. It could contribute to know the spilled water and un-paid water amount with meter reading result.
Disadvantages	<ul style="list-style-type: none"> In South Sudan, there circulate only South Sudan Pond notes, so that notes could be wet around the water point, and there is possibility with difficult handling. Bookkeeping would become complicated because the cash will be circulated at the place of water provision. It could be a reason of the incorrect bookkeeping. 	<ul style="list-style-type: none"> Population in Malakal Town is not familiar with the substitute money using, and with the proto type design the fear of intended loose, mischievous, or miss treating are identified. In the previous chapter 3, as of "Laws of South Sudan, Public Financial Management and Accountability Act, 2011", it is stated that South Sudan Pond is only one currency that could be used. So, SSUWC-Malakal could not treat this token directly.

Comparison	Cash		Token system (substitute money)	
			<ul style="list-style-type: none"> For proper using this substitute money, it will be required to have some layer as setting up the mother body of water users committee at Payam level, (For example Umbrella organization, as of Chapter 11.4), then umbrella will be a teller of Token. It could have a possibility of being complicated. 	
Result	—	In case of the deficiency occurs with the interlocation of Token system, and at the planning stage of future Grant Aid Project, the cash payment will be examined again.	○	Token will be introduced as a pilot.

3) Payment method when a water fee became cheaper (Reference information)

Based on this examination result, further survey has been done concerning the introduction of Account Book System for water fee collecting through Preparatory Survey for the Japan's Grant Aid project. Those are the reference information based on the Preparatory Survey results.

In the JICA's USP M/P, originally token system was to be planned to introduce in Malakal Town as a pilot case, in order to reduce some risks to handle the good amount of cash at the onsite of water providing point. (Token is a substitute coin, which could be only used for obtaining safe water from installed water supply system). Because of the water supply amount is limited, planned water supply facilities is small scale, the setting water fee (selling price) was compelled to be much higher as range of SSP1 or SSP2. Though with the grace of this higher water fee setting, it was easy to select the token as a pilot case, because the minimum circulating note unit is still SSP 1 in South Sudan (there is no intermediate unit such as equal as SSP 0.1), moreover precise unit price makes simple account process at each water distribution point. Therefore this idea did not create a complexity to apply in the USP M/P, although there were some considerations made between stakeholders.

However, as a result of implementing of this Project, water fee would be cheaper than as of the JICA's USP M/P by the water supply scale will be much wider covering whole Malakal Town.

On the other hand, as it was mentioned above, circulating note is limited so that the water-providing unit is not suitable for by one Jerri-can. By the result of consideration on this issue with two alternatives as stated blow, it is proposed to apply an "Account book system", that is an advantageous way to sustainability and to preparation cost in this Project. The other alternative as introducing Ticket system was taken into consideration as stated below.

Table 12-2 Comparison of the Manners of Water Selling at the Water Providing Point

Item	Ticket system	Account book system
Manner	Ticket books will be issued in the manner (numbers of tickets) for making ease to purchase by population with circulating note unit.	Record the amount of distributing water (numbers of Jerri-can) at fetching time. When the amount corresponds to the circulation note unit, users will pay to the caretakers.
Issue	SSUWC-Malakal or Upper Nile State Government	Account books shall be approved by SSUWC or Upper Nile State Government
Mediator	Purchase through Umbrella at Payam or Water Users Committee	Obtaining approval will be mediated by Umbrella at Payam
How to obtain	Population (Users) purchases the Ticket books according to the selling price.	The Users will prepare account books.
Use at water provision	Water users will exchange the ticket to the water at the water point.	Water users (or caretakers) will record the water amount.
Introducing example	Users will purchase for the tickets of SSP 96 for the 500 Jerri-cans (*), or of SSP 182 for the 100 Jerri-cans from Water Users Committee or caretakers. Community population will exchange adequately the ticket to the water.	According to the record, when users obtain the 100 Jerri-cans (*), pay for SSP 182, or 50 Jerri-cans for SSP 96 to caretakers. After payment, both of caretakers and users shall take it in their notes.
Advantage	<ul style="list-style-type: none"> It could be possible to apply the same selling price at all over the water distribution point. With this system, the water fee shall be collect in advance, so that unpaid shall be avoided. 	<ul style="list-style-type: none"> It could be possible to apply the same selling price at all over the water distribution point. It could be understand the households' water usage tendency (fluctuating with the season, water fee payment amount per day) according to the book keeping activity by the household itself.
Disadvantage	<ul style="list-style-type: none"> There are some risks to have in-justice such as the circulation of the fake copy, and irregular issues of tickets. Week against water, or when the waterproof materials will be used, the cost shall be much higher. 	<ul style="list-style-type: none"> There is a risk to have some users' unpaid because of the deferred payment. There is some risk to take much longer time to obtain the water at the Kiosk because of the book keeping.

(*) In this Project, water-selling price to the household users at the Kiosk is to be calculated as SSP9.6/m³, nearly equal as of 50 Jerri-cans of water. Those above two case marked (*) take same selling price. Calculation was done in January 2014.

13. Consideration from Findings

13.1 Possibilities of Private Sector Participation

In the existing higher policy and legal framework, as of Water Policy, WASH Strategic Framework, Local Government Act, the private participation into public service sector is encouraged. However none of the official documents states the roles and responsibility of the private company, how to supervise them, regulation nor punishment. In addition, the current Upper Nile State could not but define the private sector as the informal sector. After the Water Bill enacts, system design will be advanced and necessary clauses are stipulated, then reliable service with transparency would be

obliged. In addition, SUWASA and DUWSS had already started their pilot trial, so that there must be a possibility to have private appointment for whole the water supply service.

13.2 Beneficiaries Participation in the Public Service Delivery

But as it is sated in the chapter 7, 7.3, residents of Malakal Town lead their life rooted in their community and Boma. When the business or project starts with treating the public goods such as water supply facilities or water resource, it would be desirable to have some rooms for intervention from Payam administrator, Boma chief, community representatives, or leaders who are meditators between the population and local government or the project implementers.

Malakal Towns population desires the accountability of the local authority and to participate into the project in order to secure the transparency of the public service delivery such as water supply service, as it because the population have big un satisfaction against the Upper Nile State government, as well as to the Malakal Town Council concerning un improvement of social infrastructure and economic condition. Furthermore, in the target area, population strongly aware the inside and the outside of their society, for example, there is some risks for having conflict between the community members and public water stand caretakers who are assigned from the outside of the community. So to say, the cause of the conflict against members should be removed by the monitoring and mutual understanding of the community; it is required to create a mechanism for interposition of the local administrative with consideration to retain the cause at the indication stage.

From the social condition view, at least the public water stand would be operated by the caretakers through water service committee formed by the community representatives, under support from local government and mutual assistance and monitoring by the community. Those caretakers selected by the community members will provide the water supply service according to the work regulation settled by the community themselves. Public service provision to the community is the most appropriate way for the current Malakal Town.

13.3 Water Purification and Distribution

In the same way, water production and distribution portion shall secure the transparency, avoid the corruption and injustice, and prevent from the pursuit excessive profit as much as possible. It is desirable to provide the service in a manner of facilitating the beneficially participation. In addition, there would come the Japan's Grant Aid project for improving the water supply in Malakal Town. So, the duration of the water supply service provision by the newly installed facilities in this Project is limited; until the completion of rehabilitation and extension of the existing purification plant and installation of water distribution and supply system of SSUWC-Malakal in whole Malakal Town.

In the Grant Aid Project, firstly to secure the water production amount with rehabilitation of existing facilities with limited funds, to achieve at the improvement of the water supply conditions

in the Malakal Town by delivering the precious resources equally at the public water stand. At the first stage of the development, there is the importance of the secure the publicness and the local authority is required to intervene actively in equitable distribution of the resources, so that there is a validity of the support for capacity development of SSUWC-Malakal in order to expect their active participation, as a Government Corporation.

13.4 Problem about Water Supply, Examination and Coping Method

Those two types of issues concerning un payment from the actual situation of Malakal Town are anticipated.

Issue 1

Some population do not select the safe and stable water produced by the purification plant, continue to fetch the low water from Nile river. Remaining those kind of population who use unsafe water without any payment will be one of big issues to be considered.

【Countermeasure 1】

Town profile survey, Boma profile survey as well as social condition survey executed in Malakal Town led a result that water supply is the most important issue for infrastructure development for the population. But most of the populations do not have the cash income. In order to sustain the water supply facilities, recurrent cost recovery is the important condition. So, there is needed to have behavior change among the population to select and have safe water with payment of compensation, instead of low water by the household members labor. As for the continuation phenomenon of the low water use after completion of the water supply facility construction, it depends on how much the population become aware the importance and value of the produced water. That information concerning how contributes the constructed water supply facilities and safe water to the community development, as well as the benefit brought to the community by the sustainable water service provision by the facilities will contribute to the actively safe water use. So, not only through providing the hygiene promotion from the view of the health care, but also through providing the social marketing aiming at the social development, to value the safe water as a countermeasure of this issue is required.

Issue 2-1

Second is the problem of Fee Rider. A Free Rider (in economic definition) refers to someone who benefits from resources, public goods (non-excludable), or services without paying for the cost of the benefit.

【Countermeasure 2-1】

Free rider problem will be easy to occur in the area or field where the resources, benefit and users are physically and mentally exist near by. However, as for the water provision by water supply

facilities¹⁷, if some one would like to do the free ride, it is required to demolish or to take away this engineering, or cheating from the care taker of this engineering, doing some attack, causes the argument with neighboring population or any various acts, then it takes some time and labor hood. In order to prevent the vandalism of human relations and facilities, to share those two social norms among the population is important. One is the importance of water supply facilities which will help the local development and the other is the realizing the importance of limited resources cooperate management through the human solidarity for the development of local society. It is desirable to maintain the environment that can be realized to secure the publicness and public interest by the self-act between inhabitants through the steady sensitizing activity.

Issue 2-2

As the free rider problem above mentioned in the water supply project is as follows. When the water supply facility construction project is implemented, establishment of the water users committee by the membership and to establish the reserve fund by the members sometimes to be a condition of the starting construction work. There would be someone like free rider when the project takes the approach to start the construction work with 80% members' payment for their reserve fund. The advantages of the establishment of water users committee with obtaining the membership are stated as follows. In case of the ground water source is limited in a target area, then it would be difficult to expect the sufficient water volume. When the user number is limited, it becomes relatively easy to anticipate use quantity of water. It helps efficient water supply planning as well as to protect the water resource. In addition to the water use, it could be possible to be a mother body for other economic or production activities, also if objectivity and publicness last it becomes able to find common profit of the region and the community. But the water user committee would contribute the water resources protection through the appropriate usage of water with managing of the technology for water use as a public goods rather than direct water resources management. On the other hand, water issue is the matter of life and death so there works the inability of exclusion keenly. That is why there creates the situation easily where those people could receive the water supply without any membership. Those populations are not counted as official members without payment of reserve fund (besides some limited payment). Further if the committee becomes not to keep objectivity and publicness, or not to secure the transparency, or not to pursuit community's common benefit, it could be transferred to the aggregate, which the free rider is easy to belong, and to pursuit of personal profit only.

¹⁷ According to Mr. Nakaniwa, stated the problem of the management technology of the common resource as follows. The issues concerning the common resources is mainly examined by the consideration of the primary products such as forest and fishing area, where the common resources exist near by the users. In this case, there is simple technology (such as tools) among the resource, the supply and the use, but it was not taken as a serious problem that the simple technology threatened the reproduction of resources. However, the resources supply and users became to have the distance in space and time, both of them affected on each other's. For example, when the user utilizes water resource through borehole and piped water supply facilities, those technical interposition affect on the method of use, or on the users action, or user's recognition of natural resources. History of urban water supply as the technology for methods of the common resource use: from those case study in Tokyo metropolitan and Kanagawa prefecture, September 2004, Mitsuhiko Nakaniwa of Mitsukan Water Culture Center

【Countermeasures 2-2】

In Malakal Town, the population is rapidly growth so that there is required to respond as quickly as possible to the basic human needs. It will take long time to satisfy mentally of each person's demand and to ensure the quality and quantity of water supply. But through this Project, Upper Nile State and Malakal Town Council as well as SSUWC-Malakal desire the equal purified water distribution to the populations as much as possible.

So that in this Project, it is rather desirable to deal with the introduction of resources protection type by promotion of efficient usage of limited resources, than to make limitation and distinction of user by the membership prescription and, the restrained water supply amount as a result of limitation of the user numbers. Specifically, to establish the appropriate amount use of safe water by the payment compensation under own monitoring of the community.

Water users committee that was originally planned in this Project will be established for operation and maintenance aiming at management of the limited resources within the community and local area, to enable to sustainable use of public goods. First of all, start with the safe water usage by the population putting focus on water saving and water resource protection, if there will be a surplus in the future, the possibility to start any small economic activities with water use, (such as small agriculture or dyeing) among community. When the time comes, water user committee could be transferred to cooperative association then pursuits the public interest in their local area. If the good size of development chance comes into the area, that association could be the basic mother organization of the area development. Establishment of water user committee in Malakal Town is appropriate and suitable for the actual its development stage.

14. Conclusion

The operation system for the small scale water supply system which will be installed in this Project shall be proposed as a latest one as Option 6 with using PPP operation, based on the Option 5 stated in Table 8-3 “Alternative Operation System for Each Facilities in this Project”. Details are stated in the Table 14-1.

