Appendix 8: Newsletter No.1

Quarterly

Newsletter

The Federal Capital Territory Reduction of Non-Revenue Water Project

No. 01
December
2014

Contents

Project Name
The Federal Capital Territory Reduction of Non-Revenue Water Project

Project Period
Phase-1: Oct. 2014 to Dec. 2016
Phase-2: Jan. 2017 to Mar. 2018

Project Area
Federal Capital Territory (FCT)
Pilot Areas: Garki I, Gucu and Jabi

Implementation by
FCT Administration (FCTA)
FCT Water Board (FCTWB)

Support by
Japan International Cooperation Agency (JICA)

What is NRW?

According to International Water Association (IWA), "Non-revenue water (NRW)" is water that has been produced and is "lost" before it reaches the customer. Such losses may be caused through leaking and burst pipes, illegal connections and metering inaccuracies, for example. Reduction of NRW is a key issue to increase revenue and availability of water sources.
It is now recommended that "Unaccounted-for Water (UfW)" be no longer used, which is equivalent to "Water Losses" as part of NRW in the Water Balance (or Audit) shown below in Q&A, P.3.

Hon. Minister of FCT flags off Reduction of NRW Project in FCT, supported by JICA.

INTRODUCTION

In Abuja, Federal Capital City (FCC), located in the north-east of the Federal Capital Territory (FCT), Federal Republic of Nigeria, water supply facilities have been developed based on water supply master plan prepared in 1980. Although new water treatment plants were recently constructed to meet increasing water demand occasioned by mass-migration and urbanization, distribution facilities such as service reservoir and network have lagged behind in development. On the subject of non-revenue water (NRW) in FCC, the Detail Planning Survey by Japan International Cooperation Agency (JICA) estimated it at **38%** in 2014, and the strategic plan for 2011-2015 of the Federal Capital Territory Administration (FCTA) sets its target level at 25%. However, the Federal Capital Territory Water Board (FCTWB) in charge of operation and maintenance has not taken effective actions against NRW because of its shortage of experience, knowledge and qualified personnel on planning and execution of NRW reduction. Improvement in NRW is a key issue in water supply services.
Under the circumstance, the Government of the Federal Republic of Nigeria (FRN) requested technical cooperation from the Government of Japan in order to strengthen NRW reduction capacity of the FCTWB, and then JICA conducted preliminary survey in August 2013 and the Detail Planning Survey in May 2014. Both Governments finally concluded the Record of Discussions (R/D) on 14th July 2014 to implement **the Federal Capital Territory Reduction of Non-Revenue Water Project** (the Project).

The Project launched.
In early November 2014, the launch of the Project was announced officially by JICA and FCTA with FCTWB. Our project office is located inside the headquarters of FCTWB, Area 3, Garki, Abuja.

Senator Bala Abdulkadir Muhammed
FCT Minister

CONGRATULATORY MESSAGES

Mr. Ari, Isa Muhammad
Project Director
Director Economic Planning, Research and Statistics (EPRS), FCTA

ABUJA
The Heart of Nigeria

The Hon. Minister FCT Senator Bala Abdulkadir Muhammed has officially pronounced the kick-off of the Project.
Making the pronouncement in a tripartite meeting between officials of FCTA-EPRS, FCTWB and JICA, Mr. Ari Isa Mohammed, Director, EPRS, who represented the Hon. Minister explained that the Project is aimed at reducing all forms of water losses in the process of water distribution in order to improve services and increase revenue. Mr. Ari expatiated that the Project will also improve productivity, efficiency, and capacity amongst staff, while the FCTWB in return would be adhering to the principle of global best practices
In his own remarks, Director FCTWB, Malam Hudu Bello reassured that the Hon. Minister is fully committed to the success of the Project and has demonstrated this by promptly approving and releasing the counterpart funding of the Project in order to ensure a hitch free kick-off
He further reiterated the unalloyed cooperation of management and staff of FCTWB with JICA officials towards the success of the Project.

Mr. Hudu Bello
Project Manager
Director of FCTWB

On behalf of the Management and the entire staff of the FCTWB, we rejoice with our Amiable Hon. Minister of the FCT, the Government of Japan and JICA on the commencement of the Project. We are delighted that the Project will not only boost the capacity of the staff of the FCTWB, but reduce water losses, increase revenue and afford us the extension of our services to wider areas.
It is indeed a thing of joy for us.
We welcome the JICA Experts and assure them of our cooperation and synergy.

Mr. Tetsuo Seki
Chief Representative
JICA Nigeria Office

JICA

Japan International Cooperation Agency (JICA) is the official arm of the Government of Japan that extends Official Development Assistance (ODA) to developing countries. We have been working in the water sector of Nigeria since 1987 with our first lower Anambra Irrigation Loan Project. Thereafter we supported the Government of Nigeria to prepare the first Water Resources Master Plan in 1995. Supported ten States for the provision of rural water supply; Assisted the strengthening capacity of Rural Water Supply and Sanitation Center at NWRI; Reviewed and Updated Nigeria National Water Resources Master Plan in 2013. With a view to contribute to achievement of Vision 20:2020, we also work in various sectors like Power, Transportation, Agriculture, and Health. The project for FCT reduction of Non-Revenue Water is the first JICA urban water project in Nigeria. It will enhance the capacity of FCTWB to reduce NRW, improve its revenue generation and expand service to other areas. Our principle is based on **"Working Together" - Inclusive and Dynamic Development**. Kindly make maximum use of our proven technology and rich human resources by working together with our Japanese experts. It's our hope that the project will be a "good model" for replication in other states through active participation and collaboration of all stakeholders. Thank you very much.

Mr. Akinori Miyoshi
Chief Advisor
JICA Expert Team

On behalf of the team, I am pleased to offer our congratulations to all of counterparts.
The team consists of members from two Japanese consulting firms: namely, "Yachiyo Engineering Co., Ltd." having a great deal of experience in Nigeria and "Yokohama Water Co., Ltd." affiliated with Yokohama Waterworks Bureau for a megacity in Japan.
I promise the team will fully assist the Nigerian counterparts for a successful project implementation.

Solutions to NRW with Patient Efforts

In the FCT, leakage control including detection of invisible leakage and measures against commercial losses including illegal connections and meter inaccuracy are currently not implemented in systematic way. Just visible leakages are usually repaired on report of consumers, but they are only a small part of the entire leakage.

Through the Project, leakage control and measures against commercial losses will be converted from passive to active manner.

Hydraulic Analysis / GIS

FCTWB has supplied water without adequate hydraulic analysis of distribution networks. But, in response to expansion of the networks and increase in water consumption, hydraulic analysis is necessary in identification of defective pipeline, and then through the pipe replacement, FCTWB can ensure appropriate water supply and pressure. Water pressure is a factor related to leakage.

Information of water supply facilities located in the Phase-1 development area of the FCC has been managed by GIS, but not been utilized adequately. Through update of information of all existing facilities and improvement in skills and knowledge, information-intensive management by GIS and appropriate utilization can contribute to a variety of services.

OUTLINE OF THE PROJECT

Overall Goal

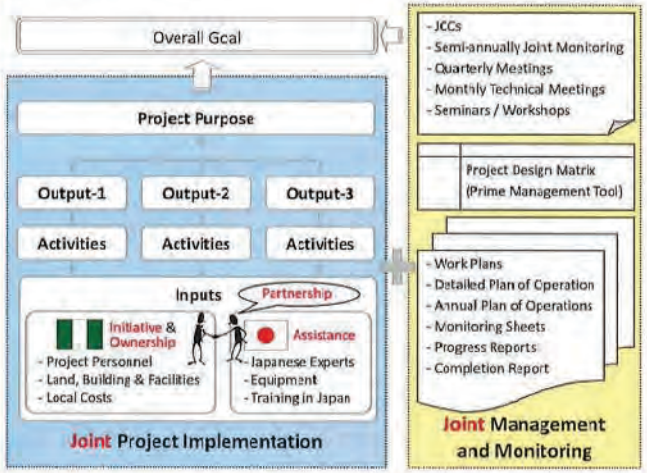
Level of Non-Revenue Water (NRW) is reduced at the service area of FCTWB.

Project Purpose

Capacity of FCTWB for NRW reduction is strengthened.

Outputs

1. Level of NRW of the service area of FCTWB is monitored regularly.
2. Methods/operational procedures for effective NRW reduction are established though pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices
3. A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing Output-1 and -2



Q&A What is Water Balance (or Audit)?

Water balance (or audit) has been developed to understand the big picture of the water system as the first step in reducing NRW.

IWA's Standard Water Balance (or Audit) and Components

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	Revenue Water
			Billed Unmetered Consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non-Revenue Water (NRW)
			Unbilled Unmetered Consumption	
	Water Losses	Commercial (Apparent) Losses	Unauthorized Consumption	
			Customer Metering Inaccuracies and Data Handling Errors	
		Physical (Real) Losses	Leakage on Transmission and/or Distribution Mains	
			Leakage and Overflows at Utility's Storage Tanks	
			Leakage on Service Connections up to Point of Customer Use	

PROJECT MEMBERS

Project Director
Mr. Ari, Isa Muhammad, Director of Economic Planning, Research and Statistics Dep't, FCTA

Project Manager
Mr. Hudu Bello, Director of FCTWB

Deputy Project Manager
Mr. S.T. Bello, Head of Administration and Supply Department, FCTWB

Technical Manager (Team Leader of NRW Management Team)
Engr. A. A. Nahuche, Head of Distribution Department, FCTWB
Mr. Adis S. Muhammad, Head of Commerce Department, FCTWB

Head of other relevant Departments and Unit (FCTWB)
Mrs. Hafsat Ahmed Lawi, Head of Finance and Accounts Department
Engr. Aliyu Usman, Head of Reservoir and Production Department
Ms. Bunmi Olowookere, Head of Planning, Research and Statistics Unit
Mr. Abbas A. Ahmed, Head of Public Relations Unit
Mr. Vincent Oben, Head of Management Information System Unit

NRW Management Team (FCTWB)
Engr. Abolade. R. Lawal, Head of Special Projects Unit, Coordinator
Mr. Moh. Kabir Rabiu, Head of Logistics Unit
Mr. Musa Dikko, Head of Pipeline Unit
Mr. Shehu Suleiman, Head of GIS Unit
Engr. Douglas E. Obiton, Head of Metering General
Engr. A.O. Akande, Head of Metering Unit (AMR Meter)
Engr. Yerunde Clanyan, Head of Water Monitoring Unit
Engr. Abdullahi Masaud, Head of Metering Unit (Pre-paid Meter)
Mr. Abubakar Ubale Abubakar, Civil Engr. II, Logistics Unit
Mr. Mohammed Dauda, Technical Officer, Pipeline Unit
Mr. Ezeh Hilary, Surveyor, GIS Unit
Mr. Isaac O. Owolabi, Head of Customer Care Unit
Mr. Danjuma Isah, Head of Monitoring and Detection Unit
Mr. Taiwo Adeyemi, Monitoring Staff, Monitoring and Detection Unit
Mr. Aliyu Maradun, Head of Major Consumers Unit
Mrs. Rose Akpan, Head of Billing Unit
Mr. Suleman Agbawn, Billing Officer, Billing Unit
Mrs. Francisca Samuel, Head of Training/Welfare Unit
Mr. Akudike Ike D., Head, Facility Management Unit

NRW Action Team (Three Area Offices of FCTWB)

Jabi Area Office
Mr. Muhammed A. S. Ramat, Area Manager (Distribution), Team Leader
Mr. Sadiq Salihu, Assistant Area Manager (Distribution)
Mrs. Abawonse J. K., Assistant Area Manager (Commerce)
Mrs. Jumma' Ugbodaga, Senior Commercial Officer (Commerce)
Mr. Mohammed Moh'd, Planning Officer (Commerce)
Mr. Aliyu Ibrahim, Senior Works Superintendent (Distribution)
Mr. Abubakar Danladi, Foreman (Distribution)
Ms. Raliat Zubairu, Higher Trade Officer (Commerce)
Mr. Mahmud Muhammed, Forman (Distribution)
Mr. Hassan Yelwa, STA (Commerce)

Gudu Area Office
Mr. Abdurrahaman U. Sanca, Area Manager (Distribution), Team Leader
Mr. Ogbu O. Williams, Assistant Area Manager (Commerce)
Mr. Abdul Ozumi, Assistant Area Manager (Distribution)
Mr. Adamu Ismaila, Unit Head (Commerce)
Mr. Umar I. Adamu, Assistant Tech. Officer (Commerce)
Mr. Kontagora Mohammed, Assistant Unit Head (Distribution)
Mr. Salisu Mohammed, Plumber (Distribution)

Garki I Area Office
Mr. Adesoji Adenuga, Area Manager (Commerce), Team Leader
Mr. Umar Ibrahim, Assistant Area Manager (Commerce)
Mr. Mohammed Gana, Assistant Area Manager (Distribution)
Mrs. Olusegun Rose, Senior Trade Office (Commerce)
Mr. Abdullahi Ibrahim, Assistant Tech. Officer (Commerce)
Mr. Iliya Galadima, Higher Works Superintendant (Distribution)
Mr. Raymond Olowookere, Forman (Distribution)
Mr. Ibrahim Yelwa, Forman (Distribution)
Mr. Hassan Abubakar, Commerce Officer (Commerce)
Mr. Shehu Isa, Craftsman (Distribution)

Committee/Group/ Teams in the Project

Joint Coordinating Committee is chaired by Project Director, which consists of Project Managers, representatives from National Planning Commission, Executive Secretary of Federal Capital Development Authority and Federal Ministry of Water Resources, and also JICA Expert Team, representatives from JICA Nigeria Office and Embassy of Japan.

Working Group for NRW Reduction Planning is a group for the Output-3, development of medium-term strategic plan of NRW reduction, which is composed of Project Managers, NRW Management Team members, and representatives from Federal Capital Development Authority.

NRW Management Team is a team responsible for all activities of the Project with theoretical and practical understandings.

NRW Action Team is a working-level team in three pilot areas, responsible for NRW reduction operations with use of equipment.

JICA Expert Team

Mr. Akinori Miyoshi
Chief Advisor / NRW Reduction Planning

Mr. Taketoshi Fujiyama
Deputy Chief Advisor / NRW Reduction Planning

Mr. Toru Toyoda
NRW Reduction Operations Management

Mr. Kiyoshi Kiyama
Leakage Detection Technology

Mr. Takuji Okubo
Commercial Loss

Mr. Shinta Segawa
Hydraulic Analysis / GIS

Mr. Kazuhiro Ishiura
Procurement Management / Coordinator

Contact

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MINUTES OF MEETING
ON
THE SECOND JOINT COORDINATING COMMITTEE
FOR
THE FEDERAL CAPITAL TERRITORY
REDUCTION OF NON-REVENUE WATER PROJECT

HELD IN
THE OFFICE OF DIRECTOR, ECONOMIC PLANNING RESEARCH AND STATISTICS,
FEDERAL CAPITAL TERRITORY ADMINISTRATION

23rd June 2015

26/6/15

Mr. Abubakar Sani Pai
Project Director,
Director, Economic Planning, Research and Statistics Department,
Federal Capital Territory Administration,
Federal Republic of Nigeria

Mr. Akinori Miyoshi
Chief Advisor,
The Federal Capital Territory Reduction of Non-Revenue Water Project,
Japan International Cooperation Agency (JICA)

Mr. Hudu Bello
Project Manager,
Director,
Federal Capital Territory Water Board,
Federal Republic of Nigeria

中村浩孝

Mr. Hirotaka Nakamura
Chief Representative,
JICA Nigeria Office

Attached Document

In the stage of half a year after commencement of Phase-1 of the Federal Capital Territory Reduction of Non-Revenue Water Project (hereinafter referred to as "the Project"), the second meeting of Joint Coordinating Committee (hereinafter referred to as "JCC") was held on 23rd June 2015.