Table 14-1 Operation System Proposed in this Project

Operation System	Option 5	Option 6 (Latest Proposition)
	Limited SSUWC Operation with Private Sector	PPP Operation
Purification plant	SSUWC temporary personnel	SSUWC temporary personnel (Project Unit Staff)
Distribution system	SSUWC temporary personnel	SSUWC temporary personnel (Project Unit Staff)
Distribution by water tank trucks	Existing Water Vendor with Water Tank Trucks	Existing Water Vendor with Water Tank Trucks or SSUWC temporary personnel (Project Unit Staff)
Water service point	Care takers at public water stand (kiosk)	Care takers (work under Water User Committee and Umbrella organization, under SSUWC's support)
Water meter Reading	SSUWC Staff	SSUWC temporary personnel (Project Unit Staff)
Ring-fenced financial system	=	SSUWC temporary personnel (Project Unit Staff)/ (Supervised by Umbrella and SSUWC)

15. Proposition

Those are the propositions that will embody the idea of Option 6 above stated, for the water service in Malakal Town.

15.1 Water Supply Facilities Operation

The small scale water supply unit centered with unit type treatment plant shall be operated by the Project Unit which will be established under SSUWC-Malakal with this Project's framework. The temporary personnel required would be hired under the Project; those Project staffs form the Project Unit that will be unified by the Project Unit Leader, selected among the Project staffs. SSUWC-Malakal leads and supervises all the operation activities by the Project Unit; they will conduct their service with financial ring-fenced system.

15.2 Water Tank Truck Operation

In the next planned project, existing water supply facilities in Malakal Town will be rehabilitated and extended; the pipeline inside Town also will be improved. Therefore, water tanker trucks that are procured by this Project would not perform their planned function as distribution equipment after the next planned project implementation, then they will be expected as emergency stand-by equipment. By these conditions, participation of those existing technicians or mechanics for vehicle operation and maintenance shall be much efficient than establishing a new water tank truck section in SSUWC-Malakal. For example, existing water tanker truck drivers and mechanics shall be incorporated into the Project unit with a time limited full-time-working contract. It might be possible to start water supply service smoothly in an expected early stage, if the period of the training and the initial instruction could be shortened by appointment of some experience and capable personnel required.

15.3 Reading Water Meter

From the point of view of financial ring-fenced system, it is desirable for a project unit to support the water meter reading by itself but at the same time, it is also proposed that under the attendance of the SSUWC staff in a constant cycle including several once a month.

15.4 Operation Structural Plan

1) SSUWC Temporary Staff

As it was stated in Chapter 3, 3.2.3), there are some difficulties and it will take over one fiscal year for making the process of the regular staffs employment in SSUWC-Malakal. Moreover, because the Project lacks those information on legal matter of labor and employment, so that further survey is strongly required even the temporarily staffs' recruitment. Then at first, it is suggested that the

water supply operation starts by the temporary personnel required in the framework of the Project in this time. SSUWC-Malakal and UNS require the technical corporation for all the process and manners of the employment.

2) Project Unit

Fixing eyes on a tide and the future of the decentralization of the water supply and sanitation sector, the Project unit will be organized as a mother body of Project temporally staff's activity, based on the witness of UNS MoPI&RD, under SSUWC-Malakal.

3) Project Unit Leader and his selection

The selection of the leader will be adopted an open call for participants system at the time of application for the project staffs.

4) Responsibilities of Project Unit Leader

Project unit leader will be responsible particularly for unifying the operation of small-scale water supply facilities through the collaboration with SSUWC-Malakal.

5) Other correspondence necessary matter

- Study on the labor law shall be continued during the temporary staffs are working. With using project time frame, the Project will discuss on those issues of working condition, form of contract, duration, contents of the contract SSUWC-HQ, SSUWC-Malakal and UNS in order to establish appropriate working system of project staffs.
- All the necessary technical training concerning operation and maintenance of purification plant and distribution facilities will be provided to all the project staffs depending on the type of work, as planned.
- Water users committee and umbrella organization will be established with technical assistance by the Project. All the necessary technical training will be provided to those members.

6) Roles of SSUWC-Malakal

Through this Project, SSUWC-Malakal will be expected to develop its capacity of the water supply management. As for the training series stated in the above 5), every potential staff shall participate in as supervisory organization.

16. Others

16.1 References

"Operation and Maintenance of Rural water supply and sanitation systems; a training package for managers and planners"

Prepared by Francois Brikke, World Health Organization, Geneva, Switzerland, 2000

"Approaches to Private Participation in Water Service; A tool kit"

International Bank for Reconstruction and Development / The World Bank, 2006

"Public Private Partnerships and the Poor; Private Sector Participation and the Poor 1 - Strategy"

Water, Engineering and Development Centre (WEDC), Loughborough University, UK, 2002

"Guide to Ring-Fencing of Local Government-Run Water Utilities"

Water and Sanitation Program - East Asia and the Pacific (WSP-EAP), The World Bank, February 2009

"Promotion of Cooperatives Recommendation, 2002 (No.193)" – Recommendation concerning Promotion of Cooperatives, Adoption: Geneva, 90th ILC Session (20 Jun 2002), International Labor Organization (ILO)

"De l'eau potable à prix abordable"

Henri SMETS Académie de l'Eau, 2009

<Reference in Japanese language: Each title is translated by project team if there is no translation>

"Guideline on the contract for benefit on third parties" 2005, Water Supply Division, Health Service Bureau, The Ministry of Health, Labor and Welfare

"Khokyo-sei ni tsuite - About Public and Common " Hiroshi Murakami, Ritsumeikan Hogaku, No. 316, June 2007

"Publicness" Junichi SAITO, Iwanami Shoten, March 2000

"Lean from Africa" edit by Yoichi MINE, Shinichi Takeuchi, Yuichi SASAOKK, Yuhikaku, September 2001

16.2 Annex

Interview sheet for Service Provider survey Annex 1

Operation and Maintenance Factsheet (materials for discussion with private sector) Annex 2



Japan International Cooperation Agency

The Project for Comprehensive Planning and Support for Urgent Development on Social Economic Infrastructure in Malakal Town

Private Operators Survey
Interviewee: Name _____
Title _____
Tel _____
E-mail _____

1. Specie

a) Private Company b) Juridical Corporation c) NGO d) Association e) Individual

2. Name

3. Legal Status

4. Registration Number,

5. Established date and year

6. Physical Address

7. Account holding bank

8. Type of Industry / expertise

9. Structure of Corporation _____

Interview Date & by _____



Japan International Cooperation Agency

The Project for Comprehensive Planning and Support for Urgent Development on Social Economic Infrastructure in Malakal Town

10. Number of Staffs _____

11. Technical _____

12. Administrative _____

13. Qualification of Staffs

Technical qualification	Number
Administrative qualification	Number

14. Financial status _____

15. Capital _____

16. Approximately Annual Gross Sales _____

17. If possible each 3years (2010, 2011, 2012)

18. Tools and Materials earned by Cooperation

19. Experience

Interview Date & by _____



Japan International Cooperation Agency

The Project for Comprehensive Planning and Support for Urgent Development on Social Economic Infrastructure in Malakal Town

20. EXPLANATION OF WHAT WE NEED for the OPERATION / Question and Answer

21. Understanding for the Project Contents Deep / Superficial / Non

22. Knowledge about Purification Yes / No

23. Willingness for Operation Yes => 24 / No

24. Starting operation fund
About how much could you secure for this Operation?

25. Other Observation

End of this document

Interview Date & by _____

Water supply by small scale purification plant unit in Malakal Town

O & M FACT SHEET

Water Purification Plant

1. Brief description of technology

At the purification plant (package type water treatment plant =WTP) raw water from Nile River shall be treated and purified in order to provide safe stable drinking water to Malakal town population. Because of the served population will be 6,000 and this project will stay Urgent Support Project stage, the purification plant is designed and will be constructed as a small unit type.

The contents of the facilities are as follows;

- Type of Raw Water: Nile river water
- Water quality: for drinking within WHO standard
- Production capacity: 150m³/day
- Operation hour: 12 hours per day powered by generator with diesel engine
- Water quality analysis laboratory

2. Treatment technology (process)

From Floating intake => Coagulation and Sedimentation=> Sand filtration=> Activated carbon filtration=> Chlorine disinfection

3. Description of O&M aspects

(a) Operation

Well-trained staffs must operate purification plant. Every facility has its own typical operating instructions. Before starting, all conditions must be checked fairly. During operation, the engine fuel level, dosing quantity of chlorine, and all the procedure of filtration, functioning of pumps and generator must be checked as well as distribution water pressure and amount. Produced water quality shall be checked regularly. All of the operation data shall be kept in logbook.

(b) Maintenance

Everyday maintenance as cleaning or adjusting regularly has to be done by staffs. Corrosion shall be checked annually or more frequently. Filtration agents shall be well kept inside the stockyard. Maintain good quantity in order to avoid run off those chemicals.

(c) Organizational aspects

Usually the Public-service structure (as SSWUC) shall be appointed to carry out these tasks. Also, private sector (some private operators and companies) could be appointed by the name of Local authority (in this time, Upper Nile State Government) and carry the job under the supervision of public-service structure (SSUWC) after obtaining the authorization of water production from Local Government and Public service structure based on the selection procedure.

4. O&M requirements

Water supply by small scale purification plant unit in Malakal Town

Activity	Frequency	Human resources	Materials, tools and equipment
Chemical dosing, disinfection, back-washing, generator operation, pump operation	Daily	Local	-
Water quality analysis	Daily	Local	Water quality analysis kit
Daily inspection	Daily	Local	-
Record of daily operating log	Daily	Local	logbook
Daily report	Daily	Local	-
Order of fuel	Occasionally	Local	Fuel
Small repair	Occasionally	Local	Some small tools

5. Actors implied and skills required in O&M

Actor	Role	Skills
Manager	To manage all activities in the plant	Qualified background
Plant operator	To operate purification plant in order to provide drinking water, clean site, perform small repairs	Good knowledge of water production and provision. Skills of water purification, some knowledge of plumber, keeping log (English knowledge is preferable)

6. Recurrent costs

Recurrent costs for daily maintenance of the water purification plant will be consisted of labour cost, fuel, chemical and some small repair.

7. Problems, limitations and remarks

- Frequent problems: if the staffs are not trained or not having knowledge, insufficient maintenance due to ignorance of appropriate way of operation. Because of bad maintenance, system broken down or serious damage on purification unit.
- Limitations: High fuel and chlorination cost and difficulty to get those because of long distance from Juba. The same limitation will be on the purification agents.
- Remarks: local resources shall be well used for operation and maintenance.

Water supply by small scale purification plant unit in Malakal Town

O & M FACT SHEET

Water transmission

1. Brief description of technology

After the water purification, basically produced water shall be transmitted by main pipeline. Also water tanker will conduct the safe and stable water from purification plant to water point (public water stand, public faucet, kiosk) for water users convenience.

2. Medium of transmission

Pipeline

Water tanker (5m³) mounted on the vehicle

3. Description of O&M aspects

(a) Operation

- Pipeline: everyday operation for keeping good water pressure in order to distribute for every water stand is required.
- Water tanker trucks: For distribution with water tanker trucks, everyday operation shall be kept in good manner. 3 water tankers will be used for distribution at Southern and Eastern payam. Driver (or operator) fetches water at water stand for water tanker (in the premises of purification plant), everyday and transmits to small water tank (5m³) which is installed near by public water stand.

(b) Maintenance

- Pipeline: Everyday maintenance as cleaning or checking valves, some equipment in order to avoid some leakage or grey water.
- Water tanker trucks: Daily maintenance for vehicle and equipment to avoid some irregular use or mechanical trouble. Cleaning inside of water tank, keep water quality as the produced water at purification plant itself.

(c) Organizational aspects

Usually the Public-service structure (as SSWUC) shall be appointed to carry out these tasks. Also, private sector (some private operators and companies) could be appointed by the name of Local authority (in this time, Upper Nile State Government) and carry the job under the supervision of public-service structure (SSUWC) after obtaining the authorization of water distribution from Local Government and Public service structure based on the selection procedure.

4. O&M requirements

Activity	Frequency	Human resources	Materials, tools and equipment
Checking valves and pipeline	Daily	Local	Some small tools
Daily inspection	Daily	Local	-

Water supply by small scale purification plant unit in Malakal Town

Record of daily operating log	Daily	Local	logbook
Daily report	Daily	Local	-
Order of fuel	Occasionally	Local	Fuel
Small repair	Occasionally	Local	Some small tools

5. Actors implied and skills required in O&M

Actor	Role	Skills
Drivers (operators)	To distribute drinking water checking facilities, clean site, perform small repairs	Good knowledge of water production and provision. some knowledge of plumber Skills of driving Keeping log (English knowledge is preferable)

6. Recurrent costs

Recurrent costs for daily maintenance of the water distribution will be consisted of labour cost, fuel, and some small repair.

7. Problems, limitations and remarks

- Frequent problems: if the staffs are not trained or not having good enough knowledge, insufficient maintenance due to ignorance of appropriate way of operation. Because of bad maintenance, system broken down or serious damage on pipeline or water tanker truck.
- Limitations: Especially for water tanker, high fuel and chlorination cost and difficulty to get those because of long distance from Juba.
- Remarks: local resources shall be well used for operation and maintenance.

Water supply by small scale purification plant unit in Malakal Town

O & M FACT SHEET

Public stand post (Public faucet)

1. Brief description of technology

At a public stand post or tap stand people from several households can take water from one or more taps. Because they are used by many people and are often or well taken care of, their design and construction must be study compared with domestic connections. The stand post includes a service connection to supplying water conduit, a supporting column or wall, and one or more 1.25cm taps protruding far enough from this column or wall to enable easy filling of the water containers.