Implementation of the Project is divided into two phases; Phase-1 scheduled from October 2014 to December 2016 and Phase-2 scheduled from January 2017 to March 2018.

1. Remarks and Presentation

Mr. Abubakar Sani Pai, Project Director of the Project, gave welcome remarks and chaired the JCC.

Mr. Hirotaka Nakamura, Chief Representative of Japan International Cooperation Agency (hereinafter referred to as "JICA") Nigeria Office gave remarks addressing issue of Non-Revenue Water (hereinafter referred to as "NRW"), the Project aiming at assistance to Federal Capital Territory Water Board (hereinafter referred to as "FCTWB") in reduction of NRW, establishment of innovative model as well as dissemination for other states, and finally requested greater leadership for successful operation of the Project.

Mr. Akinori Miyoshi, Chief Advisor of JICA Expert Team made a presentation of the Progress of the Project, problems, issues and estimation of NRW.

At the end of meeting after discussions, Mr. Hudu Bello, Project Manager of the Project, gave closing remarks and mentioned that FCTWB will be continuously involved to deal with problems and issues.

2. Main Points Discussed

As a result of discussions, all JCC members confirmed the matters mentioned below.

2.1 Counterpart Fund

JICA Expert Team raised issue of suspended procurement/construction of chambers due to insufficient Counterpart Fund and requested to secure remaining budget to catch up with schedule of the Project. Now that bill of quantities and cost estimation has been finalized, JICA Expert Team requested FCTWB to ensure additional disbursement.

FCTWB responded that Counterpart Fund for 2015 was approved, but disbursement has been delayed since 2015 budget has been under a severe budget constraint in the entire Federal Capital Territory. Regarding Counterpart Fund particularly for procurement/construction of chambers, FCTWB did not have a clear figure as a result of the lack of the specific picture/design by the time of budget request.

In order not to suspend pilot projects in three Pilot Metering Areas, both parties concluded that pilot projects will be partially implemented through prioritization within the currently-allocated Counterpart Fund, meanwhile procurement/ construction of chambers in activities for Output-1 will be suspended until remaining Counterpart Fund is secured and disbursed. This suspension, at present,

may not cause critical impact on achievement of project purpose for the time being. FCTWB agreed to continue their endeavor to ensure adequate budget in timely manner.

2.2 Duplicated/Return Bills

JICA Expert Team brought up the case that existing duplicated/return bills of FCTWB, which may have caused wastefulness and unreliable financial analysis including NRW, then requested FCTWB to invalidate or eliminate them.

FCTWB answered that a committee has been constituted to solve this issue and information gathering about these bills has started.

Although this effort is outside of the scope of the Project, JICA Expert Team stressed importance of appropriate management. It is because NRW cannot be calculated accurately unless these bills are invalidated or eliminated properly, and existing billing system will be modified under the scope of the Project in line with progress of the effort.

2.3 Customs Clearance and Tax Exemption

JICA Expert Team addressed concerns about customs clearance and tax exemption for equipment procured by JICA in Japan, and reminded it is FCTWB's responsibility to complete necessary arrangement before early October 2015 when it arrive by air in Nigeria.

FCTWB replied that they are willing to work on that but cannot proceed without necessary documents to be provided by the Japanese side.

Both parties agreed that firstly FCTWB clarifies the specific document, information and procedures, and then Japanese side will prepare required items accordingly.

Federal Ministry of Water Resources experienced in procedures made an offer to give FCTWB advisory support to the extent possible.

3. Semi-Annual Joint Monitoring

If any, FCTWB will give their additional comments on draft of Project Monitoring Sheet in coming Quarterly Project Meeting.

JICA Nigeria Office described that the Project Monitoring Sheet will be finalized through checking up of JICA headquarters.

Appendix

Appendix 1: Programme/Agenda
Appendix 2: Attendance List
Appendix 3: Progress of the Project
Appendix 4: Project Monitoring Sheet (Draft)

Appendix 1: Programme/Agenda

Federal Capital Territory Administration (FCTA)
Federal Capital Territory Water Board (FCTWB)
assisted by
Japan International Cooperation Agency (JICA)

THE FEDERAL CAPITAL TERRITORY REDUCTION OF NON-REVENUE WATER PROJECT

PROGRAMME/AGENDA FOR 2ND JOINT COORDINATING COMMITTEE

Venue: Conference Room, EPRS, FCT Administration, Abuja
Date: Tuesday, 23rd June 2015

10:00	Opening Prayer
10:00 - 10:05	Introduction of JCC Members
10:05 - 10:15	Welcome Remarks by Project Director (Director, EPRS, FCTA)
10:15 - 10:25	Address by Chief Representative, Mr. Hirotaka NAKAMURA (JICA Nigeria Office)
10:25 - 10:55	Project Progress (e.g. PMA Creation, Chamber Construction, Billing System Modification and Procurement) Problems and Issues (e.g. Counterpart Funding, Duplicated/Return Bills, Customs Clearance and Tax Exemption)
10:55 - 11:00	Commitment (e.g. Counterpart Funding, Duplicated/Return Bills)
11:00 - 11:10	Results of Semi-Annual Joint Monitoring
11:10 - 11:25	Questions, Answers and Discussions
11:25 - 11:30	Closing Remarks by Project Manager, Mr. Hudu BELLO (Director, FCTWB)
11:30	Closing Prayer

Appendix 2: Attendance List

ATTENDANCE LIST

Project: The Federal Capital Territory Reduction of Non-Revenue Water Project

Meeting: 2nd Joint Coordinating Committee

Date: June 23, 2015

Venue: Conference room, EPRS, FCTA

No	Name	Position in the Project	Organization	Remarks
1	Mr. Abubakar Sani Pai	Project Director	FCTA(EPRS)	Director
2	Mr. Hirotaka Nakamura		JICA Nigeria	Chief Representative
3	Mr. Haruna Suleiman		FCTA(EPRS)	
4	Mr. Hudu Bello	Project Manager	FCTWB	Director
5	Mr. S. T. Bello	Deputy Project Manager	FCTWB	HoD, Admin&Supply
6	Engr. A. A. Nahuche	Technical Manager	FCTWB	HoD, Distribution
7	Mr. M. S. Adis	Technical Manager	FCTWB	HoD, Commerce
8	Mrs. Hasfat .A. Lawi		FCTWB	
9	Mr. Aliyu Usman		FCTWB	
10	Engr. A.R. Lawal	coordinator	FCTWB	
11	Mr Dikko Musa		FCTWB	
12	Engr. M.Kabir.Rabiu		FCTWB	
13	Mr. Akinori Miyoshi	Chief Advisor	JICA Expert	
14	Mr. Toru Toyoda		JICA Expert	
15	Mr. Adetunji Idowu		FMWR	Deputy Director
16	Mr. Oparaji Paul.C		FMWR	
17	Engr. I .A. Ademoroti		FMWR	
18	Engr. E. C. Udeh		FCDA	Engr. Services
19	Ms. Chie Shimodaira		JICA Nigeria	
20	Dr. Joachim Ezeji		JICA Nigeria	
21	Mr. Chikara Yoshimura		EOJ	First Secretary

Appendix 3: Progress of the Project

Federal Capital Territory Administration
Federal Capital Territory Water Board
Japan International Cooperation Agency

The Federal Capital Territory Reduction of Non-Revenue Water Project

Progress of the Project

2nd Joint Coordinating Committee
23 June 2015

JICA Expert Team & FCTWB

Contents

1. Outline of the Project

Project Period

- Phase-1: October 2014 to December 2016
- Phase-2: January 2017 to March 2018

Overall Goal, Project Purpose and three Outputs

- See the next page

Project Areas

- Federal Capital Territory (FCT)
- Pilot Areas: Garki I, Gudu and Jabi

2. Overall Goal, Project Purpose and Three Outputs

Overall Goal	Level of Non-Revenue Water (NRW) is reduced at the service area of FCTWB.	-
Project Purpose	Capacity of FCTWB for NRW reduction is strengthened.	-
Output-1	Level of NRW of the service area of FCTWB is monitored regularly.	in Phase-1
Output-2	Methods/operational procedures for effective NRW reduction are established though pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices.	in Phase-1
Output-3	A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output 1-2.	Mostly in Phase-2

3. Water Balance/Audit and Components

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	Revenue Water
			Billed Unmetered Consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non-Revenue Water (NRW)
			Unbilled Unmetered Consumption	
	Water Losses	Apparent (Commercial) Losses	Unauthorized Consumption	
			Customer Metering Inaccuracies and Data Handling Errors	
		Physical (Real) Losses	Leakage on Transmission and/or Distribution Mains	
			Leakage and Overflows at Utility's Storage Tanks	
			Leakage on Service Connections up to Point of Customer Use	

NRW (m^3) = [**System Input Volume** (m^3)] – [**Revenue Water** (m^3)]

NRW Ratio (%) = **NRW** (m^3) / [**System Input Volume** (m^3)]

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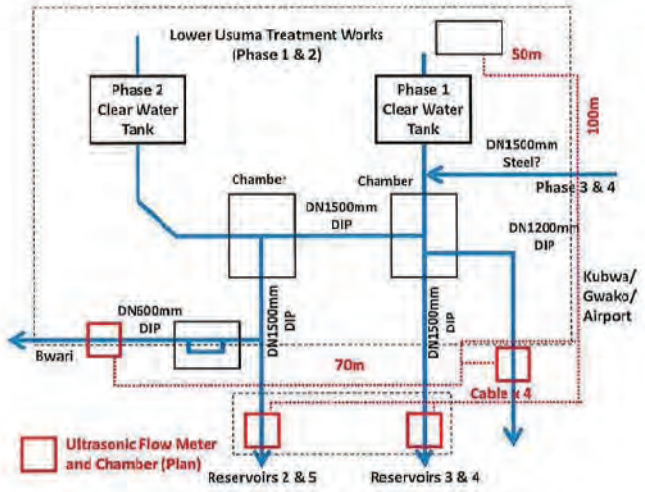

Schematic of Location of Bulk Flow Meter (Ultrasonic)

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4. Progress of Activities for Output-1

- Location and design/drawing of chambers for bulk flow meters at outlet of LUD-WTP were prepared.
- Bill of Quantities of the chambers was prepared.
- Specification of bulk flow meters was determined and they are currently in the process of procurement by JICA in Japan.
- Preparation of procurement/construction of chambers by FCTWB has been **suspended** due to **inadequate Counterpart Fund**.
- Billing of FCTWB has been reviewed for modification of existing billing system, which will be done in line with advances in measures by FCTWB against the following problem.
- A large number of **duplicated/return bills** have existed.

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5. Progress of Activities for Output-2

- Existing NRW reduction operations was reviewed.
- Capacity assessment of FCTWB organization and each project member was done.
- Several Pilot Metering Areas (PMAs) were designed and a PMA as pilot project area was selected in each pilot Area Office:

PMAs selected for Pilot Project

*"Area 2-2 & 3 & 7" under Garki I Area Office (1,400 customers)
*"Prince & Princess" under Gudu Area Office (1,100 customers)
*"Jabi" under Jabi Area Office (900 customers)

- Each selected PMA was zoned into some Sub-Metering Areas (SMAs) for NRW reduction operations in the field.

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Location Map of Pilot Metering Areas (PMAs)

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5. Progress of Activities for Output-2 (Continued)

- Distribution network drawings of the selected PMAs have been prepared.
- Location and design/drawing of chambers for flow meters and boundary/isolation valves in the selected three PMAs were prepared.
- Bill of Quantities of the chambers was prepared.
- Specification of flow meters and valves was determined, and procurement will be done by JICA in Nigeria.
- Preparation of procurement/construction of chambers by FCTWB has been **suspended** due to **inadequate Counterpart Fund**.
- Although PMAs/SMAs have not yet been created, JICA Experts have held theoretical lectures and OJT.

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6. Major Problems raised

Inadequate Counterpart Fund

Counterpart Fund of FCTWB, currently-allocated to procurement/ construction of chambers for Output-1 and Output-2, comes **short** of the total estimated cost based on Bill of Quantities.

Duplicated/Return Bills

A large number of **duplicated/return bills** have existed in FCTWB, which may have caused various **wastefulness** as well as **unreliable financial analysis** including NRW.

Customs Clearance and Tax Exemption

Ultrasonic flow meter and equipment for leakage detection will be procured by JICA in Japan, and will arrive by air in September or October 2015. Customs clearance and tax exemption, of which FCTWB is in charge, may bring about some **issues**.

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7. Solutions to Major Problems

Inadequate Counterpart Fund

To reduce the cost,

- Readjustment of locations of valves
- Downscaling valve chambers to casings in PMAs/SMAs

However, the cost still exceeds the allocated fund.

- Postponement of procurement/ construction of chambers for bulk/flow meters until additional fund is disbursed.
- Focusing on procurement/ construction of some valves casing that the fund accommodates.

Duplicated/Return Bills

Treatment of the bills, such as invalidation or elimination from billing system

Customs Clearance and Tax Exemption

Advance careful preparation based on advice by FMWR being aware of procedures

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8. Issues and Challenges

Inadequate Counterpart Fund

Prompt disbursement of additional fund to make the Project be like it should and avoid further delay, to be facilitated / accelerated by FCTA and FCTWB

Duplicated/Return Bills

- Fact finding based on information from related Units and Area Offices
- Appropriate and accurate analysis
- Proper treatment under the initiative and leadership of FCTWB's management.

Customs Clearance and Tax Exemption

Close communication and timely information sharing between FCTWB and JICA with advisory support of FMWR.

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9. NRW in Water Supply by FCTWB

NRW can **NOT** be calculated properly in FCTWB because;

1. Existing **billing system** doesn't have capability of summation of consumption but no. of bills and billed amount.
2. **Flat-rate** consumption
3. Metered-rate consumption
   - Meter reading consumption
   - **Estimate** consumption including **duplicated/return bills**
4. Meter type
   - Conventional/mechanical meter
   - Automatic meter reading (AMR)
   - **Prepaid** meter, which is outside of the billing system and consumption can not be measured automatically.

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9. NRW in Water Supply by FCTWB (Continued)

Findings about **flat-rate** in the estimating process of NRW as monthly average in 2014. (including **duplicated/return bills**)

Total Bills (flat rate, all 3 meter types): approx. **48,300**

Flat Rate Bills: approx. **7,100**

Proportion of Flat-Rate Bills to Total Bills

- Bills-based: approx. **15%**
- Billed Amount-based: approx. **18%**
- Billed Estimated-Consumption-based: approx. **15%**

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9. NRW in Water Supply by FCTWB (Continued)

Findings about **estimate bills of conventional/mechanical meter** in the estimating process of NRW as monthly average in 2014.

Total Meter Bills: approx. **24,600**

Estimate Bills: approx. **11,200**

Proportion of Estimate Bills to Total Meter Bills

- Bills-based: approx. **45%**
- Billed Amount-based: approx. **58%**
- Billed Estimated-Consumption-based.: approx. **60%**

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9. NRW in Water Supply by FCTWB (Continued)

Findings about **estimate bills of AMR meter** in the estimating process of NRW as monthly average in 2014.

Total Meter Bills: approx. **11,700**

Estimate Bills: approx. **5,800**

Proportion of Estimate Bills to Total Meter Bills

- Bills-based: approx. **49%**
- Billed Amount-based: approx. **24%**
- Billed Estimated-Consumption-based.: approx. **44%**

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9. NRW in Water Supply by FCTWB (Continued)

Based on water production, existing commercial(billing) and financial documents, NRW and revenue collection ratio in Year 2014 are estimated at:

NRW Ratio: **40%** (m^3-based)

Revenue Collection Ratio : **35%** (Naira-based)

Assuming that **duplicated/return bills** roughly-estimated at **6,600** (actually more?) are invalidated or eliminated:

NRW Ratio: **52%** (m^3-based)

Revenue Collection Ratio : **44%** (Naira-based)

18

10. Other Topics

- Equipment for project operations having been procured will be handed over soon, such as copier, personal computers, printers, plotter, digital cameras, GPS handsets and GIS softwares.
- GIS training for some NRW Management Team members will be held in August or September 2015.

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Thank you very much.

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Appendix 4: Project Monitoring Sheet (Draft)

To Chief Representative of JICA Nigeria Office

PROJECT MONITORING SHEETS (DRAFT)

Project Title : The Federal Capital Territory Reduction of Non-Revenue Water Project
Version of the Sheet: Ver. 1 (Term: October, 2014 - March, 2018)

Name: Akinori Miyoshi
Title: Chief Advisor
Submission Date: XX June 2015

I. Summary

1 Progress

1-1 Progress of Inputs

[The Nigerian Side]

All project members including Project Director, Project Manager, Deputy Project Manager, Technical Managers, Non-Revenue Water (NRW) Management Team members, NRW Action Team members have been involved in the Project since the beginning of the Project.

Office spaces and necessary facilities including internet connection for the Japan International Cooperation Agency (JICA) Experts have been provided in the Federal Capital Territory Water Board (FCTWB) Headquarters, but their works have suffered from unstable and inadequate electricity supply by power holding company as well as standby generator of FCTWB.

[The Japanese Side]

As of the end of June 2015, JICA Experts consisting of a Chief Advisor and six members have been dispatched for about 16 man-months from November 2014, except for most of the period from January to April 2015.

Geographical Information System (GIS) software and all office equipment such as copier, personal computer, printer, etc. were procured and will be handed over to FCTWB soon.

Equipment such as ultrasonic flow meter and leakage detector are in the process of procurement in Japan, which is scheduled to be shipped by air in September (or October) 2015.

The first training of the Nigerian project personnel in Japan was rescheduled from May 2015 to August 2015.

1-2 Progress of Activities

[Activities for Output-1: Level of NRW of the service area of FCTWB is monitored regularly.]

Facility designing of chambers for bulk flow meters at outlet of water treatment plant, aiming to

measure total inflow to the whole water supply system, as well as specifying the meters were completed, and then Bill of Quantities (BoQ) was prepared based on the design. While four bulk flow meters (ultrasonic) are being procured by JICA in Japan, preparation of chamber construction has been suspended due to inadequate Counterpart Fund of FCTWB for implementation.

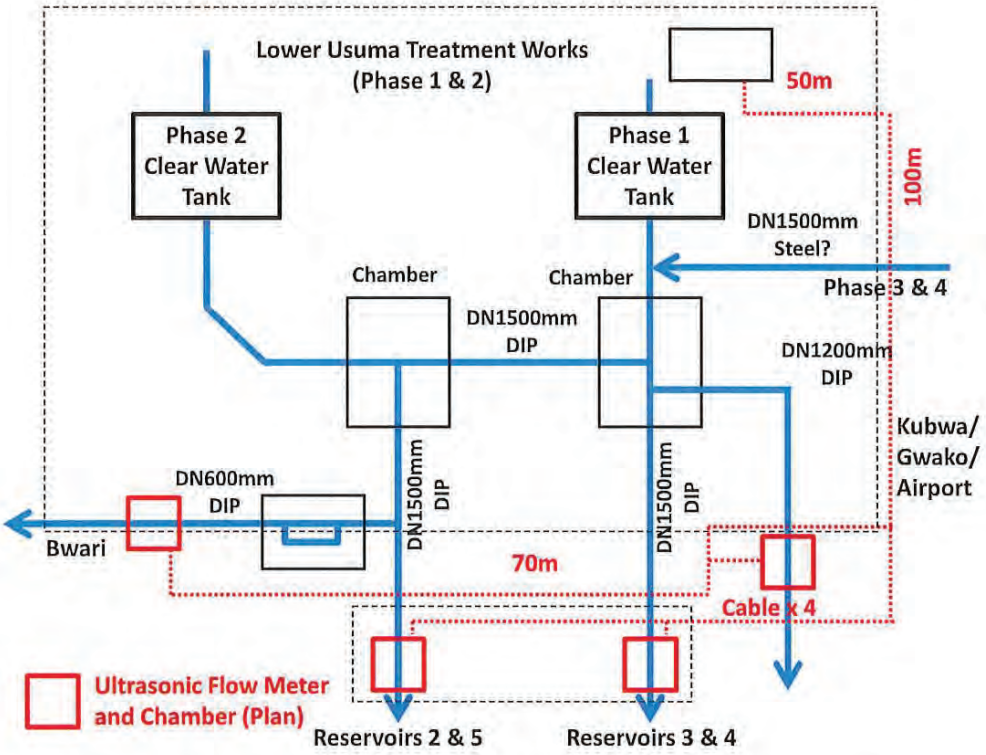


Figure 1 Schematic of Location of Bulk Flow Meter (Ultrasonic)

Billing situation of FCTWB have been assessed for modification of the existing billing system in order to measure total outflow from the whole water supply system. JICA Experts brought up the case that a large number of existing duplicated/return bills may have caused various wastefulness as well as unreliable financial analysis including NRW. Specification of billing system will be discussed and determined only after FCTWB clarifies facts accurately and shows the way to treating these kinds of bills properly such as invalidation or elimination.

[Activities for Output-2: Methods/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices.]
Existing NRW reduction operations was reviewed at the FCTWB Headquarters and pilot Area offices, and also capacity assessment of FCTWB organization and project members. The assessment results are shown in "Capacity Assessment and Capacity Development Plan, March 2015", which was approved by FCTWB.

Based on selection criteria, several PMAs in each pilot Area Office were designed and a PMA each as pilot project area was selected, namely "Area 2-2 & 3 & 7" (approx. 1,400 customers) under Garki I Area Office, "Prince & Princess" (approx. 1,100) under Gudu Area Office and "Jabi" (approx. 900) under Jabi Area Office.

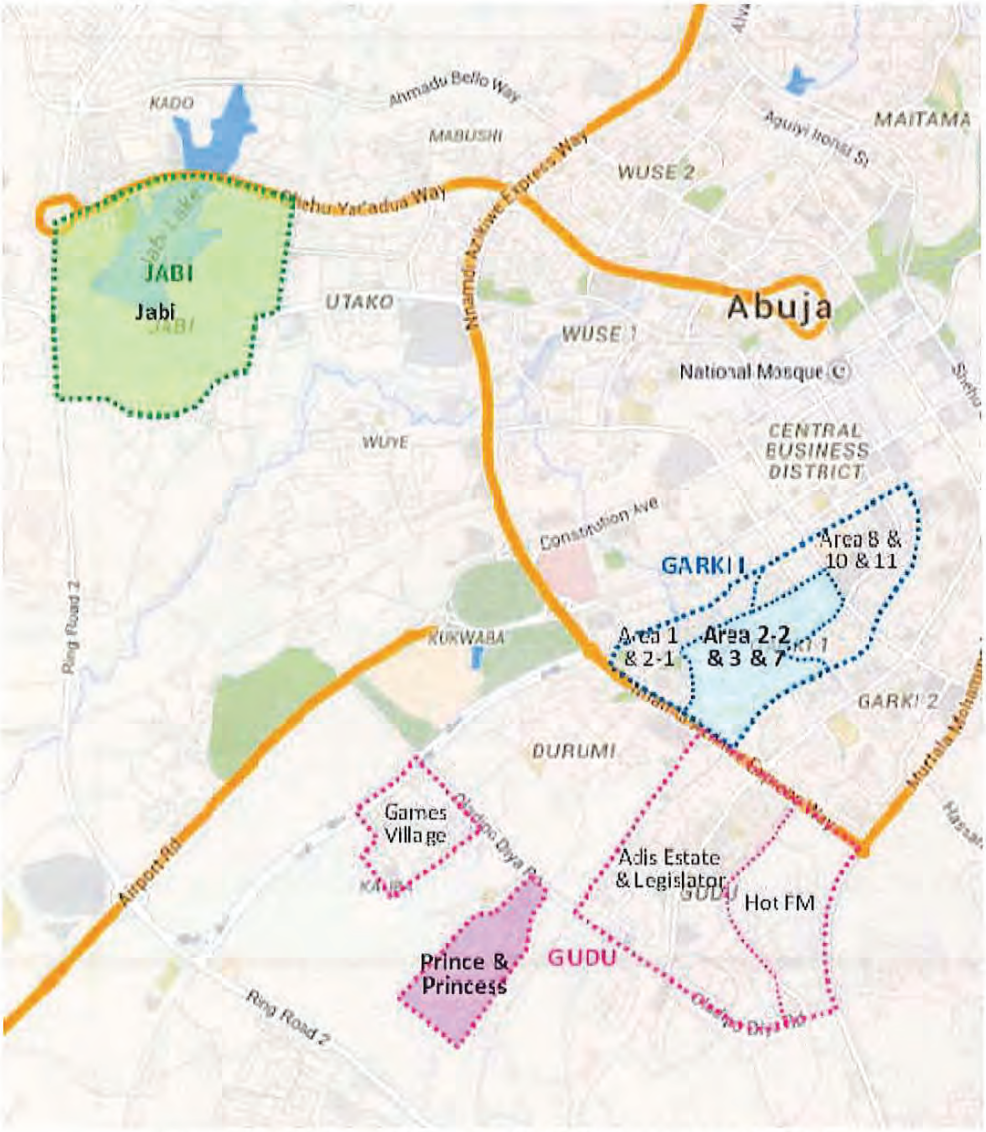


Figure 2 Location Map of Pilot Metering Areas (PMAs)

Subsequently, each selected PMA was zoned into some Sub-Metering Areas (SMAs) which NRW reduction operations will be implemented in the field such as leakage detection, replacement of malfunctioning water meters and detection of illegal connections.

Following designing and zoning of PMAs/SMAs, distribution network drawings have been prepared by GIS together with information gathering from related Units and Area Offices.

Facility designing of chambers for water flow meters and boundary/isolation valves in PMA, aiming to measure monthly in/outflow, as well as specifying the meters were completed, and then BoQ was prepared based on the design. While the meters will be procured by JICA Experts in Nigeria, preparation of chamber construction has been suspended due to inadequate Counterpart Fund of FCTWB for implementation.

In the current situation that PMAs/SMAs have not yet been created physically (NRW reduction operations cannot be implemented in the selected PMAs/SMAs), JICA Experts have held theoretical lectures for NRW Management Team and NRW Action Team members as well as on-the-job training (OJT) to the extent possible.

[Activities for Output-3: A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output-1&2.]
Most of activities for Output-3 will be done in Phase-2 of the Project scheduled in 2017 and 2018, but a few activities were done. Members of Working Group for NRW reduction planning were selected and existing plans, implementation structure, OJT mechanism, etc. related to NRW reduction at FCTWB were reviewed preliminarily.

1-3 Achievement of Output

[Output-1: Level of NRW of the service area of FCTWB is monitored regularly.]
Indicator cannot be obtained because measurement of inflow and outflow to/from distribution system is not ready.

[Output-2: Methods/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices.]
Indicator cannot be obtained because pilot projects are still at the stage of preparation, but theoretical lectures and preparation of drawings through OJT have been done.

[Output-3: A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output-1&2.]
Indicator will be obtained in Phase-2 of the Project scheduled in 2017 and 2018, but Working Group members were selected and existing plans, etc. related to NRW reduction at FCTWB were reviewed preliminarily.

1-4 Achievement of the Project Purpose

Indicator cannot be obtained because of limited progress, but necessary knowledge for NRW reduction has been gradually developed through lectures and OJT.

1-5 Changes of Risks and Actions for Mitigation

None

1-6 Progress of Actions undertaken by JICA

In response to the above difficulty in efficient works at the project office due to electricity problems, as an extra support, JICA decided to procure a standby generator with wiring work for the project office to ensure smooth implementation of the Project.

Regarding equipment in the process of procurement in Japan such as ultrasonic flow meter and leakage detector, JICA will provide necessary information to FCTWB in a timely manner for smooth customs clearance and tax exemption. Close communication is important.

1-7 Progress of Actions undertaken by Nigerian side

FCTWB will work on the above customs clearance and tax exemption. Provision of necessary information will be requested to JICA in a timely manner. Close communication is important.

1-8 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

None

2 Delay of Work Schedule and/or Problems (if any)

2-1 Detail

Inadequate Counterpart Fund of FCTWB has caused suspension of activities not only for Output-1, particularly Activity 1-1 related to bulk flow meter installation at outlet of water treatment plant, followed by 1-2 and 1-5, but also for Output-2, particularly Activity 2-5 and 2-7 related to PMAs/SMAs creation by installing flow meters and valves in pilot projects, followed by 2-9 to 2-17. This also has delayed preparation of procurement of flow meters and valves for Activity 2-5 and 2-7.

As a major problem to resolve in billing of FCTWB prior to system modification, a large number of existing duplicated/return bills may have caused unreliable financial analysis including NRW.

2-2 Cause

Request of Counterpart Fund was approved, but it has been disbursed partially. In Nigeria, government authorities and parastatals suffer from irregularity and shortfall. Situation is more

unsound than usual, especially this presidential-election year.

Despite increasing duplicated/return bills, FCTWB has not been able to completely and effectively reat them for a long period.

2-3 Action to be taken

JICA Experts proposed cost-reducing modification of PMA/SMA design and downscaling chamber to casing or temporary excavation, but total cost still exceeded the current limited fund. FCTWB and JICA Experts adopt an interim alternate plan to avoid suspension of project implementation due to inadequate Counterpart Fund, which intends to carry on activities in three PMAs with developing capacity of NRW reduction and maintaining motivation of project members. The plan prioritized construction of valve casings in a few selected SMAs in each PMA within the current limited fund, and pilot projects will be implemented on a SMA basis. Monthly in/outflow in PMAs will be estimated by measurement using ultrasonic flow meter to be installed in temporary excavation. FCTWB will proceed to reconfirm size of valve and construction of valve casing, meanwhile, JICA Experts will prepare procurement of valves and fittings.

JICA Experts suggested postponing modification of billing system proactively and encouraged FCTWB to treat duplicated/return bills by invalidation or elimination. FCTWB has constituted a committee to clarify facts accurately and then will take measures properly against these kinds of bills. Fact finding has started and collected information will be analyzed by FCTWB with support from JICA Experts.

2-4 Roles of Responsible Persons/Organization

[FCTWB]

- Reconfirmation of pipe size and material where valves will be installed: Pipeline Unit and pilot Area Offices under supervision of Head of Department (HOD) Distribution.
- Preparation and procurement/construction of valve casings: Pipeline Unit, Logistics Unit and Unit in charge of procurement under supervision of HOD Administration & Supply and HOD Distribution.
- Forming a committee for duplicated/return bills: HOD Commerce.
- Fact finding of duplicated/return bills: relevant units and all Area Offices under supervision of HOD Commerce.
- Analysis of collected information of duplicated/return bills: Monitoring and Detection Unit under supervision of HOD Commerce.
- Taking measures against duplicated/return bills such as invalidation or elimination: relevant units under supervision of HOD Commerce.