The taps is a self-closing type. The column or wall may be of wood, brickwork, dry stone masonry, concrete, etc. Some stand posts have a regulating valve in the connection to the mains, which can be set the locked to limit maximum flow. A water meter may also be included. A solid stone or concrete slab or apron under the tap and a drainage system must lead spilled water away and prevent the formation of muddy pools. A fence may be needed to keep cattle, donkey or bicycle away. The residual pressure head of the water at the tap stand should preferably ratio. The location and design of public stand posts have to be determined in close collaboration with the future users and also respect to the land issues administration and technical aspect.

2. Description of O&M aspects

(a) Operation

Users clean and fill their containers at the tap. Bathing and washing of clothes is usually not permitted at the stand post itself. The tap site has to be cleaned daily and the drain inspected.

(b) Maintenance

The drain must be cleaned at least once a month. Formation of pools must be prevented at all times. Occasionally, a rubber washer or other part of a tap may have to be replaced. The fence may need repair too. Serious cracks in the structure must also be repaired, and when wood rots it must be treated or replaced. Occasionally the pipe may leak or need replacement.

(c) Organizational aspects

A caretaker (Caretakers) or tap committee may be appointed to keep the tap functioning and the surroundings clean, and to regulate the amounts of water used. The caretakers or committee may also collect the fees for water use. Sometimes water vendors fill the their tanks at public tap stands at special rates for resale to people living far away.

3. O&M requirements

Activity	Frequency	Human resources	Materials and spare parts	Tools and equipment
Tap Water	Daily	Local	-	Jar, bucket, jerrican, etc
Clean site	Daily	Local	-	Broom or brush

Water supply by small scale purification plant unit in Malakal Town

Inspect and clean drain	Daily	Local	-	Hoe, spade
Repair or replace valve	Occasionally	Local	Rubber or leather washer, gland seal, Teflon, flax, spare valve	Spanners, screw-driver, pipe wrench
Construct, Repair fence	Occasionally	Local	Wood, steel wire, nails	Machete, plies, hammer
Repair valve (faucet) stand, apron or drain	Occasionally	Local	Wood, nails cement, sand, water etc.	Hammer, saw, trowel, bucket, etc
Repair piping	Occasionally	Local	Pipe nipples, connectors, elbows etc. Teflon, flax or plumbing putty	Pipe wrench, pipe cutter, saw, pipe threaded

4. Actors implied and skills required in O&M

Actor	Role	Skills
User	Tap water, keep site clean	No special skills
Caretaker(s)	Provide water, clean site, perform small repairs, collect fee	Basic skills of daily operation and maintenance (book keeping)
Water Users Committee	Organize more major repair (order to mason or plumber), supervise the operation, check the account book, Harmonize community	Administrative, community organizing and book keeping skills
Mason	Repair tap stand and apron, kiosk hut	Masonry
Plumber	Repair piping and taps	Basing plumbing

5. Recurrent costs

Recurrent costs for the tap stand comprise a few minor repairs to the taps every year and occasional repairs to the pipes, column, wall, apron, and drain or kiosk huts.

6. Problems, limitations and remarks

- Frequent problems: Tampering, insufficient maintenance, and conflicts over use due to un faire distribution, un-agreed location of public faucet or unsolved social problems. Poor drainage, often taps are not closed correctly and even let open on purpose to irrigate a near by plot. Tap stands at the tail end of the piped scheme often have insufficient water pressure.
- Limitations: If population are willing to organize communal use and maintenance, the only limitation is the cost.
- Remarks: Special attention should be given to how the water is handled after collection at the tap stand in order to prevent subsequent contamination. The water tariff settled by water vendor shall be carefully watched in order to avoid some unfair water distribution.

Appendix A-13

Final Report for Implementation of

Urgent Development Projects

TABLE OF CONTENTS

1	Brief of Urgent Development Projects	A13-1
1.1	Contract.....	A13-1
1.2	Implementation Schedule.....	A13-2
1.3	Crisis in December 2013.....	A13-3
1.4	Contractual Consideration.....	A13-4
2	Urgent Development Project in Water Supply Sector	A13-7
2.1	Project Details	A13-7
2.2	Construction till Crisis	A13-9
2.3	Project Finalization	A13-11
2.4	Project Completion if no Crisis.....	A13-13
3	Urgent Development Project in Water Transport Sector	A13-16
3.1	Project Details	A13-16
3.2	Construction till Crisis	A13-18
3.3	Project Finalization	A13-19
3.4	Project Completion if no Crisis.....	A13-21
4	Urgent Development Project in Road Transport Sector	A13-22
4.1	Project Details	A13-22
4.2	Construction till Crisis	A13-24
4.3	Project Finalization	A13-26
4.4	Project Completion if no Crisis.....	A13-27
5	Recommendations and Lessons Learned.....	A13-29
Annex 1	Contract Documents for Water Supply Sector	
Annex 2	Termination Contract and Contractor’s Damages for Water Supply Sector	
Annex 3	Contract Documents for Water Transport Sector	
Annex 4	Termination Contract and Contractor’s Damages for Water Transport Sector	
Annex 5	Contract Documents for Road Transport Sector (Lot 1, 2 & 3)	
Annex 6	Progress Report for Road Transport Sector (Lot 1, 2 & 3)	

Note 1: As final figures in water supply sector are yet to finalize as of June end 2014, some in Section 2.2 are subject to change.

Note 2: Annexes are not included here.

Note 3: Main text and annexes will be separately submitted in later stage.

LIST OF TABLES

Table 1-1	Brief of Contract for Urgent Development Projects (1).....	A13-1
Table 1-2	Brief of Contract for Urgent Development Projects (2).....	A13-2
Table 1-3	Implementation Schedule of Urgent Development Projects	A13-3
Table 2-1	Scope of Procurement of Construction of Small-Scale Water Supply System	A13-7
Table 2-2	Schedule of Procurement of Construction of Small-Scale Water Supply System	A13-7
Table 2-3	Bill of Quantities for Procurement of Construction of Small-Scale Water Supply System.....	A13-9
Table 2-4	Contractor's Damages for Project under Water Supply Sector	A13-12
Table 2-5	Final Contractor's Damages for Project under Water Supply Sector.....	A13-13
Table 2-6	Revised Schedule of Procurement of Construction of Small-Scale Water Supply System.....	A13-15
Table 3-1	Scope of Procurement of Reconstruction and Improvement of Malakal River Port	A13-16
Table 3-2	Schedule of Procurement of Reconstruction and Improvement of Malakal River Port.....	A13-16
Table 3-3	Bill of Quantities for Procurement of Reconstruction and Improvement of Malakal River Port.....	A13-18
Table 3-4	Final Contractor's Damages for Project under Water Transport Sector.....	A13-21
Table 4-1	Scope of Community Roads Improvement Project (LBT) Lot 1, 2 and 3.....	A13-22
Table 4-2	Schedule of Community Roads Improvement Project (LBT) Lot 1, 2 and 3.....	A13-22
Table 4-3	Bill of Quantities for Community Roads Improvement Project (LBT) Lot 1, 2 and 3.....	A13-23
Table 4-4	Final Payment for Project Lot 3 under Road Transport Sector	A13-25
Table 4-5	Final Payment for Project Lot 1 and 2 under Road Transport Sector	A13-27
Table 4-6	Progress at Termination on January 8, 2014	A13-28
Table 4-7	Comparison between Original Contract and Anticipated Completion for Lot 1 & 2	A13-28

LIST OF FIGURES

Figure 1-1	Contract Formation.....	A13-1
Figure 1-2	Official Information in Japan on Crisis in South Sudan.....	A13-3
Figure 2-1	Plan Layout for Small-Scale Water Supply System	A13-8
Figure 2-2	3D-Drawing of the Water Treatment Plant (General Layout)	A13-8
Figure 2-3	Correspondences to Contractor in February 2014.....	A13-11
Figure 3-1	General Plan and Section of Cargo Jetty	A13-17
Figure 3-2	General Plan and Section of Passenger Jetty.....	A13-17
Figure 3-3	Correspondences to Contractor in February 2014.....	A13-20
Figure 4-1	Typical Cross Section of Community Roads.....	A13-23
Figure 4-2	Correspondences to Contractor in January and February 2014.....	A13-26

1 Brief of Urgent Development Projects

Five urgent development projects were planned and implemented in three sectors (water supply sector, water transport sector and road transport sector). Two different contract formations were used and shown in Figure 1-1, one of which is used for two projects in first two sectors (water supply sector and water transport sector) and the other is for three projects in road transport sector.

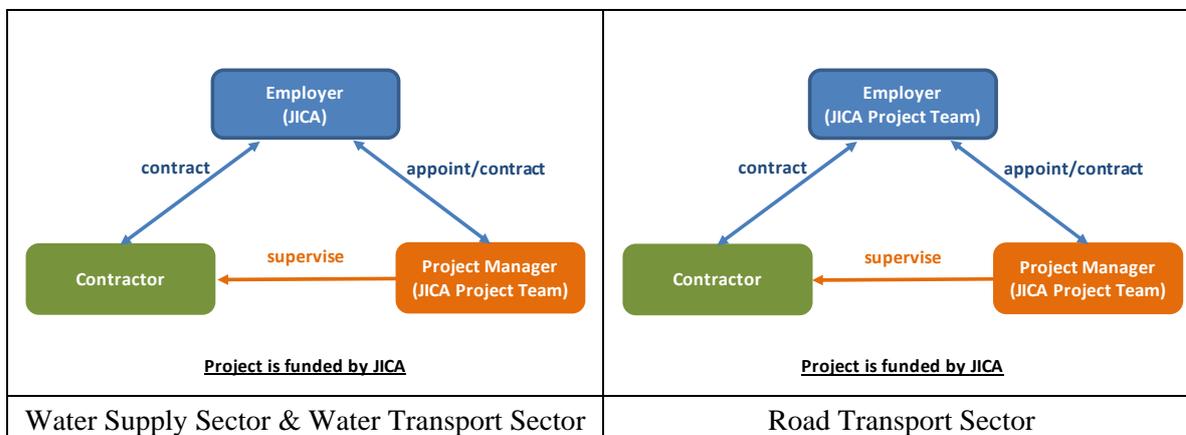


Figure 1-1 Contract Formation

1.1 Contract

Brief of the Contract in each project is described below. Although there are two kinds of contract formation as shown in Figure 1-1, contract documents are in common for all projects.

Table 1-1 Brief of Contract for Urgent Development Projects (1)

Items	Water Supply Sector	Water Transport Sector
Project Title	Procurement of Construction of Small-Scale Water Supply System in Malakal Town (No. JICA/MAL2012/WS01)	Procurement of Reconstruction and Improvement of Malakal River Port (No. JICA/MAL2012/PT02)
Employer	JICA South Sudan Office	
Project Manager	Team Leader of JICA Project Team	
Contractor	Davchem East Africa Limited (Kenya)	Tone (South Sudan) Co., Ltd. (Joint Venture Group of Tone Engineering Corporation Co., Ltd. And Tone (South Sudan) Co., Ltd.)
Date of Tender Submission	March 28, 2013	June 3, 2013
Date of Letter of Acceptance	April 9, 2013	June 10, 2013
Date of Contract Agreement	May 21, 2013	June 24, 2013
Contract Amount	USD 1,885,540.69	USD 2,292,592.50
Construction Period	May 21, 2013 to April 15, 2014 (330 days)	June 27, 2013 to May 22, 2014 (330 days)
Contract Documents	(a) Agreement (b) Any Addenda (c) Special Conditions of Contract (SCC) (d) General Conditions of Contract (GCC) (e) Specifications (f) Drawings (g) Bill of Quantities (h) Any other document	

Table 1-2 Brief of Contract for Urgent Development Projects (2)

Items	Road Transport Sector					
Project Title	Community Roads Improvement Project (LBT) Lot-1 (JICA/MAL2012/RC01)	Community Roads Improvement Project (LBT) Lot-2 (JICA/MAL2012/RC02)	Community Roads Improvement Project (LBT) Lot-3 (JICA/MAL2012/RC03)			
Employer	JICA Project Team					
Project Manager	Deputy Team Leader of JICA Project Team					
Contractor	Gengjok for Trade Services, Agriculture and Construction Co., LTD. (South Sudan)	Okuic for Engineering, Commerce & Contracting Enterprises (South Sudan)	DAMAKI General Construction Co., Ltd. (Kenya)			
Date of Tender Submission	February 26, 2013	February 26, 2013	February 26, 2013			
Date of Letter of Acceptance	March 5, 2013	March 5, 2013	March 5, 2013			
Date of Contract Agreement	March 6, 2013	March 6, 2013	March 6, 2013			
Contract Amount	USD 400,995.00	USD 414,234.00	USD 282,790.00			
Construction Period	April 15, 2013 to March 10, 2014 (330 days)	April 2, 2013 to February 25, 2014 (330 days)	April 15, 2013 to January 9, 2014 (270 days)			
Contract Documents	(a) Agreement (b) Letter of Acceptance (c) Any Addenda (d) Special Conditions of Contract (SCC) (e) General Conditions of Contract (GCC) (f) Specifications (g) Drawings (h) Bill of Quantities (i) Any other document					

It is to note that the General Conditions of Contract (GCC) and the Special Conditions of Contract (SCC) specify and govern the rights and obligations of the parties concerned, and these conditions are the same in all projects, and similar to the ones recommended by Japan International Cooperation Agency (JICA) for procurement of small works like these urgent development projects in Malakal of South Sudan.

1.2 Implementation Schedule

The five urgent development projects were supposed to implement in accordance with the schedule shown in Table 1-3. Commencement was scheduled in April to June 2013 and complete in January to May 2014, durations of which were 270 days for Community Roads Improvement Project (LBT) Lot-3 (approximately 9months) or 330 days for others (approximately 11months).