[JICA Experts]

- Support to reconfirmation of pipe size and material where valves will be installed.
- Support to preparation and procurement/construction of valve casings.
- Procurement of valves and fittings.
- Support to analysis of collected information of duplicated/return bills.

3 Modification of the Project Implementation Plan

3-1 Plan of Operation

Due to the above problems and other reasons, Plan of Operation (PO) has been revised. See the Project Monitoring Sheet II as attached.

3-2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HQ. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

None

4 Preparation by Nigerian side toward after completion of the Project

Under consideration

II. Project Monitoring Sheet I & II (as attached)

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Projec
Project Period: October 2014 to March 2018
Implementing Organization: Federal Capital Territory Administration (FCTA) / Federal Capital Territory Water Board (FCTWB
Dicrect Beneficiaries: FCTWB, relevant staff of FCTWB Headquarters and pilot Area Offices
Project Site: FCT **Pilot Area Offices:** Jabi, Garki I and Gudu

Version 1
Dated 6 Nov. 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<Overall Goal> Level of Non-Revenue Water (NRW) is reduced at the service area of FCTWB	a: Annual NRW ratio is reduced to X%(*) at the end of the year 2021 Note(*): Target value (X%), which is expected to be determined in the medium-term strategic plan for NRW reduction, shall be tentatively filled when the final draft was approved by the Director of FCTWB, which shall be finalized when the plan is approved by FCTA	a. Record of NRW ratio kept by Distribution Department		Indicator cannot be obtained because of limited progress.	
<Project Purpose> Capacity of FCTWB for NRW reduction is strengthened	a. The medium-term strategic plan for NRW reduction (2018-2022) is approved by FCTA by the end of the Project. b. NRW reduction operations of the first quarter of 2018 specified in the annual plan of the above plan are carried out according to the plan by FCTWB c. Relevant staff of FCTWB (i.e. members of NRW Management Team and Pilot NRW Action Teams) become equipped with skills and knowledge necessary for NRW reduction according to the criteria set by the Project for each level d. NRW ratio of each PMA in the last quarter of the Project reaches its respective target (**) Note(**): Target for each PMA is expected to be determined by the end of the first quarter of the second yea	a. Date of approval of the plan b. Result of monitoring by NRW Management Team c. Results of joint assessment based on the criteria set by the Project d. Record of NRW ratio kept by Distribution Department	A. Policy support for NRW reduction is not discontinued Policy support for NRW reduction is not discontinued B. Natural disaster/ political instability/ economic crisis that affect the service area of FCTWB do not occur C. Activities to implement the medium-tem strategic plan are not discontinued or delayed	Indicator cannot be obtained because of limited progress, but necessary knowledge for NRW reduction has been gradually developed through lectures and OJT.	See the Output-2 of Monitoring Sheet II
<Outputs>					
1. Level of NRW of the service area of FCWTB is monitored regularly	1a. Record of monthly NRW ratio is kept by Distribution Department from the third quarter of the first year of the Project 1b. Monthly NRW ratio of the service area of FCTWB is reported to its monthly Joint Management Meeting from the third quarter of the first year of the Project 1c. Quarterly NRW ratio of the service area of FCTWB is reported to the Board of Directors of FCTWB from the third quarter of the first year of the Project	1a. Monthly record of NRW ratio. 1b&1c. Material for meetings submitted by the Distribution Department	A. Staff of FCTWB (i.e. members of NRW Management Team and Pilot NRW Action Teams) trained through the Project do not leave the office in large numbers	Indicator cannot be obtained because measurement of inflow and outflow to/from distribution system is not ready.	See the Output-1 of Monitoring Sheet II
2. Methods/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices (*1)	2a. Decrease rate of NRW ratio for each Sub Metering Area of a PMA reaches at least 80% of its target at the end of the respective NRW reduction operations 2b. Technical manuals for Area Office managers and field operators (i.e. technical officers and meter readers), including audio visual materials, are approved by Head of Department (HoD) for Distribution and HoD for Commerce by the first quarter of the third year of the Project	2a. Record of NRW ratio kept by the Distribution Department 2b. Date of approval of the manuals		Indicator cannot be obtained because pilot projects are still at the stage of preparation, but theoretical lectures and preparation of drawings through OJT have been done.	See the Output-2 of Monitoring Sheet II
3. A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output 1-2 (*2)	3a. By October 2017, draft medium-term strategic plan for NRW reduction (2018-2022) is submitted by FCTWB to FCTA for review and approval 3b. By October 2017, an annual NRW reduction plan (2018) is incorporated in FCWTB's annual recurrent and capital plan (2018) for submission to FCTA for review and approval 3c. A planning manual for NRW reduction is approved by the Director of FCTWB by the end of the Project	3a&3b. Date of official letter submitting draft strategic plan and annual recurrent and capital plan 3c. Date of approval of the manual		Indicator will be obtained in Phase-2 of the Project scheduled in 2017 and 2018, but Working Group members were selected and existing plans and etc. were reviewed.	See the Output-3 of Monitoring Sheet II

Note (*1): NRW components targeted by Output 2 are (i) invisible leakage; (ii) customer meter malfunction; and (iii) illegal connection
Note (*2): A medium-term strategic plan is a five-year plan, which may include medium-term target, strategies and actions, timeframe, human resource requirement, on-the-job training mechanism, cost-benefit analysis of NRW reduction, etc. It is noted that NRW components addressed by the strategic plan are not limited to the ones mentioned in (*1) above: they shall be discussed and determined in developing the outline of the strategic plan (through Activity 3-4).

Activities	Inputs		Important Assumption
	The Nigerian Side	The Japanese Side	A Natural disaster/political/ instability/economic crisis that affect the project activities do not occur
1-1 Install bulk meters to water treatment plants 1 and 2 1-2 Measure monthly water production of water treatment plants 1, 2 ,3, and 4 1-3 Tally the above water production data monthly 1-4 Calculate the monthly water consumption based on the billing data 1-5 Calculate monthly NRW ratio of the service area of FCTWB using the data obtained from Activity 1-3 and 1-4	**Project Personnel** 1. Project Director: Director of Economic Planning, Research and Statistic Department, FCTA 2. Project Manager: Director of FCTWB 3. Deputy Project Manager: HoD for Administration and Supply/FCTWB 4. Technical Managers (Also Leaders of NRW Management Team): HoD for Distribution and HoD for Commerce /FCTWB 5. Members of NRW Management Team (FCTWB): - Head of Special Project Unit of Distribution Department (as Coordinator) - Relevant Head of Unit (HoU) and officers of the Distribution Department, Commerce Department, and Administration and Supply Department 6. Heads of other relevant Departments and Unit of FCTWB: HoD for Finance, HoD for Production, HoU for Planning Research and Statistics (PRS) 7. Members of NRW Action Team: Area Manager, Assistant Area Manager (Distribution), Assistant Area Manager (Commerce), technical officers (Distribution) and meter readers (Commerce) of each pilot Area Office 8. Other personnel mutually agreed upon as necessary **Land, Building and Facilities** 1. Office building and facilities necessary for the implementation of the Project 2. Office spaces and necessary facilities for the Japanese Experts at the FCTWB Headquarters and each Pilot Area Office, including internet connection and air conditioners 3. Other facilities mutually agreed upon as necessary **Local Costs** 1. Cost for installation, operation and maintenance of the provided equipment and cost for pipe repair at PMAs 2. Administration and operational costs, including costs for local travel for the Project Personnel	**Japanese Experts** 1. Chief Advisor / NRW Reduction Planning 2. Deputy Chief Advisor / NRW Reduction Planning 3. NRW Reduction Operations Management 4. Leakage Detection Technology 5. Commercial Loss 6. Hydraulic Analysis / GIS 7. Procurement Management / Coordinator 8. Other experts mutually agreed upon as necessary **Equipment** 1. Bulk meters for water treatment plants 2. Water flow meters, valves, and customer meters for SMA 3. Leakage detection equipment for PMA 4. Pipe repair equipment for PMA 5. Vehicles(Pick-ups) 6. Other equipment mutually agreed upon as necessary **Training of the Nigerian Project Personnel in Japan** Four persons mutually agreed upon will be trained in Japan annually	**Pre-Conditions** A Furnished offices for Japanese Expert Team are secured at Headquarters and each Pilot Area Office of FCTWB B Project Personnel is assigned with the finalized list
2-1 Review existing NRW reduction operations at each pilot Area Office 2-2 Conduct capacity assessment of the relevant staff of each pilot Area Office 2-3 Identify and select a Pilot Metering Area (PMA) for each pilot Area Office based on the selection criteria of PMA(*3) 2-4 Prepare/update distribution network drawings for each PMA 2-5 Install water flow meters to each PMA and measure in/outflows monthly 2-6 Zone each PMA into Sub Metering Areas (SMA) 2-7 Isolate a SMA by installing valves 2-8 Update the distribution network drawings for each SMA 2-9 Measure an initial level of NRW of each SMA 2-10 Detect target NRW components (i.e. invisible leakage, customer meter malfunction, and illegal connection) of each SMA 2-11 Develop a NRW reduction operation plan of each SMA ,including reduction target, for review by Head of Distribution Department 2-12 Review and approve NRW reduction operation plan of each SMA 2-13 Implement the NRW reduction operations at each SMA 2-14 Monitor the progress of the NRW reduction operations of each SMA 2-15 Measure level of NRW of each SMA at the end of the respective operations 2-16 Prepare a report on pilot projects, covering Activity 2-1~2-15 2-17 Develop manuals for NRW reduction for Area Office managers and field operators (i.e. technical officers and meter readers), including audio visual materials			**Issues & Countermesures** - Unstable power conditions in project office will be settled by provision of generator by JICA as an extra support. - Inadequate Counterpart Fund may cause further delay of project schedule. To avoid suspension, schedule and implementing procedures will be modified considering a current limited fund. - A large number of duplicated/ return bills may have caused unreliable financial analysis including NRW. Fact will be clarified accurately and the bills will be treated properly by FCTWB, such as invalidation or elimination. - Smooth customs clearance and tax exemption of equipment to be imported from Japan will be ensured in close communication.
3-1 Establish a Working Group for NRW planning (*4) 3-2 Review existing plans, implementation structure, on-the-job training mechanism, etc. related to NRW reduction at FCTWB 3-3 Conduct hydraulic and water pressure distribution analyses of the pipeline networks 3-4 Develop outlines of the medium-term strategic plan and its annual NRW reduction plan 3-5 Develop the first medium-term strategic plan (2018-2022) for approval by FCTA 3-6 Develop an annual NRW reduction plan based on the strategic plan as an integral part of an annual recurrent and capital plan of FCTWB for approval by FCTA 3-7 Develop a planning manual for NRW reduction			

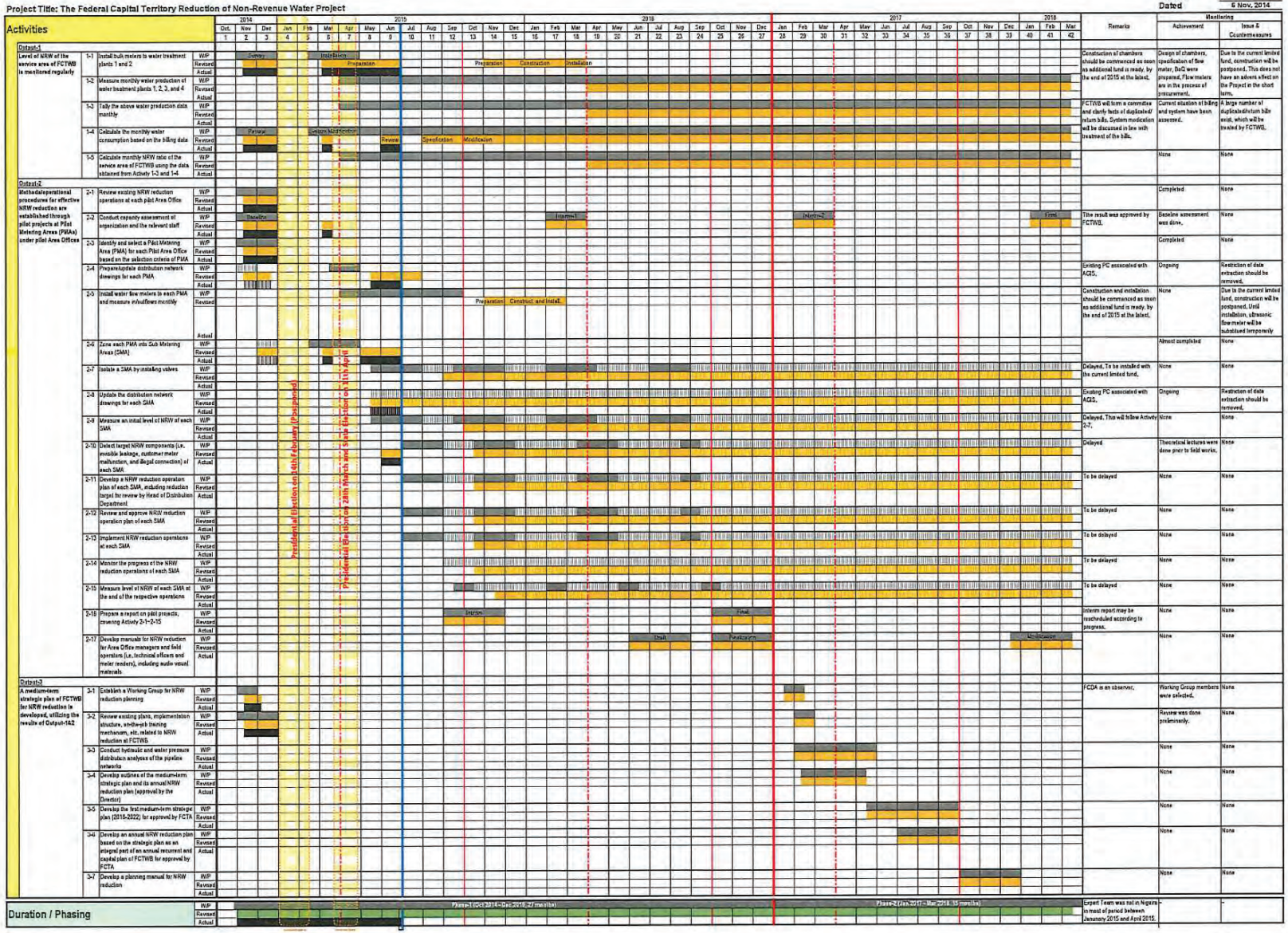
Note (*3) Selection criteria of PMA are as follows: (i) Safety for night works is secured in measuring minimum night flow: (ii) Distribution network is separated and it is easy to isolate it in measuring NRW ratio: and (iii) NRW ratio is supposedly high.
Note (*4) Working Group for NRW planning would consist of Project Manager (as chair), Deputy Project Manager, Technical Managers, Head of Finance Dept., Head of Production Dept., Head of PRS Unit, and members of NRW Management Team.

Project Monitoring Sheet II (Revision of Plan of Operation)

Plan of Schedule and Actual Work Period

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project

Version: 1
Dated: 6 Nov, 2014



Activities				Remarks	Monitoring: Achievement	Monitoring: Issue & Countermeasures
Output-1						
Level of NRW of the service area of FCTWB is monitored regularly	1-1	Install bulk meters to water treatment plants 1 and 2	WIP / Revised / Actual	Construction of chambers should be commenced as soon as additional fund is ready, by the end of 2015 at the latest.	Design of chambers, specification of flow meter, BoQ were prepared, Flow meters are in the process of procurement.	Due to the current limited fund, construction will be postponed. This does not have an advers effect on the Project in the short term.
	1-2	Measure monthly water production of water treatment plants 1, 2, 3, and 4	WIP / Revised / Actual			
	1-3	Tally the above water production data monthly	WIP / Revised / Actual	FCTWB will form a committee and clarify facts of duplicated/ return bills. System modication will be discussed in line with treatment of the bills.	Current situation of billing and system have been assessed.	A large number of duplicated/return bills exist, which will be treated by FCTWB.
	1-4	Calculate the monthly water consumption based on the billing data	WIP / Revised / Actual			
	1-5	Calculate monthly NRW ratio of the service area of FCTWB using the data obtained from Activity 1-3 and 1-4	WIP / Revised / Actual		None	None
Output-2						
Methodale/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices	2-1	Review existing NRW reduction operations at each pilot Area Office	WIP / Revised / Actual		Completed	None
	2-2	Conduct capacity assessment of organization and the relevant staff	WIP / Revised / Actual	The result was approved by FCTWB.	Baseline assessment was done.	None
	2-3	Identify and select a Pilot Metering Area (PMA) for each Pilot Area Office based on the selection criteria of PMA	WIP / Revised / Actual		Completed	None
	2-4	Prepare/update distribution network drawings for each PMA	WIP / Revised / Actual	Existing PC associated with AGIS.	Ongoing	Restriction of data extraction should be removed.
	2-5	Install water flow meters to each PMA and measure in/outflows monthly	WIP / Revised / Actual	Construction and installation should be commenced as soon as additional fund is ready, by the end of 2015 at the latest.	None	Due to the current limited fund, construction will be postponed. Until installation, ultrasonic flow meter will be substituted temporarily
	2-6	Zone each PMA into Sub Metering Areas (SMA)	WIP / Revised / Actual		Almost completed	None
	2-7	Isolate a SMA by installing valves	WIP / Revised / Actual	Delayed, To be installed with the current limited fund.	None	None
	2-8	Update the distribution network drawings for each SMA	WIP / Revised / Actual	Existing PC associated with AGIS.	Ongoing	Restriction of data extraction should be removed.
	2-9	Measure an initial level of NRW of each SMA	WIP / Revised / Actual	Delayed, This will follow Activity 2-7.	None	None
	2-10	Detect target NRW components (i.e., invisible leakage, customer meter malfunction, and illegal connection) of each SMA	WIP / Revised / Actual	Delayed	Theoretical lectures were done prior to field works.	None
	2-11	Develop a NRW reduction operation plan of each SMA, including reduction target for review by Head of Distribution Department	WIP / Revised / Actual	To be delayed	None	None
	2-12	Review and approve NRW reduction operation plan of each SMA	WIP / Revised / Actual	To be delayed	None	None
	2-13	Implement NRW reduction operations at each SMA	WIP / Revised / Actual	To be delayed	None	None
	2-14	Monitor the progress of the NRW reduction operations of each SMA	WIP / Revised / Actual	To be delayed	None	None
	2-15	Measure level of NRW of each SMA at the end of the respective operations	WIP / Revised / Actual	To be delayed	None	None
	2-16	Prepare a report on pilot projects, covering Activity 2-1~2-15	WIP / Revised / Actual	Interim report may be rescheduled according to progress.	None	None
	2-17	Develop manuals for NRW reduction for Area Office managers and field operators (i.e., technical officers and meter readers), including audio visual materials	WIP / Revised / Actual		None	None
Output-3						
A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output-1&2	3-1	Establish a Working Group for NRW reduction planning	WIP / Revised / Actual	FCDA is an observer.	Working Group members were selected.	None
	3-2	Review existing plans, implementation structure, on-the-job training mechanism, etc. related to NRW reduction at FCTWB	WIP / Revised / Actual		Review was done preliminarily.	None
	3-3	Conduct hydraulic and water pressure distribution analyses of the pipeline networks	WIP / Revised / Actual		None	None
	3-4	Develop outlines of the medium-term strategic plan and its annual NRW reduction plan (approval by the Director)	WIP / Revised / Actual		None	None
	3-5	Develop the first medium-term strategic plan (2015-2022) for approval by FCTA	WIP / Revised / Actual		None	None
	3-6	Develop an annual NRW reduction plan based on the strategic plan as an integral part of an annual recurrent and capital plan of FCTWB for approval by FCTA	WIP / Revised / Actual		None	None
	3-7	Develop a planning manual for NRW reduction	WIP / Revised / Actual		None	None
Duration / Phasing			WIP / Revised / Actual	Expert Team was not in Nigeria in most of period between January 2015 and April 2015.	-	-

Project Monitoring Sheet II (Revision of Plan of Operation)

Plan of Schedule and Actual Work Period

Version: 1
Dated: 6 Nov. 2014

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project

Schedule period: 2014 (Oct 1, Nov 2, Dec 3), 2015 (Jan 4 – Dec 15), 2016 (Jan 16 – Dec 27), 2017 (Jan 28 – Dec 39), 2018 (Jan 40, Feb 41, Mar 42). Each item has W/P, Revised and Actual rows.

Inputs (the Japanese side)

No.	Item	Remarks	Issue	Solution
	JICA Expert			
1	Akinori MIYOSHI Chief Advisor / NRW Reduction Planning		None	None
2	Taketoshi FUJIYAMA Deputy Chief Advisor / NRW Reduction Planning		None	None
3	Toru TOYODA NRW Reduction Operations Management		None	None
4	Kiyoshi KIYAMA Leakage Detection Technology		None	None
5	Takuo OKUBO Commercial Loss		None	None
6	Shinta SEGAWA Hydraulic Analysis / GIS		None	None
7	Kazuhiro ISHIURA Procurement Management / Coordinator		None	None
	Equipment			
1	Leakage detection equipment *3PMAs in Japan (JICA)		Smooth customs clearance and tax exemption should be	Close communication between JICA and FCTWB is imperative.
2	Bulk meters (ultrasonic flow meter) *WTP in Japan (JICA)	Period of installation will be determined by JICA.	Smooth customs clearance and tax exemption should be	Close communication between JICA and FCTWB is imperative.
3	Water meter, flow meter and valves *3PMAs in Nigeria (JICA Expert)		Delayed	To be procured in line with FCTWB's procurement.
4	Pipe repair equipment *3PMAs in Nigeria (JICA Expert)		Delayed	To be procured in line with FCTWB's procurement.
5	Vehicles (Pickup truck) *Leakage Detection in Nigeria (JICA)		None	None
6	GIS software, office equipment *FCTWB HQs in Nigeria/Other (JICA Expert)	To be handed over soon.	Mostly completed.	None
	Local Consultant			
1	Modification of billing and collection system	System modification will be discussed in line with treatment of duplicated/return bills.	None	None
2	GIS and database training	To be conducted in Aug. or Sep. 2015, considering preparation of pilot project	None	None
	Training in Japan		None	None

Monitoring Plan

No.	Item	Remarks	Issue	Solution
	Planning, Monitoring and Coordination			
1	Organize Joint Coordination Committee (JCC)	JCC is an occasion of decision-making.	None	None
2	Develop Detail Plan of Operations (DPO) for review and approval by JCC		None	None
3	Develop Annual Plan of Operations (APO) for review and approval by JCC	APO is prepared in parallel with FCTWB's annual recurrent and capital plan	None	None
4	Organize monthly technical meetings	Monthly progress, plan, issues, solutions and etc are discussed.	None	None
5	Organize quarterly project meetings	Quarterly progress, plan, issues, solutions and etc are discussed.	None	None
6	Conduct Joint Monitoring semi-annually	Achievement of PDM and progress of PO are monitored jointly.	None	None
7	Submit Monitoring Sheet to JICA Nigeria Office semi-annually		None	None
8	Monitoring Mission from JICA for Joint Review		None	None
9	Organize information sharing seminars for FCTWB/FCTA, including Area Offices		None	None
10	Collect and organize data for Indicators of PDM			
a	Develop criteria for capacity assessment for each level of the relevant staff (i.e., members of NRW Mgmt and Action Teams)		None	None
b	Conduct joint capacity assessment of the relevant staff ※Prepare Capacity Development (CD) Plan	Baseline assessment was done. The result was approved by FCTWB.	None.	None
c	Set reduction target for each PMA by the first quarter of the second year		None	None
d	Collect and organize for Indicators for semi-annual Joint Monitoring		None	None
	Reports / Documents			
11	Work Plan	Work Plan was prepared and approved by FCTWB.	None	None
12	Project Progress Report		None	None
13	Project Completion Report		None	None
	Public Relations			
14	Develop Project Website		None	None
15	Prepration of public relations materials	Newsletter is issued quarterly.	None	None
	Monitoring and Evaluation in the Post-Project period			
16	Post Monitoring by JICA (not described here)			
17	Post Evaluation by JICA (not described here)			

Project Monitoring Sheet II (Revision of Plan of Operation)

PM Form 3-3 Monitoring Sheet II

Resonsibility of Members

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project

Version 1
Dated 6 Nov. 2014

Activities				Responsible Organization (Nigeria)	Responsible Person (Nigeria)	Implementors (Nigeria)	JICA Experts	Other Major Input		Remarks
								Japan	Nigeria	
Output-1				Dist. Dpt	HoD(Dist)		Chief Advisor (CA), Dy.CA			
Level of NRW of the service area of FCTWB is monitored regularly	1-1	Install bulk meters to water treatment plants 1 and 2	W/P	Dist. Dpt	HoU(Pipeline)/D	Tech Officers (Pipeline)	CA, Dy.CA	Bulk meters	Installation,	Prod Dpt will be consulted
			Revised							
			Actual	Prod. Dpt	HoU(Metering)/D				O&M cost	
	1-2	Measure monthly water production of water treatment plants 1, 2, 3, and 4	W/P	Dist. Dpt	HoU(Pipeline)/D	Tech Officers (Pipeline)	CA, Dy.CA			If bulks are installed inside the plants,
			Revised							
			Actual	Prod. Dpt	HoU(Prod)/Prod	Tech Officers (Prod)				Prod Dept shall measure.
	1-3	Tally the above water production data monthly	W/P	Dist. Dpt	HoU(Water Monitoring)	HoU(Water Monitoring)	CA, Dy.CA			
			Revised							
			Actual							
	1-4	Calculate the monthly water consumption based on the billing data	W/P	Com Dpt	HoU(Billing)/C	Billing staff	CA, Dy.CA	Cost for		
			Revised							
			Actual					software		
	1-5	Calculate monthly NRW ratio of the service area of FCTWB using the data obtained from Activity 1-3 and 1-4	W/P	Dist. Dpt	HoU(Logistics)/D	Logistics officer	CA, Dy.CA			
			Revised							
			Actual							
Output-2				Dist. Dpt, Com. Dept	HoD(Dist)(Com)		CA and other Experts	Vehicles	O&M cost	
Methods/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices	2-1	Review existing NRW reduction operations at each pilot Area Office	W/P	Dist. Dpt, Com. Dpt	HoD(Dist)(Com)	AM, AAM (Dist)(Com)	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
	2-2	Conduct capacity assessment of organization and the relevant staff	W/P	Dist. Dpt, Com. Dpt	HoD(Dist)(Com)	NRW Mgt Team	CA and other Experts			
			Revised							
			Actual							
	2-3	Identify and select a Pilot Metering Area (PMA) for each Pilot Area Office based on the selection criteria of PMA	W/P	Dist. Dpt, Com. Dpt	HoD(Dist)(Com)	NRW Mgt Team AM, AAM (Dist)(Com)	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
	2-4	Prepare/update distribution network drawings for each PMA	W/P	Dist. Dpt	HoD(Dist)	HoU(Logistics)&officers	NRW reduction,			
			Revised							
			Actual			HoU(GIS)&officers	Hydraulic analysis			
	2-5	Install water flow meters to each PMA and measure in/outflows monthly	W/P	Dist. Dpt	Area Manager(AM)	AAM(Dist)	NRW reduction,	Water flow	Installation and	
			Revised							
			Actual			Tech Officers(Dist)	Hydraulic analysis	meters	O&M cost	
	2-6	Zone each PMA into Sub Metering Areas (SMA)	W/P	Dist. Dpt	HoU(Logistics)/D	AM, AAM(Dist)(Com)	NRW reduction,			
			Revised							
			Actual		HoU(Metering)/D	HoU(GIS)&officers	Hydraulic analysis			
	2-7	Isolate a SMA by installing valves	W/P	Dist. Dpt	AM	Tech Officers(Dist)	NRW reduction	Valves	Installation and	
			Revised							
			Actual			AAM(Dist)			O&M cost	
	2-8	Update the distribution network drawings for each SMA	W/P	Dist. Dpt	HoU(Logistics)/D	AAM(Dist),HoU(GIS)&officers	NRW reduction,			
			Revised							
			Actual			HoU(Logistics)&officers	Hydraulic analysis			
	2-9	Measure an initial level of NRW of each SMA	W/P	Dist. Dpt	HoD(Dist)		NRW reduction			
			Revised							
			Actual							
	2-10	Detect target NRW components (i.e. invisible leakage, customer meter malfunction, and illegal connection) of each SMA	W/P	Dist. Dpt, Com. Dpt	AM		NRW reduction			
			Revised							
			Actual							
	2-11	Develop a NRW reduction operation plan of each SMA, including reduction target for review by Head of Distribution Department	W/P	Dist. Dpt	AM	AAM (Dist)(Com)	NRW reduction, Leakage detection, Com Loss			
			Revised							
			Actual							
	2-12	Review and approve NRW reduction operation plan of each SMA	W/P	Dist Dpt	HoD(Dist)	Relevant HoUs	NRW reduction			
			Revised							
			Actual							
	2-13	Implement NRW reduction operations at each SMA	W/P	Dist. Dpt, Com. Dpt	AM		NRW reduction			
			Revised							
			Actual							
	2-14	Monitor the progress of the NRW reduction operations of each SMA	W/P	Area Office	AM		NRW reduction			
			Revised							
			Actual							
	2-15	Measure level of NRW of each SMA at the end of the respective operations	W/P	Area Office	AM		NRW reduction			
			Revised							
			Actual							
	2-16	Prepare a report on pilot projects, covering Activity 2-1~2-15	W/P	Dist. Dpt, Com. Dpt	HoD(Dist)(Com)	NRW Mgt Team, AM,	CA, Dy.CA, NRW reduction,			
			Revised							
			Actual				Leakage detection, Com loss			
	2-17	Develop manuals for NRW reduction for Area Office managers and field operators (i.e. technical officers and meter readers), including audio visual materials	W/P	Dist. Dpt, Com. Dpt	HoD(Dist)(Com)	NRW Mgt Team, AM, AAM (Dist)(Com)	CA, Dy.CA, NRW reduction, Leakage detection, Com loss Coordinator			
			Revised							
			Actual							
Output-3				FCTWB	PM		CA, Dy.CA			
A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output-1&2	3-1	Establish a Working Group for NRW reduction planning	W/P	FCTWB	PM	Working Group	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
	3-2	Review existing plans, implementation structure, on-the-job training mechanism, etc. related to NRW reduction at FCTWB	W/P	FCTWB	PM	Working Group	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
	3-3	Conduct hydraulic and water pressure distribution analyses of the pipeline networks	W/P	Dist Dpt	HoU(Logistics)/D HoU(Pipeline)/D	HoU(Logistics)&officers HoU(GIS)&officers HoU(Pipeline)&officers	Hydraulic analysis			
			Revised							
			Actual							
	3-4	Develop outlines of the medium-term strategic plan and its annual NRW reduction plan (approval by the Director)	W/P	FCTWB	PM	Working Group	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
	3-5	Develop the first medium-term strategic plan (2018-2022) for approval by FCTA	W/P	FCTWB	PM	Working Group	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
	3-6	Develop an annual NRW reduction plan based on the strategic plan as an integral part of an annual recurrent and capital plan of FCTWB for approval by FCTA	W/P	FCTWB	PM	Working Group	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
	3-7	Develop a planning manual for NRW reduction	W/P	FCTWB	PM	Working Group	CA, Dy.CA, NRW reduction			
			Revised							
			Actual							
Duration / Phasing			W/P							
			Revised							
			Actual							