1.4 Contractual Consideration

After the occurrence of the crisis in South Sudan, the Project Manager (PM) reviewed the status of the urgent development projects and the situation of the site together with JICA representatives. In order to find out what would have to be done under such situation, PM referred the contract documents particularly the stipulations in the GCC and SCC. The followings are the findings to manage the projects in accordance with the Contract.

Stipulations in GCC and SCC	Consideration & Interpretation
<ul style="list-style-type: none"> • GCC Article 11 Employer’s Risks 11.1 From, the following are the Employer’s risks: (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer’s design, or <u>due to war</u> or radioactive contamination directly affecting the country where the Works are to be executed. • In the Conditions of Contract (Works of Civil Engineering Construction - the Red Book) published by the International Federation of Consulting Engineers (FIDIC) in 1999, the followings are defined as the Employer’s risk, such as “(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies”, “(b) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war, within the Country”, “(c) riot, commotion or disorder within the Country by persons other than the Contractor’s Personnel and other employees of the Contractor and Subcontractors” in Clause 17.3. 	<ul style="list-style-type: none"> ♦ Crushes between the Government of South Sudan and anti-government groups from the evening of December 15, 2013 were often reported in various presses as “crisis”. ♦ What happened in South Sudan is the crisis (not war) and GCC is silent about crisis. ♦ Referring Article 11 in GCC and the stipulation in FIDIC, it is reasonable to interpret that the recent crisis in South Sudan is considered the Employer’s risk.
<ul style="list-style-type: none"> • GCC Article 44 Compensation Events 44.1 The following shall be Compensation Events: (j) The effects on the Contractor of any of the Employer’s risk. 44.2 The Project Manager shall decide whether and by how much the Contract price shall be increased and whether and by how much the Intended Completion Date shall be extended. 44.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor’s forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. 	<ul style="list-style-type: none"> ♦ When additional cost was incurred, and longer time than the Contract were required by the Contractor due to the crisis (which is the Employer’s risk and therefore a compensation event), those shall be evaluated by the Project Manager upon the details submitted by the Contractor.

Stipulations in GCC and SCC	Consideration & Interpretation
<ul style="list-style-type: none"> • GCC Article 59 Termination 59.1 The Employer or the Contractor may terminate the Contract upon a fundamental breach of the Contract. 59.2 Fundamental breaches of Contract shall include the following: <ul style="list-style-type: none"> (a) the Contractor stops work for twenty-eight days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager, (b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within twenty-eight days. 59.4 The Employer may terminate the Contract for convenience. 	<ul style="list-style-type: none"> ♦ After the crisis, all experts and staff from foreign countries under JICA projects in South Sudan evacuated from the Country and the Works in the urgent development projects were effectively stopped since then. Hence at the middle of January 2014, stoppage of the works continued for a month, which may be considered to constitute fundamental breach of the Contract. ♦ Eventually, the Contract was terminated because of the Employer's convenience.
<ul style="list-style-type: none"> • GCC Article 61 Payment upon Termination 61.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payment received up to the date of the certificate. 	<ul style="list-style-type: none"> ♦ Since the crisis is the Employer's risk, the works were stopped for a month, and the Employer eventually decided the Contract be terminated for his convenience, the Contractor's damages due to the crisis shall be calculated and evaluated in accordance with Clause 2 of Article 61.
<ul style="list-style-type: none"> • GCC/SCC Article 4 Project Manager's Decisions 4.2 The Employer's specific approval is required for the extension of Completion date and/or the additional cost due to Variations. 	<ul style="list-style-type: none"> ♦ The Project Manager had to and, in fact, did consult with the Employer for evaluation of the Contractor's damages due to the crisis.
<ul style="list-style-type: none"> • GCC/SCC Article 13 Insurance The Contractor shall provide insurance cover for the following events. <ul style="list-style-type: none"> (a) Loss of or damage to the Works, Plant and Materials (b) Loss of or damage to Equipment (c) Loss of or damage to property in connection with the contract, and (d) Personal injury or death 	<ul style="list-style-type: none"> ♦ As GCC and SCC do not require the Contractor cover loss or damage due to war or war-like operation, the insurance purchased by the Contractor under the Contract was not utilized against losses or damages due to the crisis.

In summary, the crisis began on December 15, 2013 and it is considered the Employer's risk. As the crisis lasted more than 28 days, it constituted a fundamental breach of the Contract. In fact, the Employer terminated the Contract for his convenience. In either case, the provision in Clause 2 of Article 61 in GCC has to be exercised for computing the Contractor's damages due to the crisis.

The Employer, PM and the Contractors have taken the following actions toward finalization of the Contract, since the crisis began.

- 1) Urgent evacuation was requested by JICA and proceeded accordingly, soon after the crisis.
- 2) Directions (site security, report, calculation of costs incurred etc.) were given in writing by PM after consultation with JICA at the end of January or the beginning of February 2014.
- 3) Final account was requested toward termination in writing by PM after consultation with JICA in the middle of February 2014.
- 4) Discussions among the Employer, PM and the Contractors were carried out for the costs incurred by the Contractors.
- 5) Termination Contract for the Projects in water supply sector and water transport sector was signed in April 2014.
Correspondence of Final Payment and Contract Termination for Lot 1 and 2 in road transport sector was issued in May 2014.
- 6) The Contractor's damages and invoices were officially submitted together with evidences (vouchers and receipts) in April to July 2014.
- 7) PM issued payment certificate in April to July 2014.
- 8) Payment was made and the liability of the parties concerned under the Contract was discharged / released.

More details are described in Section 2 Water Supply Sector, Section 3 Water Transport Sector and Section 4 Road Transport Sector respectively.

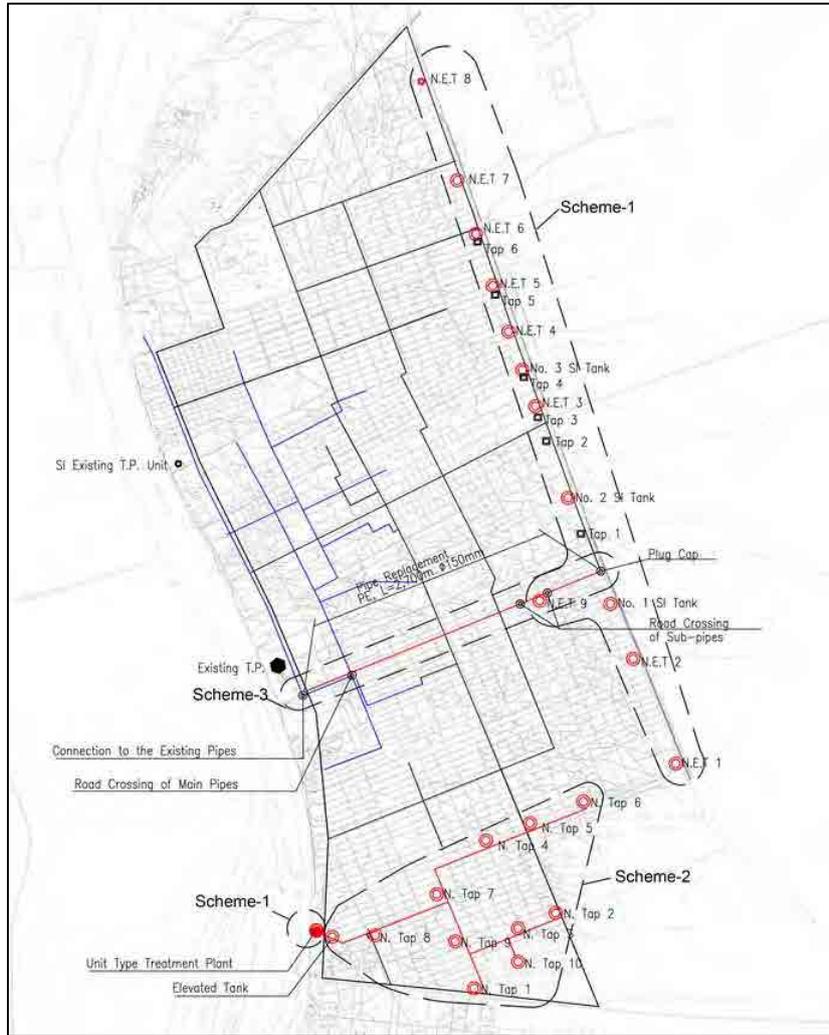


Figure 2-1 Plan Layout for Small-Scale Water Supply System



Figure 2-2 3D-Drawing of the Water Treatment Plant (General Layout)

(4) Bill of Quantities

Bill of Quantities for the Procurement of Construction of Small-Scale Water Supply System in the Contract is shown below.

**Table 2-3 Bill of Quantities
for Procurement of Construction of Small-Scale Water Supply System**

Bill of Quantities			Contract					
Item	Description		Unit	Quantity	Rate (US\$)	Amount (US\$)		
1	(A) Procurement Works	Scheme 0-1. Materials for Soft component	set	1	107,675.00	107,675.00		
2		Scheme 0-2. Laboratory materials	set	1	39,297.00	39,297.00		
3		Scheme 0-3. Chemicals, Fuel and Materials	set	1	93,589.00	93,589.00		
		Total of (A)				240,561.00		
4	(B) Construction Works	Scheme 1-1. Unit Type Treatment Plant	1	Civil and Building Works	set	1	245,260.00	245,260.00
5			2	Mechanical Works	set	1	497,168.00	497,168.00
6			3	Electrical Works	set	1	43,500.00	43,500.00
7			4	Piping Works	set	1	69,450.00	69,450.00
8			5	Overhead	set	1	40,000.00	40,000.00
9		Scheme 1-2. Small Scale Elevated Tank + Public Taps	set	1	211,880.00	211,880.00		
10		Scheme 2. Distribution Pipe+ Elevated Tank	1	Distribution Pipe	set	1	368,352.00	368,352.00
11			2	Elevated Tank	set	1	66,849.00	66,849.00
12			3	Public Taps	set	1	28,900.00	28,900.00
13			4	Piping Works	set	1	25,000.00	25,000.00
14			5	Overhead	set	1	40,000.00	40,000.00
		Total of (B)					1,636,359.00	
15		(B-1) Other Cost to facilitate	Construction insurance policy					
16			Performance bond charge					
17	Travel Cost							
	Total of (B-1)							
	(C) Total of (A) + (B) + (B-1)					1,876,920.00		
	(E) Contingency	= (C) × 0.4593%	%			8,620.69		
	(F) Charges paid							
	(G) Grand Total (G) = (C) + (E) + (F)					1,885,540.69		

More details are in the Contract Documents for the Procurement of Construction of Small-Scale Water Supply System, which are in Annex 1.

2.2 Construction till Crisis

[Main Activities in May 2013]

- ♦ The Contractor's Technical Director (TD) David N. Njenga arrived at Malakal for pre-meeting (May 9).
- ♦ Pre-site checking was conducted by the Ministry of Physical Infrastructure and Rural Development (MPI&RD), the South Sudan Urban Water Corporation (SSUWC), the Employer, the Project Manager (PM) and the Contractor (May 10 & 11).
- ♦ The Contractor prepared detailed work schedule.

[Main Activities in June 2013]

- ♦ The Contractor's TD David N. Njenga arrived at Malakal for kick-off meeting and site arrangements (June 20).

- ♦ Site for the construction of Small-scale Water Supply System was officially handed over to the Contractor (June 21).
- ♦ The Contractor started survey works on site (June 22).
- ♦ Approval of drawing & specification and procurement of materials were being processed.

[Main Activities in July 2013]

- ♦ UNICEF facilities and small shops were relocated (July 18 & 19).
- ♦ Project Signboard was installed at the Water Treatment Plant site (July 19, photo below).
- ♦ Land preparation works for the Water Treatment Plant started (July 21, photo below).
- ♦ Approval of drawing & specification, and procurement of materials were being processed.



Signboard



Land Preparation Works

[Main Activities in August 2013]

- ♦ Materials of Civil and Building Works were ordered (1st batch, August 15).
- ♦ Materials from Italy were ordered (2nd batch, August 19).
- ♦ Materials from Netherlands were ordered (2nd batch, August 25).
- ♦ Because of rainy season, site construction was temporarily stopped.
- ♦ Approval of drawing & specification, and procurement of materials were being processed.

[Main Activities in September 2013]

- ♦ Because of rainy season, site construction was temporarily stopped.
- ♦ Approval of drawing & specification, and procurement of materials were being processed.

[Main Activities in October 2013]

- ♦ Materials (1st batch for Civil and Building Works) were dispatched from Nairobi (October 7)
- ♦ Materials (1st batch for Civil and Building Works) arrived at Juba (October 24).
- ♦ Materials (1st batch for Civil and Building Works) were loaded to barge at Juba (October 25).
- ♦ Materials (2nd batch from Italy) were dispatched from Italy by ship (October 27).
- ♦ Because of rainy season, site construction was temporarily stopped.
- ♦ Approval of drawing & specification, and procurement & transportation of materials were being processed.

[Main Activities in November 2013]

- ♦ Materials (1st batch for Civil and Building Works) were dispatched from Juba port (November 20).
- ♦ Materials (2nd batch from Italy) arrived at Mombasa port (November 28).
- ♦ Procurement & transportation of materials were being processed.

[Main Activities in December 2013]

- ♦ Materials (1st batch for Civil and Building Works) arrived at Malakal (December 11).
- ♦ Temporary stockyard for materials was constructed in the Water Treatment Plant Site (December 15, photo below)
- ♦ Inspection of materials was conducted by PM (December 17, photo below).
- ♦ Site leveling works of the Water Treatment Plant started (December 18).
- ♦ After crisis, all under the Project left from Malakal in accordance with the instructions from JICA (December 21).
- ♦ Before leaving Malakal, all equipment and materials were tidied up in the Water Treatment

Plant site.