Project Monitoring Sheet II (Revision of Plan of Operation)

PM Form 3-3 Monitoring Sheet II

Resonsibility of Members

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project

Version: 1
Dated: 6 Nov. 2014

Inputs (the Japanese side)

			Remarks
JICA Expert			
1	Akinori MIYOSHI Chief Advisor / NRW Reduction Planning	W/P Revised Actual	
2	Taketoshi FUJIYAMA Deputy Chief Advisor / NRW Reduction Planning	W/P Revised Actual	
3	Toru TOYODA NRW Reduction Operations Management	W/P Revised Actual	
4	Kiyoshi KIYAMA Leakage Detection Technology	W/P Revised Actual	
5	Takuji OKUBO Commercial Loss	W/P Revised Actual	
6	Shinta SEGAWA Hydraulic Analysis / GIS	W/P Revised Actual	
7	Kazuhiro ISHIURA Procurement Management / Coordinator	W/P Revised Actual	
Equipment			
1	Leakage detection equipment *3PMAs in Japan (JICA)	W/P Revised Actual	
2	Bulk meters (ultrasonic flow meter) *WTP in Japan (JICA)	W/P Revised Actual	
3	Water meter, flow meter and valves *3PMAs in Nigeria (JICA Expert)	W/P Revised Actual	
4	Pipe repair equipment *3PMAs in Nigeria (JICA Expert)	W/P Revised Actual	
5	Vehicles (Pickup truck) *Leakage Detection in Nigeria (JICA)	W/P Revised Actual	
6	GIS software, office equipment *FCTWB HQs in Nigeria/Other (JICA Expert)	W/P Revised Actual	
Local Consultant			
1	Modification of billing and collection system	W/P Revised Actual	
2	GIS and database training	W/P Revised Actual	
Training in Japan		W/P Revised Actual	

Monitoring Plan

			Responsible Organization (Nigeria)	Responsible Person (Nigeria)	Implementors (Nigeria)	JICA Experts	Other Major Input		Remarks
							Japan	Nigeria	
Planning, Monitoring and Coordination									
1	Organize Joint Coordination Committee (JCC)	W/P Revised Actual	FCTWB	PM	Dy. PM	CA and other Experts			
2	Develop Detail Plan of Operations (DPO) for review and approval by JCC	W/P Revised Actual	FCTWB	PM	Dy. PM, NRW Mgt Team, AM	CA and other Experts			
3	Develop Annual Plan of Operations (APO) for review and approval by JCC	W/P Revised Actual	FCTWB	PM	Dy. PM, NRW Mgt Team, AM	CA and other Experts			
4	Organize monthly technical meetings	W/P Revised Actual	Dist. Dpt, Com. Dpt	NRW Mgt Team Coordinator	NRW Mgt Team, AM	CA and other Experts			
5	Organize quarterly project meetings	W/P Revised Actual	FCTWB	PM	Dy. PM, NRW Mgt Team, AM	CA and other Experts			
6	Conduct Joint Monitoring semi-annually	W/P Revised Actual	FCTWB	PM	Dy. PM, NRW Mgt Team, AM	CA and other Experts			
7	Submit Monitoring Sheet to JICA Nigeria Office semi-annually	W/P Revised Actual				CA, Dy.CA			
8	Monitoring Mission from JICA for Joint Review	W/P Revised Actual	JICA	JICA HQ	To be determined				
9	Organize information sharing seminars for FCTWB/FCTA, including Area Offices	W/P Revised Actual	FCTWB	PM	Dy.PM	CA and other Experts			
10	Collect and organize data for Indicators of PDM		Dist. Dpt, Com. Dpt	NRW Mgt Team's Coordinator	NRW Mgt Team, AM	CA and other Experts			
a	Develop criteria for capacity assessment for each level of the relevant staff (i.e. members of NRW Mgmt and Action Teams)	W/P Revised Actual	Dist. Dpt, Com. Dpt	NRW Mgt Team's Coordinator	NRW Mgt Team, AM	CA and other Experts			
b	Conduct joint capacity assessment of the relevant staff ※Prepare Capacity Development (CD) Plan	W/P Revised Actual	Dist. Dpt, Com. Dpt	NRW Mgt Team's Coordinator	NRW Mgt Team, AM	CA and other Experts			
c	Set reduction target for each PMA by the first quarter of the second year	W/P Revised Actual	Dist. Dpt, Com. Dpt	NRW Mgt Team's Coordinator	NRW Mgt Team, AM	CA and other Experts			
d	Collect and organize for Indicators for semi-annual Joint Monitoring	W/P Revised Actual	Dist. Dpt, Com. Dpt	NRW Mgt Team's Coordinator	NRW Mgt Team, AM	CA and other Experts			
Reports / Documents									
11	Work Plan	W/P Revised Actual	FCTWB	PM	Dy. PM, NRW Mgt Team				
12	Project Progress Report	W/P Revised Actual	FCTWB	PM	Dy. PM, NRW Mgt Team				
13	Project Completion Report	W/P Revised Actual	FCTWB	PM	Dy. PM, NRW Mgt Team	CA and other Experts			
Public Relations									
14	Develop Project Website	W/P Revised Actual	FCTWB	PM	NRW Mgt Team, HoU(PR)	CA, Dy.CA, Coordinator			
15	Prepration of public relations materials	W/P Revised Actual	FCTWB	PM	NRW Mgt Team, HoU(PR)	CA, Dy.CA, Coordinator			Public Relation Unit under Director(PM) will collaborate
Monitoring and Evaluation in the Post-Project period									
16	Post Monitoring by JICA (not described here)		JICA						
17	Post Evaluation by JICA (not described here)		JICA						

MINUTES OF MEETING
ON
THE FOURTH JOINT COORDINATING COMMITTEE
FOR
THE FEDERAL CAPITAL TERRITORY
REDUCTION OF NON-REVENUE WATER PROJECT
HELD IN
THE OFFICE OF DIRECTOR, ECONOMIC PLANNING, RESEARCH AND STATISTICS,
FEDERAL CAPITAL TERRITORY ADMINISTRATION

Abuja, 22nd September, 2016

Mr. Abubakar Sani Pai
Project Director,
Director, Economic Planning, Research
and Statistics Department,
Federal Capital Territory Administration,
Federal Republic of Nigeria

Mr. Akinori Miyoshi
Chief Advisor,
The Federal Capital Territory Reduction of
Non-Revenue Water Project,
Japan International Cooperation Agency
(JICA)

Mr. Hudu Bello
Project Manager,
Director,
Federal Capital Territory Water Board,
Federal Republic of Nigeria

Mr. Hirotaka Nakamura
Chief Representative,
JICA Nigeria Office

Attached Document

The Monitoring Survey Mission, organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), was dispatched from 13th September to 22nd September, 2016 in order to monitor the progress of the Technical Cooperation Project for "The Federal Capital Territory Reduction of Non-Revenue Water Project" (hereinafter referred to as "The Project") jointly with the Nigerian side.

The JICA Monitoring Survey Mission visited "Federal Capital Territory Administration (hereinafter referred to as "FCTA"), Federal Capital Territory Water Board (hereinafter referred to as "FCTWB") and relevant organizations in order to exchange views and opinions on the project with stakeholders and had series of discussion with the Nigerian Authorities concerned.

At the last day of the joint monitoring, the fourth Meeting of Joint Coordinating Committee (hereinafter referred to as "JCC") was held on 22nd September 2016.

1. Remarks and Presentation

Mr. Abubakar Sani Pai, Project Director of the Project, gave his welcome remarks and chaired the JCC. He appreciated JICA for understanding and cooperation since the commencement of the Project despite various challenges, particularly delay in release of the Counterpart Fund by the Nigerian side.

Mr. Hirotaka Nakamura, Chief Representative of JICA Nigeria Office gave his remarks addressing assistance in capacity development of FCTWB since 2012 from the points of view of both human resources and capital investment, such as training of 35 officials in urban water sector and commissioning of solar generation system under Japan's Grant Aid. He mentioned the Project is the first-ever project focusing on reduction of Non-Revenue Water (hereinafter referred to as "NRW") in Nigeria and the Project is expected to contribute to other 36 states' urban water agencies in this country. He also emphasized the necessity of mutual cooperation among all stakeholders to solve challenges in Federal Capital Territory and JICA will continue to support FCTA and FCTWB, as long as every stakeholder keeps their motivation to tackle NRW.

Engr. A. A. Nahuche, Technical Manager of the Project made a presentation of Results of the Project Monitoring (see Appendix 3 and 4), and requested the JCC Meeting members to solve issues.

Mr. Keisuke Yamagami, Project Officer, JICA Monitoring Survey Mission answered to the requests from the Nigerian side, also made a presentation of recommendations (see Appendix 5) as a result of the monitoring survey.

Mr. Yoshiki Omura, Senior Advisor, JICA Monitoring Survey Mission gave technical advices

on prepaid meter based on knowledges and experiences of JICA.
Engr. A. R. Lawal, Head of Special Projects Unit, Distribution, FCTWB made a presentation of Action Plan (see Appendix 6) as a result of participation in the second training in Japan.
At the end of the discussions, Mr. Hudu Bello, the Project Manager of the Project, gave closing remarks. He expressed the gratitude of the Nigerian side for the cooperation of JICA.

2. Main Points discussed

(1) Extension of the Project Period

Based on the monitoring sheet presentation, the Nigerian side requested the Japanese side to extend the project period in order to secure the necessary time frame to monitor the monthly water production, consumption and NRW ratio.
The Japanese side responded by saying the extension of Project period will be considered after completion of the chamber construction for bulk flowmeter to secure the necessary time frame for the monitoring period for the monthly water production, consumption and NRW ratio, because the Project cannot make a realistic NRW reduction strategic plan without collecting those data through the activities of Output 3.
The Japanese side also responded that the draft revised Record of Discussion ("hereinafter referred to as "R/D") will be prepared by the Japanese side if JICA headquarters approved the extension of the project period.

(2) Taking over the Chamber Construction and Procurement of Small Materials for Pilot Activities

It is almost difficult for the Nigerian side to complete the chamber construction for bulk flowmeter due to non-release of the Counterpart Fund to FCTWB. It is indispensable to complete the construction in order to set the bulk flowmeter for monitoring monthly water production in Output 1 activities. In addition, the Nigerian side informed the JCC Meeting members of its financial challenge to procure small materials for pilot activities in Output 2 because of the recent budget constraints.
Therefore, the Nigerian side requested to the Japanese side to take some undertakings as below:

- The total cost of chamber construction for bulk flowmeters (civil works and cable installation) (*related to Output 1)
- Procurement of small materials for pilot activities that are yet to be procured by FCTWB (*related to Output 2)

Based on the request from the Nigerian side, the Japanese side answered to consider taking over

these undertakings in order to avoid further delay of the Project. This would be ratified after approval of the Project Monitoring Sheet (Draft) including the modified Project Design Matrix (PDM) and Plan of Operation (PO) by the JICA Headquarters.

(3) SMA out of PMA Monitoring Area

Through the monitoring survey, both sides technically confirmed that SMA 1 in Jabi and SMA 2-1 in Garki I are constrained to be out of PMA monitoring area. (*PMA: Pilot Metering Area, SMA: Sub-Metering Area)
Therefore, both sides agreed that the Project has to remove these SMAs from the target of the Project in order to avoid further delay of the Project activities (Activity 2-8 to 2-16). As a result, the number of SMAs needs to be reduced as below:

- Jabi : 2 areas
- Garki I : 3 areas (SMA2-2 will not be removed.)

(4) AGIS Security

Mr. Sani Pai, the Project Director reported that the letter requesting removal or relaxation of the Abuja Geographic Information System (hereinafter referred to as "AGIS") security had been written to the Permanent Secretary of FCTA. He suggested FCTWB to engage AGIS in regular meeting of the Project. FCTWB accepted the suggestion.

(5) As-Built Drawings

As for challenge in as-built drawings which caused removal of SMAs in Jabi and Gudu, Mr. Sani Pai suggested further collaboration between FCTWB and Federal Capital Development Authority (hereinafter referred to as "FCDA"). They both agreed to it.

Mr. Takayuki Ohira, JICA Nigeria Office emphasized the importance of constant communication among FCTWB, FCDA and other relevant Agencies to enable smooth workflow. This was accepted.

(6) Prepaid Meter

Based on presentation of technical advice on prepaid meter by Mr. Yoshiki Omura, Senior Advisor, JICA Monitoring Survey Mission, Mr. Sani Pai suggested FCTWB to review situation of prepaid meters. FCTWB accepted the suggestions.

3. Approval of the Project Monitoring Sheet (Draft)

The JCC meeting members approved the Project Monitoring Sheets (Draft) (see Appendix 3).

4. Action Plan

As for the Action Plan prepared by participants in the second Training in Japan, Mr. Sani Pai, the Project Director regarded it as comprehensive and suggested that cost for the implementation be included. Also, he requested FCTWB to include the Action Plan in the Medium Term Sector Strategy (MTSS) meeting for consideration. FCTWB accepted this suggestion and request.

END

Appendix

Appendix 1: Programme/Agenda
Appendix 2: Attendance List
Appendix 3: Project Monitoring Sheet (Draft)
Appendix 4: Results of Project Monitoring by FCTWB
Appendix 5: Recommendations by JICA
Appendix 6: Action Plan (2nd Training in Japan)

Federal Capital Territory Administration (FCTA)
Federal Capital Territory Water Board (FCTWB)
assisted by
Japan International Cooperation Agency (JICA)

THE FEDERAL CAPITAL TERRITORY

REDUCTION OF NON-REVENUE WATER PROJECT

PROGRAMME/AGENDA FOR 4th JOINT COORDINATING COMMITTEE

Venue: Conference Room, EPRS, FCT Administration, Abuja
Date: 10:00, Thursday, 22nd September 2016

10:00	Opening Prayer
10:00 - 10:05	Introduction of JCC Members
10:05 - 10:15	Welcome Remarks by Project Director, Mr. Sani Pai (Director, EPRS, FCTA)
10:15 - 10:25	Address by Chief Representative, Mr. Hirotaka Nakamura (JICA Nigeria Office)
10:25 - 10:55	Presentation of Results of Project Monitoring by Technical Manager, Engr. A. A. Nahuche (HOD Distribution, FCTWB)
10:55 - 11:15	-Recommendation by Mr. Keisuke Yamagami (Project Officer, JICA Headquarters) -Technical Advice by Mr. Yoshiki Omura (Senior Advisor in Urban Water Supply, JICA Headquarters)
11:15 - 11:45	Questions, Answers and Discussions
11:45 - 11:55	Approval of Project Monitoring Sheets
11:55 - 12:25	Presentation of Action Plan as a result of the Second Training in Japan by Engr. A. R. Lawal (Head of Special Projects Unit, Distribution, FCTWB)
12:25 - 12:35	Any other business
12:35 - 12:45	Closing Remarks by Project Manager, Mr. Hudu Bello (Director, FCTWB)
12:45	Closing Prayer

Appendix 2

FEDERAL CAPITAL NON-REVENUE WATER REDUCTION PROJECT

4TH JOINT COORDINATING COMMITTEE MEETING

ATTENDANCE LIST

22nd September 2016

S/N	NAME	POSITION
1	Abubakar Sani Pai	Acting Director, EPRS/FCTA
2	Hirotaka Nakamura	Chief Representative, JICA Nigeria
3	Hudu Bello	Director, FCTWB
4	Bello S.T	HOD Admin.&Supply, FCTWB
5	Dele Olatunji	Head TCP, FCTWB
6	Ogbonna Kenneth E.	Principal Hydrologist, FMWR
7	Nahuche A.A	HOD Distribution, FCTWB
8	Lawal A.R	HOU Special Projects Unit, FCTWB
9	Abbas A. Ahmed	HOU PR, FCTWB
10	Segun Kayode	Procurement, FCTWB
11	Agbontaen O. Sunday	HOD, R&P, FCTWB
12	Ademoroti I.A	Deputy Director [C&P], FMWR
13	Abdulrahman Muhammed	FCTWB
14	Muhammed Adis	HOD Commerce, FCTWB
15	Chuks Udeh	FCDA
16	Ezego Angela	FCTWB
17	Usman Ahmed	Program Analyst
18	Rabiu M.K	HOU, Logistics, FCTWB
19	Omura Yoshiki	Senior Advisor, JICA HQ
20	Keishuke Yamagami	Project Officer, JICA HQ
21	Takayuki Ohira	JICA Nigeria
22	Akinori Miyoshi	Chief Advisor, JICA Expert Team
23	Taketoshi Fujiyama	Deputy C.A. JICA Expert Team

To Chief Representative of JICA Nigeria Office

PROJECT MONITORING SHEETS (DRAFT)

Project Title : The Federal Capital Territory Reduction of Non-Revenue Water Project
Version of the Sheet: Ver. 3 (Term covered: November, 2015 - August, 2016)

Name: Akinori Miyoshi
Title: Chief Advisor
Submission Date: 22 September 2016

I. Summary

1 Progress

1-1 Progress of Inputs

[The Nigerian Side]

Project Personnel

All project members including Project Director, Project Manager, Deputy Project Manager, Technical Managers, Non-Revenue Water (NRW) Management Team members, NRW Action Team members have been involved in the Project.