- ♦ Because of cumulative delays observed, which deemed not to be recovered, discussions in regard to the overall schedule were carried out among the parties concerned (details are stated in section 2.4).



Temporary Stockyard for Materials



Inspection of Materials

2.3 Project Finalization

After the crisis, all expatriates evacuated from Malakal and/or Juba safely before the end of December 2013. In December 2013 and January 2014, several times of discussions were held in Tokyo among JICA and PM in regard to the crisis and actions to be taken. The Contractor for water supply sector is in Kenya and communications were made through telephone and/or e-mails.

At the beginning of February 2014, JICA and PM started to recognize seriousness in conflict between the Government of South Sudan and anti-government groups and tended to consider termination of the Project. With this situation, PM after consultation with JICA issued the two correspondences to the Contractor, one of which is to direct to secure the site, submit a report of site conditions, and calculate additional costs due to the crisis and the other is to request final account with several options toward termination. These correspondences are shown in Figure 2-3 below.



Figure 2-3 Correspondences to Contractor in February 2014

After the issuance of the second correspondence in February 2014, there were numerous meetings and e-mail communications among JICA, PM and the Contractor. In the discussions, the Contractor's damages were agreed to categorize two parts, as (1) the Damages under the Implementation of Works and (2) the Damages due to the Termination. Since then, the following actions were taken and complete.

- 1) The Termination Contract in the Annex 2 was prepared and signed by the Employer (JICA) and the Contractor on April 11, 2014. Because of cash flow problem in the Contractor, vouchers and receipts (official evidences) to the Contractor's damages could not be fully prepared by the Contractor in one time. Therefore, final settlement had to be done in two times, which was stated in the Termination Contract. In addition, Juba and Malakal of South Sudan were still not accessible, and quite a few materials and equipment had been mobilized before the crisis. Therefore, those materials and equipment shall be checked, after Juba and Malakal of South Sudan become stable and dealt with either disposal or supply to the counterparts by JICA with assistance of the Contractor. This was also stipulated in the Termination Contract.
- 2) Soon after the Termination Contract was signed, the Contractor submitted the whole damages with vouchers and receipts (official evidences) in part on April 12, 2014, shown in Table 2-4 below. Total amount was still subject to change at later stage.

Table 2-4 Contractor's Damages for Project under Water Supply Sector

Items	Amount (USD)
(1) Damages under the Implementation of Works	710,310.13
(2) Damages under the Implementation of Works	156,911.57
Total	867,221.70
Amount previously Paid	143,812.00
Total Amount due	723,409.70

- 3) Upon the submission of the Contractor's damages by the Contractor, PM issued payment certificate on April 14, 2014 for the amount limited to (1) the Damages under the Implementation of Works less the amount previously paid, which was USD 566,498.13 (USD 710,310.13 – USD 143,812.00).
- 4) First payment for final settlement was made at the end of April 2014, and the Contractor started to make payment to suppliers for materials and equipment with the amount paid under the first payment. As soon as after collecting all vouchers and receipts (official evidences), the Contractor submitted the Contractor's damages with all vouchers and receipts (official evidences) in July 2014, details of which are shown below.

Table 2-5 Final Contractor's Damages for Project under Water Supply Sector

Bill of Quantities			Contract				Accumulate at Termination			
Item	Description		Unit	Quantity	Rate (US\$)	Amount (US\$)	Quantity	Amount (US\$)		
1	(A) Procurement Works	Scheme 0-1. Materials for Soft component	set	1	107,675.00	107,675.00	-	4,307.00		
2		Scheme 0-2. Laboratory materials	set	1	39,297.00	39,297.00	-	4,418.42		
3		Scheme 0-3. Chemicals, Fuel and Materials	set	1	93,589.00	93,589.00	-	1,766.78		
		Total of (A)				240,561.00		10,492.20		
4	(B) Construction Works	Scheme 1-1. Unit Type Treatment Plant	1	Civil and Building Works	set	1	245,260.00	245,260.00	-	190,797.58
5			2	Mechanical Works	set	1	497,168.00	497,168.00	-	354,092.16
6			3	Electrical Works	set	1	43,500.00	43,500.00	-	15,341.69
7			4	Piping Works	set	1	69,450.00	69,450.00	-	15,648.02
8			5	Overhead	set	1	40,000.00	40,000.00	-	26,929.82
9		Scheme 1-2. Small Scale Elevated Tank + Public Taps	set	1	211,880.00	211,880.00	-	8,475.20		
10		Scheme 2. Distribution Pipe+ Elevated Tank	1	Distribution Pipe	set	1	368,352.00	368,352.00	-	10,824.00
11			2	Elevated Tank	set	1	66,849.00	66,849.00	-	2,673.96
12			3	Public Taps	set	1	28,900.00	28,900.00	-	1,156.00
13			4	Piping Works	set	1	25,000.00	25,000.00	-	1,000.00
14	5		Overhead	set	1	40,000.00	40,000.00	-	1,280.22	
	Total of (B)				1,636,359.00		628,218.66			
15	(B-1) Other Cost to facilitate	Construction insurance policy						4,556.74		
16		Performance bond charge						15,862.53		
17		Travel Cost						51,180.00		
		Total of (B-1)						71,599.27		
	(C) Total of (A) + (B) + (B-1)					1,876,920.00		710,310.13		
	(D) Damages due to the Termination							151,825.57		
	(E) Contingency	= (C) × 0.4593%	%			8,620.69		0.00		
	(F) Charges paid							(710,310.13)		
	(G) Grand Total (G) = (C) + (D) + (E) + (F)			--	--	1,885,540.69		151,825.57		

- 5) Upon the submission of the final Contractor's damages in Annex 2, PM issued payment certificate in July 2014 for the amount of total damages less the amount previously paid, which was USD 151,825.57.
- 6) Final payment was made in July 2014, after the confirmation of the final amount by JICA and the invoice by the Contractor and whole liabilities of both parties were then released under the Contract except check and deal on materials and equipment left in Juba and Malakal by both parties when accessible. Final Contractor's damages correspond to 46 % of the original contract amount.

Annex 2 includes the Termination Contract and the Contractor's damages & photos submitted by the Contractor.

2.4 Project Completion if no Crisis

As at the beginning of December 2013, all parties recognized that the works were delayed due to several events affecting the original planning of the Project under water supply sector. Those events are summarized and analyzed in terms of construction duration hereinafter.

- (1) Late Confirmation of Land Boundaries for Installation of Unit Type Treatment Plant

Police authority requested JICA Project Team to amend the boundaries of the proposed land for the unit type treatment plant. Hence, JICA Project Team decided to change layout of the unit type treatment plant. Eventually, MPI&RD confirmed their own land for the plant and the site was handed over on June 21, 2013.

This is a delay in site possession and constitutes a compensation event (refer to Article 21 and 44 of GCC). Delay is counted 31 days (the commencement day May 21 to June 21).

(2) Late Relocation of UNICEF-Treatment Plant and Shops

MPI&RD spent long time to relocate UNICEF-Treatment Plant and the shops from the site for a new plant. The site was given on July 19 after removing all obstructions.

This is further delay in site possession and constitutes a compensation event again. Delay is counted 28 days (June 21 to July 19).

(3) Delay in Earth Work Commencement

According to the original schedule, earthworks such as leveling and compactions were planned to commence from June 2013. However, earthworks could not start until November 2013, because site was given only on July 19, by the time rain came up.

This is considered consequential delay due to the events in (1) and (2) above. Delay is counted a few months (July 19 to October end).

(4) Transportation and Customs

Transportation from Juba to Malakal was originally planned, using trucks, which would take a month. But it was not possible to arrange transportation with truck from Juba to Malakal in rainy season and transportation with barge in Nile River was only available way. Because of size and capacity of the barge (much larger than truck), there were no regular shipping services and, therefore, it actually took two months to transport from Juba to Malakal with the barge.

This may be considered own delay by the Contractor or may be excusable but not compensable. Delay is counted 30 days (difference of transport time is 60 days for barge and 30 days for truck). The delay under this event occurred concurrently with the event in (3) above.

In summary at the beginning of December 2013, the total delay was calculated five months (sum up of (1) to (3)), as delay in (4) is concurrent with the one in (3). This delay was coincided with actual delay from the original schedule, which means other activities were implemented within the planned period.

Under such situation, the Employer, PM and the Contractor discussed in respect of schedule for the Project in order to establish feasible and earliest possible completion. After reviewing conditions and possible countermeasures, all parties practically agreed to complete the works in accordance with the schedule shown in Table 2-6 below, which indicates the works would be complete by the end of June 2014, which is two and half months late or compressed two and half months from five months delay already observed. Countermeasures to reduce two and half months are as follows.

- ♦ Increasing working parties to speed up operation
- ♦ Increasing construction machineries to improve work efficiency
- ♦ Reducing transportation time by using trucks in dry season.

Revised construction schedule was nearly established at the middle of December 2013 (but not officially finalized due to the crisis started on December 15, 2013) and it is shown in Table 2-6 below. It was also agreed by all parties that no contract amount would be revised due to the delay of two and half months and/or other events until the crisis.

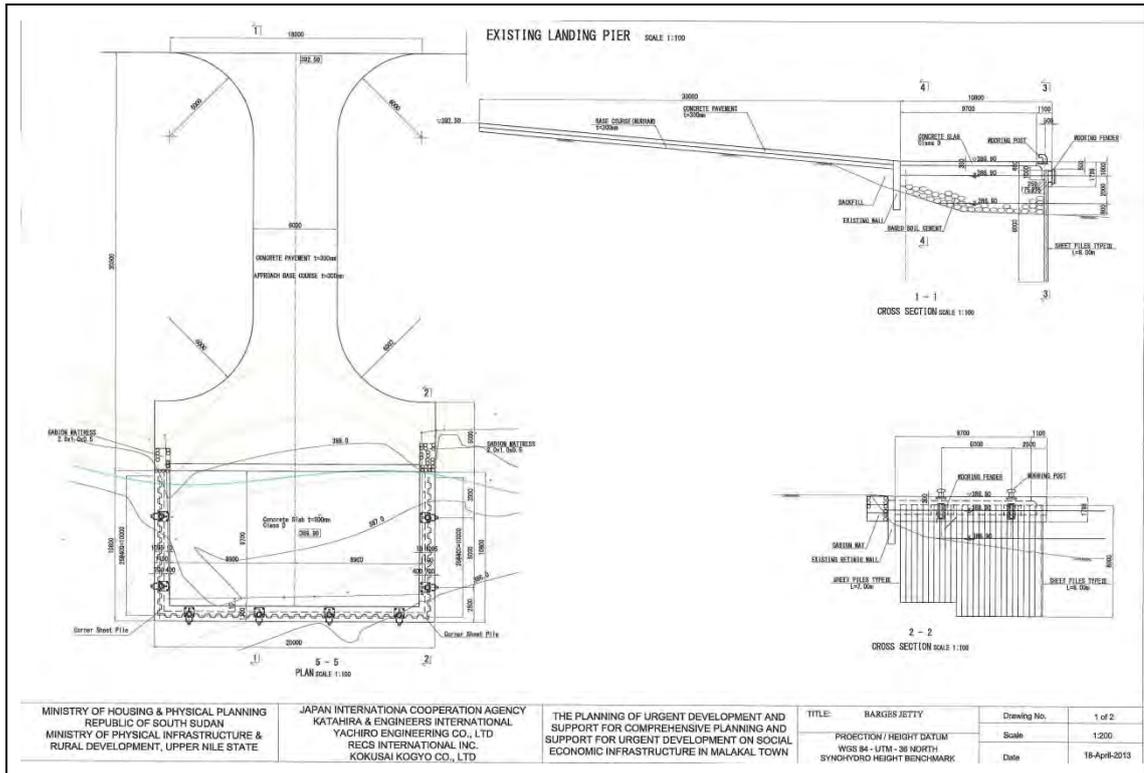


Figure 3-1 General Plan and Section of Cargo Jetty

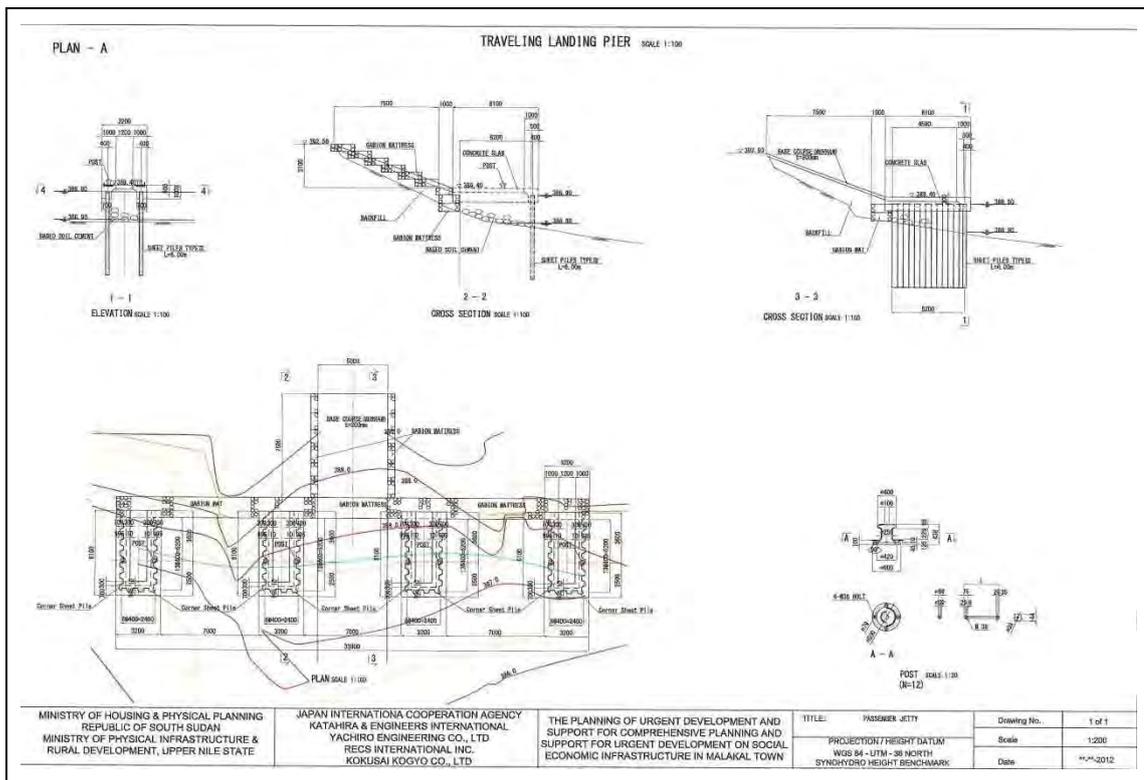


Figure 3-2 General Plan and Section of Passenger Jetty

(4) Bill of Quantities

Bill of Quantities for the Procurement of Reconstruction and Improvement of Malakal River Port in the Contract is shown below.

**Table 3-3 Bill of Quantities
for Procurement of Reconstruction and Improvement of Malakal River Port**

Description				Contract		
Item	Description	Specs	Unit	Quantity	Rate (US\$)	Amount (US\$)
Scheme 1. Cargo Jetty at Malakal Port.						
1	Mobilization & De-mobilization		LS	1.0	540,000.00	540,000.00
2	Demolition Existing Port		LS	1.0	30,000.00	30,000.00
3	Sheet Pile Driving		m	764.0	290.00	221,560.00
4	Fill (fill as specified in the drawings to require material)		m3	0.0	400.00	0.00
5	Soil cement Sandbag Filling		m3	557.0	250.00	139,250.00
6	Concrete (24MPa)		m3	103.0	940.00	96,820.00
7	Formwork		m2	138.0	150.00	20,700.00
8	Reformed bar		ton	2.6	2,300.00	5,980.00
9	Gabion		m3	12.0	550.00	6,600.00
10	Filter Fabric(Geotextiles)		m3	15.0	70.00	1,050.00
11	Concrete (24MPa)		m3	85.0	950.00	80,750.00
12	Base course (Malam)		m3	56.0	550.00	30,800.00
13	Fender		No.	8.0	2,000.00	16,000.00
14	Mooring Bit		No.	8.0	4,000.00	32,000.00
(A) Sub-Total Scheme 1. Cargo Jetty						1,221,510.00
Scheme 2. Passenger Jetty at Malakal Port.						
1	Sheet Pile Driving		m	768.0	290.00	222,720.00
2	Fill (fill as specified in the drawings to require material)		m3	246.0	400.00	98,400.00
3	Soil cement Sandbag Filling		m3	123.0	250.00	30,750.00
4	Concrete (24MPa)		m3	51.0	940.00	47,940.00
5	Formwork		m2	148.0	150.00	22,200.00
6	Reformed bar		ton	1.5	2,300.00	3,450.00
7	Gabion		m3	173.0	550.00	95,150.00
8	Filter Fabric(Geotextiles)		m2	204.0	70.00	14,280.00
9	Base course (Malam)		m3	37.0	550.00	20,350.00
10	Mooring Bit		No.	8.0	4,000.00	32,000.00
(B) Sub-Total Scheme 2. Passenger Jetty						587,240.00
(c) Overhead for Scheme 1. and Scheme 2.						350,000.00
(D) Total (D)= (A)+(B)+(C)						2,158,750.00
(F) Contingency						133,842.50
Grand Total (G)=(D)+(F)						2,292,592.50

More details are in the Contract Documents for the Procurement of Reconstruction and Improvement of Malakal River Port, which are in Annex 3.

3.2 Construction till Crisis

[Main Activities in June 2013]

- ♦ Materials, equipment and workforces were being arranged.

[Main Activities in July 2013]

- ♦ Materials, equipment and workforces were being arranged.
- ♦ The Contractor prepared detailed work schedule.

[Main Activities in August 2013]

- ♦ Materials (steel sheet piles) and equipment (excavator) were dispatched from Japan (August 5).
- ♦ Materials (steel sheet piles) and equipment (excavator) arrived at Thailand (August 16).
- ♦ The Contractor's key personnel Mr. Koga arrived at Malakal for kick-off meeting and site arrangements (August 20).
- ♦ The Contractor started survey works in Malakal (August 24).
- ♦ Materials (steel sheet piles) and equipment were dispatched from Thailand (August 25).

[Main Activities in September 2013]

- ♦ Some equipment arrived at Juba (September 14).
- ♦ Materials (steel sheet piles) and equipment (excavator) were dispatched from Mombasa Port (September 24).
- ♦ Survey Works were carried out in Malakal and some materials were prepared in Juba.
- ♦ Trial Mix of Concrete was conducted.

[Main Activities in October 2013]

- ♦ Materials (steel sheet piles) and equipment (excavator) arrived at Juba (October 5, photo below).
- ♦ Project sign board and fence were set at Malakal Port (October 18, photo below).
- ♦ Materials (steel H-piles) and equipment (excavator) were loaded to barge in Juba (October 28).
- ♦ Materials were prepared and trial mix of concrete was conducted in Juba.



Steel Sheet Piles at Juba



Signboard and Fence at Malakal Port

[Main Activities in November 2013]

- ♦ Materials (steel H-piles) and equipment (excavator) arrived at Malakal (November 16).
- ♦ Ground breaking ceremony was conducted (November 28, photo below).

[Main Activities in December 2013]

- ♦ Materials (steel sheet piles) were loaded at Juba Port (December 3).
- ♦ Demolition and reinforcement of existing Jetty started (December 3, photo below).
- ♦ After crisis, all under the project left Malakal in accordance with the instructions from JICA (December 21).
- ♦ Before leaving Malakal, all equipment and materials were tidied up in safe area.



Ground Breaking Ceremony



Piling for Reinforcement of Existing Jetty

3.3 Project Finalization

After the crisis, all expatriates evacuated from Malakal and/or Juba safely before the end of December 2013. In December 2013 and January 2014, several times of discussions were held in

Tokyo among JICA, the Project Manager (PM) and the Contractor in regard to the crisis and actions to be taken.

At the beginning of February 2014, JICA and PM started to recognize the seriousness in conflict between the Government of South Sudan and anti-government groups and tended to consider termination of the Project. With this situation, PM after consultation with JICA issued the two correspondences to the Contractor, one of which is to direct to secure the site, submit a report of site conditions, and calculate additional costs due to the crisis and the other is to request final account with several options toward termination. These correspondences are shown in Figure 3-3 below.

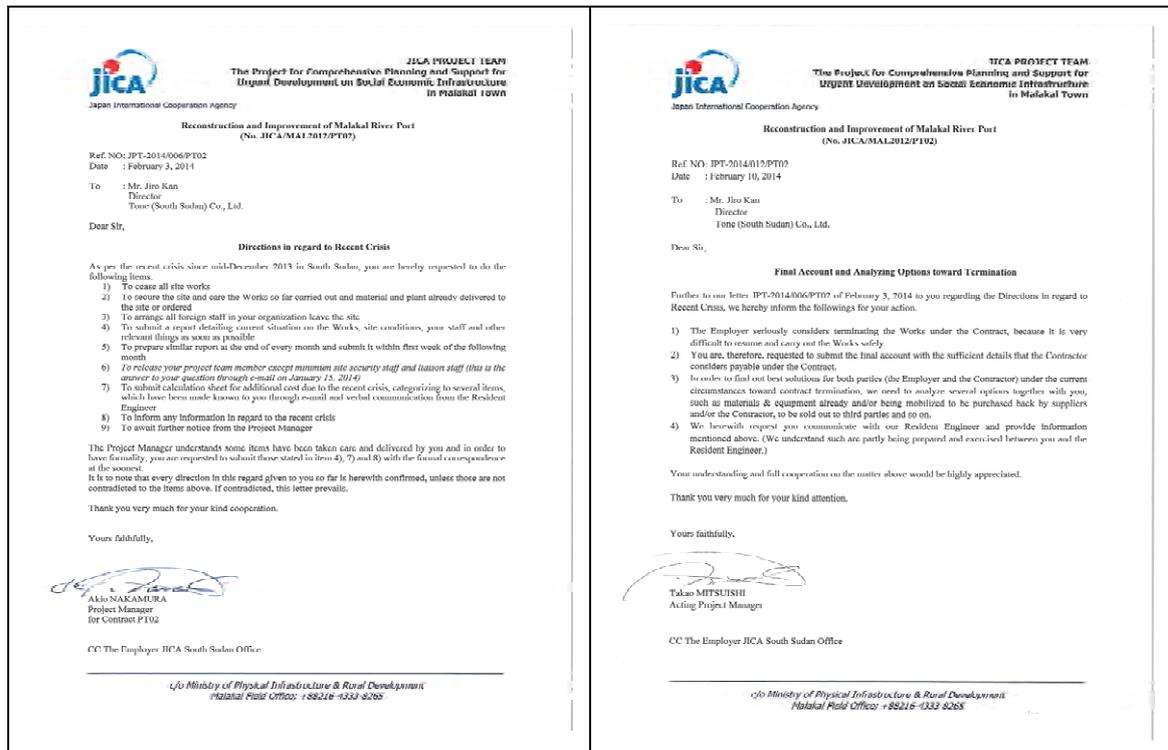


Figure 3-3 Correspondences to Contractor in February 2014

After the issuance of the second correspondence in February 2014, there were numerous meetings and e-mail communications among JICA, PM and the Contractor. In the discussions, the Contractor's damages were agreed to categorize two parts, as (1) the Damages under the Implementation of Works and (2) the Damages due to the Termination. Since then, the following actions were taken and complete.

- 1) The Termination Contract in the Annex 4 was prepared and signed by the Employer (JICA) and the Contractor on April 4, 2014. At the time of the Termination Contract signed, Juba and Malakal of South Sudan were still not accessible and quite a few materials and equipment had been mobilized before the crisis. Therefore, those materials and equipment shall be checked, after Juba and Malakal of South Sudan become stable and dealt with either disposal or supply to the counterparts by JICA with assistance of the Contractor. This was also stipulated in the Termination Contract.
- 2) Soon after the Termination Contract was signed, the Contractor submitted the whole damages in the Annex 4 with vouchers and receipts (official evidences) on April 7, 2014, shown in Table 3-4 below.

Table 3-4 Final Contractor's Damages for Project under Water Transport Sector

Description				Contract		
Item	Description	Specs	Unit	Quantity	Rate (US\$)	Amount (US\$)
Scheme 1. Cargo Jetty at Malakal Port.						
1	Mobilization & De-mobilization		LS	1.0	540,000.00	540,000.00
2	Demolition Existing Port		LS	1.0	30,000.00	30,000.00
3	Sheet Pile Driving		m	764.0	290.00	221,560.00
4	Fill (fill as specified in the drawings to require material)		m3	0.0	400.00	0.00
5	Soil cement Sandbag Filling		m3	557.0	250.00	139,250.00
6	Concrete (24MPa)		m3	103.0	940.00	96,820.00
7	Formwork		m2	138.0	150.00	20,700.00
8	Reformed bar		ton	2.6	2,300.00	5,980.00
9	Gabion		m3	12.0	550.00	6,600.00
10	Filter Fabric(Geotextiles)		m3	15.0	70.00	1,050.00
11	Concrete (24MPa)		m3	85.0	950.00	80,750.00
12	Base course (Malam)		m3	56.0	550.00	30,800.00
13	Fender		No.	8.0	2,000.00	16,000.00
14	Mooring Bit		No.	8.0	4,000.00	32,000.00
(A) Sub-Total Scheme 1. Cargo Jetty						1,221,510.00
Scheme 2. Passenger Jetty at Malakal Port.						
1	Sheet Pile Driving		m	768.0	290.00	222,720.00
2	Fill (fill as specified in the drawings to require material)		m3	246.0	400.00	98,400.00
3	Soil cement Sandbag Filling		m3	123.0	250.00	30,750.00
4	Concrete (24MPa)		m3	51.0	940.00	47,940.00
5	Formwork		m2	148.0	150.00	22,200.00
6	Reformed bar		ton	1.5	2,300.00	3,450.00
7	Gabion		m3	173.0	550.00	95,150.00
8	Filter Fabric(Geotextiles)		m2	204.0	70.00	14,280.00
9	Base course (Malam)		m3	37.0	550.00	20,350.00
10	Mooring Bit		No.	8.0	4,000.00	32,000.00
(B) Sub-Total Scheme 2. Passenger Jetty						587,240.00
(c) Overhead for Scheme 1. and Scheme 2.						350,000.00
(D) Total (D)=(A)+(B)+(C)						2,158,750.00
(E) Damages due to Termination						
(F) Contingency						133,842.50
Grand Total (G)=(D)+(E)+(F)						2,292,592.50

- 3) Upon the submission of the Contractor's damages by the Contractor, PM issued payment certificate on April 8, 2014 for the amount of total damages less the amount previously paid, which was USD 426,347.77 (USD 1,572,580.23 – USD 1,146,232.46).
- 4) Final payment was made on April 22, 2014, after the confirmation of the final amount by JICA and the invoice submitted by the Contractor and whole liabilities of both parties were then released under the Contract except check and deal on materials and equipment left in Juba and Malakal by both parties when accessible. Final Contractor's Damage corresponds to 69 % of the original contract amount.

Annex 4 includes the Termination Contract and the Contractor's damages submitted by the Contractor.