Land, Building and Facilities

Office spaces and necessary facilities at the Federal Capital Territory Water Board (FCTWB) have been provided for the Japanese side.

Construction of chambers for bulk flow meters has been implemented since December 2015 but is currently suspended due to non-release of the Counterpart Fund.

Chambers for flow meters and valves for the selected PMAs/SMAs were constructed.

Local Costs

Installation, operation and maintenance of the provided equipment and leakage repair in PMAs/SMAs have been done.

[The Japanese Side]

JICA Experts

Japan International Cooperation Agency (JICA) Expert Team consisting of a Chief Advisor and members for ten areas of expertise were assigned to the works in Nigeria for 35.7 man-months between November 2015 and August 2016 (56.4 man-months from the commencement of the Project in November 2014).

Equipment

Flowmeters, valves for the selected PMAs/SMAs and equipment for maintenance including leakage repair were procured in Nigeria for three pilot Area Offices. See the Annex-1: List of

Equipment for the Project.

Procurement of equipment for water distribution management such as zonal meters, data loggers, telemetric monitoring system, etc. has been in process in Japan.

Facilities

Specifications of modification of existing billing system were finalized.

Chamber construction for zonal meters is being implemented by the Nigerian contractor since March 2016.

Training of the Nigerian Project Personnel

GIS training on software of both GeoMedia and ArcGIS for eight project members from Distribution Department and MIS Unit was conducted in Abuja in the period between 23rd November and 1st December 2015.

Following the previous training in August 2015, the second training in Japan for eight project members from both Distribution Department and Commerce Department was conducted in the period between 19th June and 2nd July 2016. See the Annex-2: The Second Training in Japan.

1-2 Progress of Activities

[Activities for Output-1: Level of NRW of both the service area of FCWTB and water distribution areas monitored regularly.]

No	Activity	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
1-1	Install bulk meters to water treatment plants 1 and 2	Delayed. Design of chambers, specification of flow meter, BoQ were prepared. Construction has been postponed due to insufficient Counterpart Fund.	Progress: 75%, Behind: 7.5 months Delayed and suspended. Local contractors outsourced by FCTWB have constructed chambers for bulk meters. Construction of three chambers was completed while the fourth one is 50% completed. However, cable installation, ladder and fencing are pending. The construction has been suspended due to non-payment. This is due to non-release of the Counterpart Fund.
1-2	Measure monthly water production of water treatment plants 1, 2, 3, and 4	No progress and delayed as a result of delay in Activity 1-1.	Progress: 0%, Behind: 7.0 months Delayed as a result of delay in Activity 1-1. After Activity 1-1, the Project needs at least 6 months for monitoring this Activity.
1-3	Tally the above water production data monthly	No progress and delayed as a result of delay in Activity 1-1 and 1-2.	Progress: 0%, Behind: 7.0 months Delayed as a result of delay in Activity 1-1 and 1-2. After Activity 1-1 and 1-2, the Project needs at least 6 months for monitoring this Activity.
1-4	Calculate the monthly water	Situation of billing and its system	Progress: 40%, Behind: 7.5 months

No	Activity	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
	consumption based on the billing data	have been partially assessed. In this process, the Project identified existence of duplicated/returned bills which cause inaccurate analysis of water consumption. So, the Project has suspended the Activity and will resume in line with treatment of duplicated/returned bills by FCTWB.	Delayed. FCTWB has collected information of returned bills and has deactivated them. The returned bills cause inaccuracy of calculating NRW ratio. The final specification for billing system modification was adopted. After modification, the Project needs at least 6 months for monitoring this Activity.
1-5	Calculate monthly NRW ratio of the service area of FCTWB using the data obtained from Activity 1-3 and 1-4	No progress and delayed as a result of delay in Activity 1-3 and 1-4.	Progress: 0%, Behind: 7.5 months Delayed as a result of delay in Activity 1-3 and 1-4. The Project needs at least 6 months for monitoring this Activity after obtaining the data from Activity 1-3 and 1-4.
1-6	Install zonal meters, water pressure sensor and pilot remote monitoring (telemetry) system	- (*Added in PDM2 after the monitoring.)	Progress: 65%, Behind: 1.5 months Being delayed. Planning/designing of zonal meters, BoQ and specifications were completed. Construction of 6 out of 8 chambers was completed by the local contractor outsourced by JICA while the remaining 2 is ongoing. Consistent rain has affected the process of excavation of rock at the chamber site. Construction will continue as soon as favorable weather condition is achievable.
1-7	Measure and collect data for water distribution management such as water flow of zonal meters and water pressure	- (*Added in PDM2 after the monitoring.)	Progress: 0%, Behind: 0.0 months The Activity will be implemented after the completion of Activity 1-6.)

[Activities for Output-2: Methods/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices.]

No	Activity	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
2-1	Review existing NRW reduction operations at each pilot Area Office	Completed.	Completed.
2-2	Conduct capacity assessment of organization and the relevant staff	Baseline assessment was done in Nov.-Dec. 2014 for all project members (excluding Project Director, Project Manager and Deputy Project Manager) as well as organization, institutional and social aspects. Capacity development plan was prepared and approved by FCTWB.	Progress: 50%, Behind: 7.0 months Delayed as a result of delay in Activity 2-9 to 2-15. Interim assessment will be done when pilot project terminates.

No	Activity	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
2-3	Identify and select a Pilot Metering Area (PMA) for each Pilot Area Office based on the selection criteria of PMA	Completed. Based on criteria such as security, leakage conditions, network drawings, number of customers, three PMAs were selected: Gudu: Prince & Princess Jabi: Jabi Garki I: Area 2-2&3&7	Completed.
2-4	Prepare/update distribution network drawings for each PMA	Ongoing but delayed. Drawings for PMA of Gudu Area Office were prepared. AGIS security has hindered data import/export and analysis.	Completed. AGIS security has still hindered data import/export and analysis.
2-5	Install water flow meters to each PMA and measure in/outflows monthly	Ongoing but Delayed. Flow meters for Gudu and Jabi have been procured and delivered. Procurement in Garki I is ongoing.	Progress: 90%, Behind: 9.0 months Delayed as a result of electrical works for the ultrasonic flow meter to be installed in Garki I. All mechanical flow meters were procured and installed except the ultrasonic flow meter in Garki I. (Discussion with AEDC is ongoing.) FCTWB will complete electricity connection for the ultrasonic flow meter in Garki I.
2-6	Zone each PMA into Sub Metering Areas (SMA)	Completed. Design for zoning was done.	Completed.
2-7	Isolate a SMA by installing valves	Ongoing but delayed. Valves for Gudu and Jabi have been procured and delivered. Procurement in Garki I is ongoing.	Completed.
2-8	Update the distribution network drawings for each SMA	Delayed but ongoing. Drawings for SMAs of Gudu Area Office have been prepared. AGIS security has hindered data import/export and analysis.	Progress: 80%, Behind: 2.0 months Delayed. All existing pipelines, valves and hydrants were captured. Locations of leakage and illegal connections will be captured. AGIS security has still hindered data import/export and analysis.
2-9	Measure an initial level of NRW of each SMA	No progress and delayed as a result of delay in Activity 2-5 and 2-7.	Progress: 75%, Behind: 5.5 months Delayed as a result of different meter types, non-accessibility to meter and complexity in commercial aspects such as customer categories, water tariffs, units and Area Offices for reading, billing systems and automated estimate billing. 24 hrs flow measurement, MNF survey, Step test, Meter error test and Meter reading were completed.

No	Activity	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
			24hrs customer consumption survey, Unbilled authorized customer listing and consumption survey are ongoing.
2-10	Detect target NRW components (i.e. invisible leakage, customer meter malfunction, and illegal connection) of each SMA	No progress and delayed as a result of delay in Activity 2-9. Theoretical lectures and fact findings were done prior to field works.	Progress: 75%, Behind: 5.5 months Delayed as a result of different meter types, non-accessibility to meter and complexity in commercial aspects such as customer categories, water tariffs, units and Area Offices for reading, billing systems and automated estimate billing. Leakage detection acoustic survey and Illegal connection survey were completed.
2-11	Develop a NRW reduction operation plan of each SMA, including reduction target for review by Head of Distribution Department	No progress and delayed as a result of delay in Activity 2-10.	Progress: 30%, Behind: 4.5 months Delayed and the Activity has been done provisionally. The plan is under preparation.
2-12	Review and approve NRW reduction operation plan of each SMA	No progress and delayed as a result of delay in Activity 2-11.	Progress: 30%, Behind: 4.5 months Delayed and the Activity has been done provisionally. The plan is under preparation.
2-13	Implement NRW reduction operations at each SMA	No progress and delayed as a result of delay in Activity 2-12.	Progress: 45%, Behind: 4.5 months Delayed and the Activity has been done provisionally. Repair of leakages completed in three PMAs. Meter replacement and installation is ongoing in Gudu.
2-14	Monitor the progress of the NRW reduction operations of each SMA	No progress and delayed as a result of delay in Activity 2-13.	Progress: 45%, Behind: 4.5 months Delayed and the Activity has been done provisionally. Repair of leakages completed in three PMAs. Meter replacement and installation is ongoing in Gudu.
2-15	Measure level of NRW of each SMA at the end of the respective operations	No progress and delayed as a result of delay in Activity 2-14.	Progress: 0%, Behind: 6.5 months Delayed and the activity follows Activity 2-14.
2-16	Prepare a report on pilot projects, covering Activity 2-1~2-15	No progress and delayed as a result of delay in Activity 2-15.	Progress: 0%, Behind: 2.0 months Delayed and the activity follows Activity 2-15.
2-17	Develop manuals for NRW reduction for Area Office managers and field operators (i.e. technical officers & meter readers), incl. audio visual materials	No progress.	Progress: 0%, Behind: 2.0 months Delayed and the activity follows the above Activities.

[Activities for Output-3: A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output-1&2.]

No	Activity	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
3-1	Establish a Working Group for NRW reduction planning	Completed, but will be reviewed in Phase-2.	Completed, but will be reviewed in Phase-2.
3-2	Review existing plans, implementation structure, on-the-job training mechanism, etc. related to NRW reduction at FCTWB	Completed, but will be reviewed in Phase-2.	Completed, but will be reviewed in Phase-2.
3-3	Conduct hydraulic and water pressure distribution analyses of the pipeline networks	To be implemented in Phase-2.	To be implemented in Phase-2. AGIS security may hinder data import/export and analysis.
3-4	Develop outlines of the medium-term strategic plan and its annual NRW reduction plan (approval by the Director)	To be implemented in Phase-2.	To be implemented in Phase-2.
3-5	Develop the first medium-term strategic plan (2018-2022) for approval by FCTA	To be implemented in Phase-2.	To be implemented in Phase-2.
3-6	Develop an annual NRW reduction plan based on the strategic plan as an integral part of an annual recurrent and capital plan of FCTWB for approval by FCTA	To be implemented in Phase-2.	To be implemented in Phase-2.
3-7	Develop a planning manual for NRW reduction	To be implemented in Phase-2.	To be implemented in Phase-2.
3-8	Review existing plans, activities and implementing structure, etc. related to water distribution management	- (*Added in PDM2 after the monitoring.)	Progress: 70%, Behind: 7.0 months Delayed as a result of delay in information submission from Area Offices. 6 out of 13 Area Offices submitted the required information. There was difficulty in implementation due to dearth of as-built drawings which will have provided sufficient information on pipeline and appurtenances.
3-9	Establish framework of water distribution management	- (*Added in PDM2 after the monitoring.)	Progress: 25%, Behind: 0.5 months Being delayed. Water Distribution Management Committee was established and concept was endorsed. There was difficulty in implementation due to dearth of as-built drawings which will have provided sufficient information on pipeline and appurtenances.

1-3 Achievement of Output

[Output-1: Level of NRW of the service area of FCTWB is monitored regularly.]

No	Indicator	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
1a	Record of monthly NRW ratio is kept by Distribution Department from the third quarter of the first (*replace by "second" in PDM2) year of the Project.	No achievement (delayed). Monthly NRW ratio based results of Activity 1-5 has not been obtained due to delay in Activity 1-1 to 1-4. So, time frame is changed from the third quarter of the first year to the third quarter of the second year.	No achievement (delayed). Monthly NRW ratio based results of Activity 1-5 has not been still obtained due to delay in Activity 1-1 to 1-4. In the current schedule, it is expected that monthly NRW ratio will be obtained from Dec. 2016, the first quarter of the third year.
1b	Monthly NRW ratio of the service area of FCTWB is reported to its monthly Joint Management Meeting from the third quarter of the first (*replace by "second" in PDM2) year of the Project.	No achievement (delayed). Same as the above in Indicator 1a.	No achievement (delayed). Same as the above in Indicator 1a.
1c	Quarterly NRW ratio of the service area of FCTWB is reported to the Board of Directors (*replace by "Management" in PDM2) of FCTWB from the third quarter of the first (*replace by "second" in PDM2) year of the Project.	No achievement (delayed). Quarterly NRW ratio based results of Activity 1-5 has not been obtained due to delay in Activity 1-1 to 1-4. So, time frame is changed from the third quarter of the first year to the third quarter of the second year.	No achievement (delayed). Quarterly NRW ratio based results of Activity 1-5 has not been still obtained due to delay in Activity 1-1 to 1-4. In the current schedule, it is expected that quarterly NRW ratio will be obtained from Mar. 2017, the second quarter of the third year.
1d	Periodic records of data on water distribution management such as water flow of zonal meters and water pressure are kept by Distribution Department from the first quarter of the third year of the Project.	- (*Added in PDM2 after the monitoring.)	No achievement (as planned).