3.4 Project Completion if no Crisis

As at the beginning of December 2013, all parties recognized that most materials and equipment for the Project had been mobilized, and one of main activity sheet piling works were nearly ready to commence on site at the planned timing (middle of December 2013). Comparing actual works on site with the schedule in the Contract indicated in Table 3-2, it could be said that site was on schedule, and there would not be unforeseeable conditions to encounter. Therefore, the Project would be completed within the contact period and amount, if no crisis.

4 Urgent Development Project in Road Transport Sector

4.1 Project Details

(1) Scope of Works

Project title is the Community Roads Improvement Project (Labour Based Technology: LBT) Lot 1, 2 and 3, all of which includes Road works, Drainage works and Ford construction. The details are shown below.

Table 4-1 Scope of Community Roads Improvement Project (LBT) Lot 1, 2 and 3

Lot 1	Root J- 06 and J- 06-1 Road Size: J- 06 1,650 m and J- 06-1 420 m Total 2,070 m long, 6 m wide Road Structure: Sub-grade is Sand bags (75 mm thick), Sub-base is Lime treatment (75 mm thick), Crashed brick surface (15 mm thick) Others: Drainage - 5,040 m, Ford - 23 locations and Culvert - 4 locations
Lot 2	Root J- 13 Road Size: J- 13 2,150 m long, 6 m wide Road Structure: Sub-grade is Sand bags (75 mm thick), Sub-base is Lime treatment (75 mm thick), Crashed brick surface (15 mm thick) Others: Drainage - 5,050 m, Ford - 22 locations and Culvert - 4 locations
Lot 3	Root J- 16 Road Size: J- 16 1,280 m long, 6 m wide Road Structure: Sub-grade is Sand bags (75 mm thick), Sub-base is Lime treatment (75 mm thick), Crashed brick surface (15 mm thick) Others: Drainage - 2,560 m, Ford - 12 locations and Culvert - 3 locations

(2) Construction Schedule

Construction schedule in the Contract is shown in Table 4-2 below. It is to note that Lot 2 would commence a bit early because training session in two weeks be conducted.

Table 4-2 Schedule of Community Roads Improvement Project (LBT) Lot 1, 2 and 3

no	description	2013												2014								
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun			
Lot 1	J- 06 & J- 06-1 2,070m: Commencement / Completion				↑														↑			
1	Mobilization and Preparation				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2	Excavation and Fill				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3	Sandbag and Lime Treatment				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4	Finishing and Demobilization				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Lot 2	J- 13 2,150m: Commencement / Completion				↑															↑		
1	Mobilization and Preparation				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2	Excavation and Fill				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3	Sandbag and Lime Treatment				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4	Finishing and Demobilization				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Lot 3	J- 16 1,280m: Commencement / Completion				↑															↑		
1	Mobilization and Preparation				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2	Excavation and Fill				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3	Sandbag and Lime Treatment				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4	Finishing and Demobilization				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

(3) Drawings

Typical cross section of community road is shown in Figure 4-1 below.

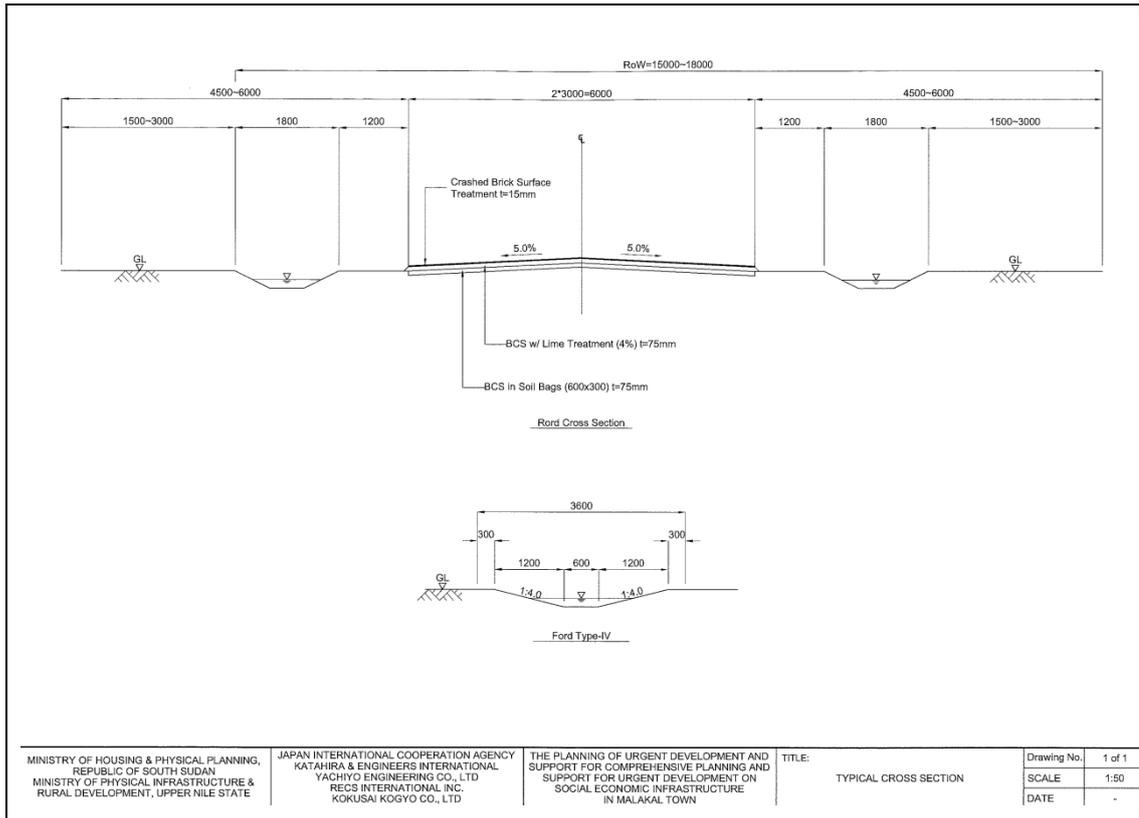


Figure 4-1 Typical Cross Section of Community Roads

(4) Bill of Quantities

Bill of Quantities for the Community Roads Improvement Project (LBT) Lot 1, 2 and 3 in the Contract is shown below.

Table 4-3 Bill of Quantities for Community Roads Improvement Project (LBT) Lot 1, 2 and 3

Item	Description	Specs	Unit	Lot 1			Lot 2			Lot 3		
				Quantity	Rate (US\$)	Amount (US\$)	Quantity	Rate (US\$)	Amount (US\$)	Quantity	Rate (US\$)	Amount (US\$)
1	Preparation	Site clearance, Topsoil stripping and Grubbing	LS	1	52,659	52,659	1	15,000	15,000	1	16,574	16,574
2	Sub-grade work	Upper sub-grade (sand bags course)	m ²	12,420	6	69,055	12,900	7	88,494	7,680	5	36,480
3	Sub-base work	Lime treatment sub base	m ²	12,420	7	86,195	12,900	7	90,300	7,680	6	43,776
4	Crushed brick surface course		m ²	12,420	4	51,791	12,900	5	67,725	7,680	8	58,368
5	Drainage	Earthwork of excavation and trimming	m	5,040	6	28,022	5,050	6	27,775	2,560	10	24,320
6	Ford construction	(22+1) locations	m	345	8	2,874	345	24	8,384	180	19	3,420
7	Culvert	Preparation Culverts and Install Head/wing wall	Loc	4	5,850	23,400	4	5,850	23,400	3	5,850	17,550
8	Contingency		LS	1	155	155	1	1,830	1,830	1	744	744
(A)	Sub Total	(Provisional sum)		--	--	314,151	--	--	322,908	--	--	201,232
(B)	Equipment	compaction roller and others for work	LS	1	17,250	17,250	1	22,287	22,287	1	25,000	25,000
(C)	Overhead and Profit	= (A + B) x percent	%	21		69,594	20		69,039	25		56,558
Total						418,394			431,494			296,930
Total Request Amount						400,995			414,234			282,790

More details are in the Contract Documents for Community Roads Improvement Project (LBT) Lot 1, 2 and 3, which are in Annex 5.

4.2 Construction till Crisis

[Main Activities in April 2013]

- ♦ Training session on road construction with LBT was conducted in Lot 2 site for other Contractors in two weeks (April 1-12).
- ♦ Preparatory works were carried out.
- ♦ Sand bags and lime were supplied to the Contractors in April as follows.

Items	Lot 1	Lot 2	Lot 3
Sand bags (nos)	5,595	5,300	5,000
Lime (nos/40 kg bag)	80	116	0

[Main Activities in May 2013]

- ♦ Sub-grade, sub-base and surface course were being constructed as shown below.



Soil bags compaction



Lime Treatment



Crushed Brick Surface

- ♦ Interim payments were made, and sand bags and lime were supplied to the Contractors in May as follows.

Items	Lot 1	Lot 2	Lot 3
Progress to date (1,000USD & %)	USD 79 & 20 %	USD 74 & 18 %	USD 82 & 29 %
Progress of Surface course to date (m & %)	135 m & 7 %	105 m & 5 %	0
Sand bags (nos)	6,900	8,000	10,285
Lime (nos/40 kg bag)	120	91	260

[Main Activities in June 2013]

- ♦ Contract amendments were issued in regard to change of the Project Manager (June 12).
- ♦ Interim payment was made, and sand bags and lime were supplied to the Contractors in June as follows.

Items	Lot 1	Lot 2	Lot 3
Progress to date (1,000USD & %)	USD 113 & 28 %	USD 124 & 30 %	USD 123 & 44 %
Progress of Surface course to date (m & %)	450 m & 22 %	540 m & 25 %	325 m & 25 %
Sand bags (nos)	7,000	7,000	9,500
Lime (nos/40 kg bag)	180	190	240

[Main Activities in July 2013]

- ♦ Interim payments were made, and sand bags and lime were supplied to the Contractors in July as follows.

Items	Lot 1	Lot 2	Lot 3
Progress to date (1,000USD & %)	USD 125 & 31 %	USD 148 & 36 %	USD 165 & 59 %
Progress of Surface course to date (m & %)	530 m & 31 %	725 m & 34 %	710 m & 55 %
Sand bags (nos)	3,000	3,500	3,000
Lime (nos/40 kg bag)	24	155	37

[Main Activities in August 2013]

- ♦ Because of rain, no site works were carried out and hence, there was no progress.

[Main Activities in September 2013]

- ♦ Because of rain, no site works were carried out in Lot 2 & 3 and hence, there was no progress.
- ♦ Interim payment was made, and sand bags and lime were supplied to the Lot 1 Contractor only in September as follows, though a little progress.

Items	Lot 1	Lot 2	Lot 3
Progress to date (1,000USD & %)	USD 143 & 36 %	No progress	No progress
Progress of Surface course to date (m & %)	630 m & 30 %	No progress	No progress
Sand bags (nos)	1,600	0	0
Lime (nos/40 kg bag)	106	0	0

[Main Activities in October 2013]

- ♦ Contract amendments were issued in regard to additional drainage works (October 3).
- ♦ Because of rain, no site works were carried out in Lot 1 & 2 and hence, there was no progress.
- ♦ Interim payment was made, and sand bags and lime were supplied to the Lot 3 Contractor only in October as follows, though a little progress.

Items	Lot 1	Lot 2	Lot 3
Progress to date (1,000USD & %)	No progress	No progress	USD 200 & 71 %
Progress of Surface course to date (m & %)	No progress	No progress	925 m & 72 %
Sand bags (nos)	0	0	9,000
Lime (nos/40 kg bag)	0	0	170

[Main Activities in November 2013]

- ♦ Interim payments were made and sand bags and lime were supplied to the Contractors in November as follows.

Items	Lot 1	Lot 2	Lot 3
Progress to date (1,000USD & %)	USD 202 & 50 %	USD 224 & 55 %	USD 239 & 85 %
Progress of Surface course to date (m & %)	1,030 m & 50 %	725 m & 34 %	1,130 m & 88 %
Sand bags (nos)	16,200	22,350	15,000
Lime (nos/40 kg bag)	305	432	233

[Main Activities in December 2013]

- ♦ Interim payment for Lot 2 and final payment for Lot 3 were made, and sand bags and lime were supplied to the Contractors in December as follows. It is to note that interim payment for Lot 1 was skipped due to the crisis started on December 15.

Items	Lot 1	Lot 2	Lot 3
Progress to date (1,000USD & %)	Skipped	USD 290 & 70 %	USD 282 & 100 %
Progress of Surface course to date (m & %)	Skipped	1,330 m & 62 %	1,280 m & 100 %
Sand bags (nos)	15,400	14,650	0
Lime (nos/40 kg bag)	105	165	0

- ♦ As stated above, The Contract for Lot 3 was complete prior to the crisis and final payment is shown in Table 4-4 below.

Table 4-4 Final Payment for Project Lot 3 under Road Transport Sector

Pay Items				Lot 3				
				Contract			Accumulate at Completion	
Item	Description	Specs	Unit	Quantity	Rate (US\$)	Amount (US\$)	Quantity	Amount (US\$)
1	Preparation	Site clearance, Topsoil stripping and Grubbing	LS	1	16,574	16,574	1	16,574
2	Sub-grade work	Upper sub-grade (sand bags course)	m2	7,680	5	36,480	7,680	36,480
3	Sub-base work	Lime treatment sub base	m2	7,680	6	43,776	7,680	43,776
4	Crushed brick surface course		m2	7,680	8	58,368	7,680	58,368
5	Drainage	Earthwork of excavation and tranning	m	2,560	10	24,320	2,560	24,320
6	Ford construction	(22+1) locations	m	180	19	3,420	180	3,420
7	Culvert	Preparation Culverts and Install Head/wing wall	Loc	3	5,850	17,550	3	17,550
8	Contingency		LS	1	744	744	0	0
(A)	Sub Total	(Provisional sum)		--	--	201,232	--	200,488
(B)	Equipment	compaction roller and others for work	LS	1	25,000	25,000	1	25,000
(C)	Overhead and Profit	= ((A) + (B)) x percent	%	25		56,558	25	56,372
(D)	Advance Payment	25% of Overhead and Profit		--	--	14,140	--	14,140
	Total	= (A) + (B) + (C) + (D)				296,930		296,000
	Refund of Advance Payment (-)					14,140	0	14,140
	Total Request Amount					282,790		281,861

(note: Final progress for Lot 1 & 2 is explained in Section 4.3 below.)

4.3 Project Finalization

After the crisis, all expatriates evacuated from Malakal and/or Juba safely before the end of December 2013. In December 2013 and January 2014, several times of discussions were held in Tokyo among JICA and the Project Manager (PM) in regard to the crisis and actions to be taken. The Contractors for Lot 1 and 2 also evacuated from Malakal and could not be contacted until March 2014.

At the end of January and the beginning of February 2014, JICA and PM started to recognize seriousness in conflict between the Government of South Sudan and anti-government groups and tended to consider termination of the Projects. With this situation, PM after consultation with JICA issued the two correspondences to the Contractors (Lot 1 and 2), one of which is to direct to secure the site, submit a report of site conditions, and calculate additional costs due to crisis and the other is to request final account with several options toward termination. These correspondences are shown in Figure 4-2 below (these are for Lot 1 and the contents for Lot 2 are the same).

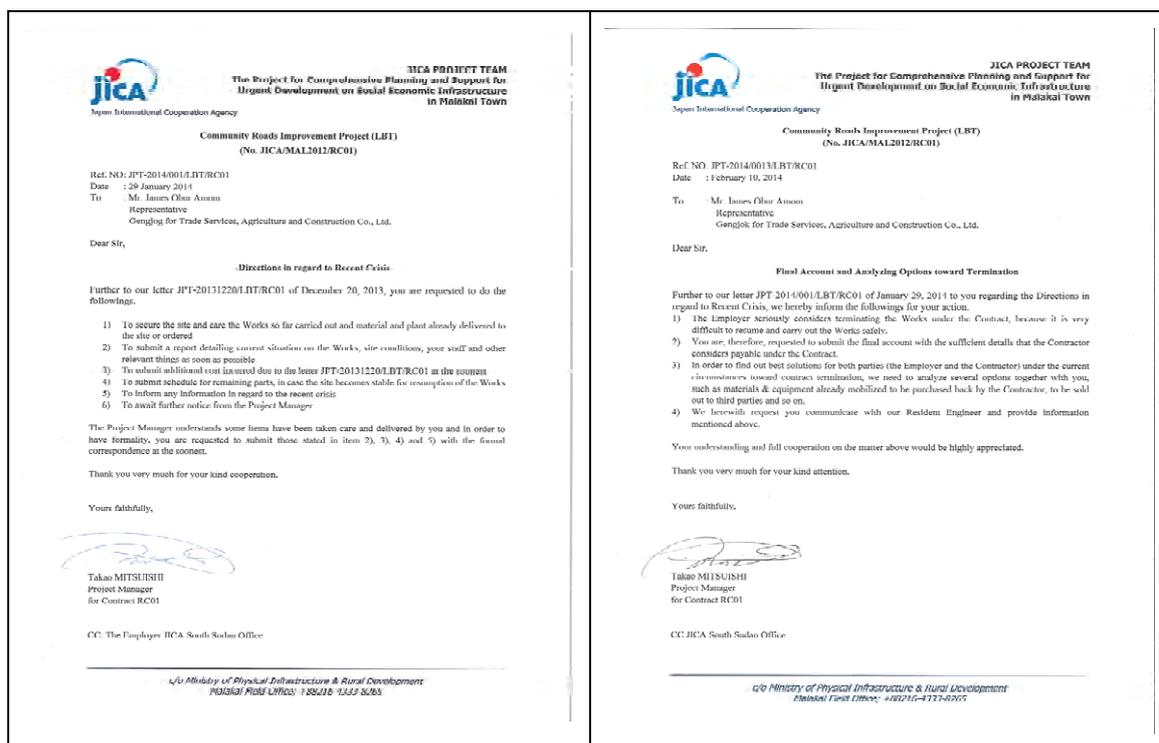


Figure 4-2 Correspondences to Contractor in January and February 2014

After the issuance of the second correspondence in February 2014, PM tried to contact both Contractors and finally could communicate with Lot 2 Contractor at the middle of March 2014 and then with Lot 1 Contractor at the end of March 2014. Since then, the following actions were taken and complete.

- 1) After the discussions through telephone and e-mails, the Contractors for Lot 1 and 2 provided draft of final progress in March 2014 based on their own records. According to their records, site works were continued until December 21, 2013 and then stopped. Site works were resumed on January 2, 2014 and carried out till January 8, 2014. Then, staff of the Contractors left the site, because of unsafe situation.
- 2) As certain parts of works were carried out without supervision of PM and/or the Project Counterparts and there were no photos taken for showing the progress, PM requested the Contractors for Lot 1 and 2 had to issue declaration that all statements and figures in final progress are true and correct together with explanation on method of work for quantity and quality assurance. Those were discussed with the Contractors through e-mails.

- 3) Both Contractors submitted to PM the invoice for final payment and the declaration with their signature in second half of April 2014. Final payment sheets for Lot 1 and 2 are shown in Table 4-5 below, and the covering letter with calculation and some papers (tables) and the Declaration are included in Annex 6.

Table 4-5 Final Payment for Project Lot 1 and 2 under Road Transport Sector

Pay Items				Lot 1				Lot 2					
Item	Description	Specs	Unit	Contract			Accumulate at Termination		Contract			Accumulate at Termination	
				Quantity	Rate (US\$)	Amount (US\$)	Quantity	Amount (US\$)	Quantity	Rate (US\$)	Amount (US\$)	Quantity	Amount (US\$)
1	Preparation	Site clearance, Topsoil stripping and Grabbing	LS	1	52,659	52,659	1	40,581	1	15,000	15,000	1	14,799
2	Sub-grade work	Upper sub-grade (sand bags course)	m ²	12,420	6	69,055	8,280	46,037	12,900	7	88,494	10,020	68,737
3	Sub-base work	Line treatment sub base	m ²	12,420	7	86,195	7,500	52,050	12,900	7	90,300	9,870	69,090
4	Crushed brick surface course		m ²	12,420	4	51,791	7,080	29,524	12,900	5	67,725	8,400	44,100
5	Drainage	Earthwork of excavation and trinning	m	5,040	6	28,022	3,660	20,350	5,050	6	27,775	4,170	22,935
6	Ford construction	(22+1) locations	m	345	8	2,874	78	650	345	24	8,384	164	3,985
7	Culvert	Preparation Culverts and Install Head/wing wall	Loc	4	5,850	23,400	0	0	4	5,850	23,400	4	23,400
8	Contingency		LS	1	155	155	0	0	1	1,830	1,830	0	0
(A)	Sub Total	(Provisional sum)		--	--	314,151	--	189,192	--	--	322,908	--	247,047
(B)	Equipment	compaction roller and others for work	LS	1	17,250	17,250	1	17,250	1	22,287	22,287	1	22,287
(C)	Overhead and Profit	= ((A) + (B)) x percent	%	21		69,594	21	43,353	20		69,039	21	53,867
(D)	Advance Payment	25% of Overhead and Profit		--	--	17,399	--	17,399	--	--	17,260	--	17,260
	Total	= ((A) + (B) + (C) + (D))				418,394		267,194			431,494		340,461
	Refund of Advance Payment (-)					17,399	0	17,399			17,260	0	17,260
	Total Request Amount					400,995		249,795			414,234		323,201

- 4) Upon the submission of the final payment invoice and the declaration by the Contractor, PM issued correspondence for final payment and contract termination on May 28, 2014 after consultation with JICA. The contents of the correspondence are as follows.

- ♦ The Contract shall be terminated in accordance with Clause 4 of the Article 59 of the General Conditions of Contract.
- ♦ Final payment USD 47,746 for Lot 1 and USD 33,560 for Lot 2 shall be paid.
- ♦ Upon the final payment, both parties release contractual obligation.
- ♦ When the site in Malakal becomes stable and if representatives from JICA and/or PM Team intend to inspect the site, the Contractors are requested to attend such inspection.
- ♦ In addition, if the materials and equipment left in Malakal of South Sudan can be recovered in future, the Contractors are requested to cooperate with representatives from JICA and/or PM Team to settle the matters.

- 5) The payment is made for Lot 1 and 2 in June 2014 as follows.

- ♦ Lot 1: USD 47, 746 and accumulation at termination USD 249,795 (62 % of the Contract Amount)
- ♦ Lot 2: USD 33,560 and accumulation at termination USD 323,201 (78 % of the Contract Amount)

Final Progress Reports for Lot 1 to 3 are compiled in Annex 6, which includes Invoice for Final Payment for Lot 1 to 3, the Declaration for Lot 1 and 2 and PM correspondences for Final Payment and Contract Termination for Lot 1 and 2.

4.4 Project Completion if no Crisis

As Lot 3 was complete prior to the crisis (which means within the contract period), it is stated here in regard to Lot 1 and 2 only. As mentioned in Section 4.3 above, the final progress (amount and work done) for Lot 1 and 2 is shown in Table 4-6 below.

Table 4-6 Progress at Termination on January 8, 2014

Items	Lot 1	Lot 2
Final Progress (1,000USD & %)	USD 250 & 62 %	USD 323 & 78 %
Progress of Surface course to date (m & %)	1,180 m & 57 %	1,400 m & 65 %

As at the end of year 2013, no additional works and/or variations on Lot 1 and 2 were anticipated. Hence, remaining works would be USD 151 thousand (USD 401 – 250) for Lot 1 and USD 91 thousand (USD 414 – 323) for Lot 2 respectively. Taking actual progress for Lot 1 and 2 in the dry season (November & December), it is envisaged that progress of USD 50 thousand in a month would be achieved. When the progress of USD 50 thousand per month is applied to the remaining works for Lot 1 and 2, the required periods to complete the works are 3 months for Lot 1 and slightly less than 2 months for Lot 2, which is still within dry season.

Because of works stopped from December 22, 2013 to January 1, 2014 (11 days) and eventually suspended on January 8, 2014, the required period calculated above could be counted from the beginning of January 2014, as 8 days spent in January 2014 are to trade off with 11 days stopped in December 2013.

Anticipated completion date would then be the end of March 2014 for Lot 1 and slightly earlier than the end of February 2014 for Lot 2 respectively. Then comparison between the original contract and anticipated completion are shown in Table 4-7 below.

Table 4-7 Comparison between Original Contract and Anticipated Completion for Lot 1 & 2

Item	Lot 1		Lot 2	
	Original	Anticipation	Original	Anticipation
Completion date	March 10	March end	February 25	Slightly earlier than February end
	Complete 20 day late		Complete within original period	
Contract amount (1,000USD)	401	401	414	414
	Same as original contract amount		Same as original contract amount	

Section 4.2 and the above comparison show that the works in Lot 2 and 3 would be and have been complete within the stipulation of the Contracts, whereas the works in Lot 1 would be complete 20 days late.

5 Recommendations and Lessons Learned

Based on the experiences in the urgent development projects in Malakal of South Sudan and particularly those after the crisis, recommendations and the lessons learned are herewith compiled.

(1) Clear Definition of Risks of Parties to Include in the Contract

How to deal with the crisis started on December 15, 2013 in South Sudan is not mentioned in the Contract Documents for the Projects. Hence, it took some time to discuss and find out what to be done among the parties concerned. It is to note that the General Conditions of Contract (GCC) for procurement of small works recommended by JICA were adopted for the Projects. When similar kind of project is implemented in countries, where there would have potential of war, hostilities, invasion, rebellion, terrorism, civil war, riot commotion or disorder, risks of parties shall be defined more clearly and completely so as to include every case. Stipulations in Clause 17.3 of FIDIC 1999 edition may be a good reference for this purpose.

(2) Force Majeure Clause to Incorporate in the Contract

In addition to a clear description in regard to risks of parties mentioned in (1) above, Force Majeure clause is also recommended to include in the Contract, where projects be implemented in countries like South Sudan. Stipulation in Clause 19 of FIDIC 1999 edition may be a good reference for this purpose.

(3) Extent of Payment upon Termination to Define

Clause 2 of Article 61 in GCC was base for calculation of the Contractor's damages due to the crisis. Items in the clause are insufficient, as there is no description of equipment cost itself like depreciation etc. To supplement the clause, Clause 19.6 Optional Termination, Payment and Release in FIDIC (1999 edition) may be a good reference.

(4) Emergency Measures to Prepare

As stated in previous Sections, it took more than a month to issue the correspondence titled "Directions to the Contractors in regard to Crisis" to the Contractors. In order to improve and to avoid such, it is recommended that the concerned parties shall prepare and agree on an Emergency Measures on Events categorized in Force Majeure clause prior to commencement of the Works.

(5) Contract Formation

There were two different contract formations in the urgent development projects. The contract formation for water supply sector and water transport sector is usual construction contract operated by the Employer, the Project Manager (supervision and administration of the contract) and the Contractor, each from different organizations. Whereas, that for road transport sector looks the same in the former but the Employer and the Project Manager are from the same organization. GCC is prepared, based on understanding of three parties (the Employer, the Project Manager and the Contractor) from different organizations. Construction contract is having long history with FIDIC kind of contract, and it is recommended that construction contract is to follow the former contract formation (three parties are from different organizations).