Verification of Achievement and Implementing Process

Under the condition that the Counterpart Fund for inputs by the Nigerian side has not been released, FCTWB has made efforts for chamber construction by outsourcing and staff assignment and logistics. But, the chamber construction has been suspended due to non-release of the Fund, and this has caused delay of measuring and tallying monthly water production data in Activity 1-2 and 1-3.

Since a large number of return bills exist in the billing system, as a decision making of project operation, the Project suspended modification of the billing system, which is an input by the Japanese side, and then requested that FCTWB collects information on the return bills and deactivates them prior to conducting the modification. As a result, this has caused delay of calculating monthly water consumption in Activity 1-4.

Consequently, monthly NRW ratio has not been calculated in Activity 1-5, and Indicator 1a, 1b and 1c

Although the Project has not achieved Indicator 1a, 1b and 1c and been behind the schedule, there are no problems in the implementing process. However, monitoring period for six months at least may not be ensured in the current schedule.

[Output-2: Methods/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices.]

No	Indicator	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
2a	Decrease rate of NRW ratio for each Sub Metering Area of a PMA reaches at least 80% of its target at the end of the respective NRW reduction operations.	No achievement. Although time frame is not specified, this indicator is supposed to be obtained in Sep. 2015, the fourth quarter of the first year. So, this means delayed.	No achievement (delayed). Although time frame is not specified, this indicator has not been obtained, this mean delayed. In the current schedule, it is expected that this indicator will be obtained from Oct. 2016, the first quarter of the third year.
2b	Technical manuals for Area Office managers and field operators (i.e. technical officers and meter readers), including audio visual materials, are approved by Head of Department (HoD) for Distribution and HoD for Commerce by the first quarter of the third year of the Project.	No achievement (as planned).	No achievement (as planned).

Verification of Achievement and Implementing Process

Under the condition that the Counterpart Fund for inputs by the Nigerian side has not been released, FCTWB has made efforts for chamber construction by outsourcing, procurement of materials, installation, staff assignment and logistics. But, quality of the input, particularly constructed facilities and work performance, has been not necessarily ensured properly or as planned, although minimum functionality exists at least.

On the other hand, inputs from the Japanese side, mostly Experts and procurement of equipment, have been done as planned or necessary. However, NRW ratios in PMAs/SMAs have not yet calculated as a result of different meter types, non-accessibility to meter and complexity in commercial aspects such as customer categories, water tariffs, units and Area Offices for reading, billing systems and automated estimate billing.

Conditions and difficulty in implementing activities as well as issues vary by pilot Area Offices, but pilot project will lead to fruitful findings and lessons for FCTWB and the Project. Sense of participation in the Project and motivation of project members from pilot Area Offices are holistically high.

Although the Project has not achieved Indicator 2a and been behind the schedule, there are no problems in the implementing process.

[Output-3: A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output-1&2.]

No	Indicator	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
3a	By October 2017, draft medium-term strategic plan for NRW reduction (2018-2022) is submitted by FCTWB to FCTA for review and approval.	No achievement (as planned).	No achievement (as planned).
3b	By October 2017, an annual NRW reduction plan (2018) is incorporated in FCWTB's annual recurrent and capital plan (2018) for submission to FCTA for review and approval.	No achievement (as planned).	No achievement (as planned).
3c	A planning manual for NRW reduction is approved by the Director of FCTWB by the end of the Project.	No achievement (as planned).	No achievement (as planned).
3d	By November 2016, framework of water distribution management is established.	- (*Added in PDM2 after the monitoring.)	No achievement (as planned).
Verification of Achievement and Implementing Process Indicator 3a, 3b and 3c and related activities for Output-3 are subject to Phase 2 of the Project, which is scheduled to be implemented from January 2017. Activities related to Indicator 3d are in progress as plan with participation of all Area Offices, although it has taken time to collect information.			

1-4 Achievement of the Project Purpose

[Project Purpose: Capacity of FCTWB for NRW reduction is strengthened.]

No	Indicator	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
a	The medium-term strategic plan for NRW reduction (2018-2022) is approved by FCTA by the end of the Project.	No achievement (as planned).	No achievement (as planned).
b	NRW reduction operations of the first quarter of 2018 specified in the annual plan of the above plan are carried out according to the plan by FCTWB.	No achievement (as planned).	No achievement (as planned).
c	Relevant staff of FCTWB (i.e. members of NRW Management Team and Pilot NRW Action Teams) become equipped with	Ongoing. Skills and knowledge necessary for NRW reduction, such as PMA /SMA designing, preparation of GIS network drawings have been gradually	Ongoing. Skills and knowledge necessary for NRW reduction, such as minimum night flow survey, step test, leakage detection, meter error test for water

No	Indicator	Previous Monitoring (as at Nov.2015)	Current Monitoring (as at Aug.2016)
	skills and knowledge necessary for NRW reduction according to the criteria set by the Project for each level.	developed through lectures, OJT and the first training in Japan in Aug. 2015.	balance analysis has been developed through lectures, OJT and the second training in Japan in Jun.-Jul. 2016.
d	NRW ratio of each PMA in the last quarter of the Project reaches its respective target (**). Note(**):Target for each PMA is expected to be determined by the end of the first quarter of the second year.	No achievement (as planned).	No achievement (as planned).
Verification of Achievement and Implementing Process Budget constraint of the Nigerian side is a possible obstructive factor against achievement of project purpose, particularly Indicator b. Achievement in Indicator c resulted from the activities for Output-2. FCTWB is willing to expand NRW reduction into the whole service area, and the necessity of cross-departmental function for NRW reduction such as task force is being recognized gradually.			

1-5 Changes of Risks and Actions for Mitigation

Due to collapse in oil prices and shrinking revenue, recent budget constraint of the Nigerian side including non-release of the Counterpart Fund corresponds to an important assumption "A. Natural disaster / political instability / economic crisis that affect the Project activities do not occur." Under this situation, there is a high possibility that FCTWB cannot complete the chamber construction of the bulk flowmeter (Output 1). Also, there is a high possibility that FCTWB cannot procure smoothly necessary materials for Output 2 activities. This is why there is a high-risk that the Project further delays and the outcome of the Project would be reduced.

1-6 Progress of Actions undertaken by JICA

The JICA Expert Team has encouraged the Nigerian relevant organization for budget execution, however, it is difficult to release of the Counterpart Fund. Non-release of the Fund is a decision by the Nigerian Government.

Also, the JICA Expert Team and FCTWB have negotiated with contractors to let them continue the chamber construction, however, contractors have not accepted because FCTWB cannot make an assurance for payment for construction.

1-7 Progress of Actions undertaken by Nigerian side

FCTWB has already submitted the request letters to FCTA for budget execution and dealt with all the necessary procedures, but the release of the Counterpart Fund is yet to be effected.

1-8 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

(1) Legal Instrument (Enabling Law) establishing FCTWB

Legal instrument (enabling law) establishing FCTWB as an autonomous body has not yet been approved by the current National Assembly.

(2) Grant Aid Project by Japan

"The Project for Introduction of Clean Energy by Solar Electricity Generation System" for Lower Usuma Water Treatment Plants was commissioned in late August 2016. This contributes to stable water supply to customers of FCTWB.

(3) Situation of Actions raised in previous Monitoring in November 2015

(3)-1: Action for "Limited Progress of Activities for Outut-1"

FCTWB will liaise closely with FCTA for quick release of Counterpart Fund as soon as the government policy of Treasury Single Account is stabilized.

Situation: The Counterpart Fund approved in the financial year 2015 was not released even the financial year was extended as an extralegal measure until March 2016. The Nigerian side revalidated this approved Fund in the financial year 2016 by approval of FCT Minister and Permanent Secretary, however, the Fund has not yet been released.

(3)-2: Action for "Suspension of Activity 1-4"

FCTWB collated all the duplicated/returned bills, verified them and commenced the deactivation process for the bills. Report will be submitted by the middle of November 2015 to JICA Expert Team to analyze them jointly for water balance. After the deactivation and analysis, water connection and data creation will be centralized by HODs (Distribution and Commerce) in the Headquarters to avoid duplication.

Situation: FCTWB verified about 4,800 of the return bills and deactivated them by July 2016, and consequently, conditions of billing system modification was met. The final specification for billing system modification was adopted.

(3)-3: Action for "Delay in implementing Activity 2-5 and 2-7"

FCTWB, particularly GIS Unit and Pipeline Unit, will update GIS network drawings by physical verification during routine maintenance and capturing GPS location for existing facilities. FCTWB will obtain as-built drawings of new/old facilities certainly from Federal Capital Development Agency's (FCDA) Engineering Services Department and FCT Agency for Mass Housing.

Situation: FCTWB, particularly GIS Unit, Pipeline Unit and Area Offices, is updating GIS

network drawings by physical verification during routine maintenance and capturing GPS location for existing facilities. There is no remarkable progress in obtaining as-built drawings of new/old facilities certainly from FCDA's Engineering Services Department and FCT Agency for Mass Housing, because of disordered storage conditions and not well organized process of drawing management.

(3)-4: Action for "AGIS Security"

FCTWB will gradually develop its own customized GIS database.

Situation: FCTWB is updating its own GIS database as mentioned in (3)-3, meanwhile, FCTWB has referred the challenge to FCTA's Permanent Secretary and is working closely with AGIS to solve the issue.

(4) Situation of Actions for Recommendation by JICA Monitoring Survey Mission in previous Monitoring in November 2015

(4)-1: Action for "Further efforts towards the project management and a stronger sense of ownership by FCTWB"

Situation: Monthly technical meetings with attendance of 20-30 members have been organized and facilitated by Technical Manager and Coordinator. This means a sense of ownership among working level staff in project management has been enhanced.

(4)-2: Action for "Project management on the basis of Monitoring Sheets"

Situation: Project members have understood concept and usefulness of Monitoring Sheets through practical and joint monitoring process. Although Project members have suggested preparing Monitoring Sheets by themselves with voluntary efforts, the knowledge and skills of preparation will be gradually developed.

(4)-3: Action for "Sharing of Capacity Assessment and Development Plan"

Situation: The Project has planned to conduct interim capacity assessment when development of capacity on NRW reduction is expected through pilot project activities for Output 2, as well as mini-workshop for enhancing motivation. However, due to delay in most of Pilot project activities, these have not been conducted.

2 Inspection of the Project Implementation Process

2-1 Evaluation on the Process of Capacity Development

There is no issue. The JICA Expert Team accelerates the Nigerian counterparts' ownership when they implement the capacity development.

2-2 Monitoring and Information Sharing

Monitoring system between the JICA Expert Team and FCTWB is satisfied. Both sides share the information on the progress of the Project activities through daily communication, monthly and quarterly regular meetings.

2-3 Communication among the Project Team

There is no issue.

2-4 Involvement by JICA Nigeria Office

JICA Nigeria Officer, who is in charge of this Project management in JICA Nigeria office, has often visited the Project office and has communicated with the Project Team.

2-5 Involvement of Counterpart

Generally, the Project members from the Nigerian side have been involved well through participation in the Project activities and attendance in monthly and quarterly regular meetings.
Especially, one FCTWB staff belonging to Gudu Area Office has a high motivation to implement the voluntary NRW reduction activities outside the Pilot Metering Area based on action plan which was prepared by him in the training course in Hokkaido, Japan.
From the beginning, the Project aims to promote such voluntary NRW reduction activities outside the Pilot Metering Area by the Nigerian side self-effort, this is good example of the Project activities.

2-6 Assignment of Counterparts

Generally, the Nigerian side has assigned roles and responsibilities to appropriate staff. However, considering sustainability of implementing NRW reduction based on a NRW reduction strategic plan to be prepared through Output 3 activities, it may be necessary for the Nigerian side to enhance project management skill for working level staff such as Head of Unit for example. Such project management skill should be enhanced through the Project activities. In addition, the existing operational structure should be reviewed.

2-7 Involvement of Relevant Organizations

FCTA has been involved well in the Project as the chair of Joint Coordination Committee (JCC) and also has assisted and advised the Project in dealing with issues including the Counterpart Fund and AGIS security.
The Project has shared information with other relevant organizations such as FCDA, Federal Ministry of Water Resources (FMWR), Embassy of Japan and international development partners through JCC meetings, workshops and newsletters. JICA organized a stakeholder meeting which was chaired by FMWR with attendance of Kaduna State Water Board in November 2015.

2-8 Other Issues related to Project Implementation Process

(1) Communication between Distribution Department and Commerce Department

The JICA Expert Team reported that Distribution Department and Commerce Department have to implement the cross-cutting activities for NRW reduction. Both Departments understand the importance of collaboration and active communication, however they need to collaborate more to the success of the Project. Also, active participation of Commerce Staff (FCTWB Headquarters) particularly in the field activities is a key to success of the Project and improvement in water supply services.

(2) Necessity for Strengthening Partnership between FCDA and FCTWB

It is necessary for FCTWB to obtain the updated as-built drawings and information correctly and timely for proper operation, maintenance and implementing NRW reduction activities efficiently. However, FCWB has not been able to obtain the updated as-built drawings and information in respect of its operation and maintenance activities from FCDA that is in charge of provision of infrastructure. This is as a result of lack of feedback system between the two sister agencies. So, FCTWB is encouraged to always share its operation and maintenance experiences with FCDA while FCDA is equally advised to carry along FCTWB in its water project implementation.

(3) Lack of the Quality Management

The monitoring survey mission found quality of information and performance as well as quality of constructed facilities is not properly managed by FCTWB. For example,

(a) Information such as deliverables from FCTWB has lacked often accuracy, so this has led to decrease in data reliability and duplication of effort.
(b) There are many honeycombs on the surface of the concrete of constructed chambers for the bulk flowmeter.
(c) In Garki I Pilot area, FCTWB cannot read PMA flowmeter regularly because of mortar plastering on entire concrete slab covers.
(d) In Gudu Pilot area, inside of the chamber for PMA flowmeter is in muddy conditions because FCTWB has not placed concrete slab covers.

It is very important to pay attention to quality management in order to enhance the Project outcome with adequate performance, avoid further delay of the Project and keep sustainability through proper operation and maintenance.

3 Other Issue from the Technical Aspect

This is the view of the monitoring survey mission from JICA headquarters about prepaid meter.

(1) Structures of Prepaid Meters

FCTWB has two types of prepaid meters. The one shown to the mission was of combination of mechanical meter and an electronic device mounted threon (the manufacturer: Henan Suntront Tech Co., Ltd., China) The mechanical part measures flow and the electronic device seemed calculating consumption and water charge accordingly and deducting it from a pre-paid amount. Two pre-paid meters installed were shown to the mission in Gudu area. One of them was found indicating blank display because of battery run-out and dismantled from the service connection. The meters of this model are owned and operated by a private contractor.

The other model is of ultrasonic flowmeter, which is composed of outdoor unit for measurement and indoor unit for charging and display (Manufacturer: Universal Metering System, UK). Both are connected by wireless.

(2) Life of Prepaid Meters

Because the former model of pre-paid meters uses mechanical part similar to the conventional model, the life of a prepaid meter will be governed by the mechanical part and assumed as 6 to 7 years at the longest or two to three years from the mission's experience in developing countries. As the Gudu case suggests, a pre-paid meter has another elements to consider, a battery. An Electronic device requires power, that is supplied by a built-in battery. Although some manufacturers claim battery life may be 10 years nowadays, but a Gudu case may suggest otherwise. The replacement of a prepaid meter costs three to eight times more than a conventional one.

Since there is no moving part in the latter model, the meter life is expected much longer than mechanical one and governed by the life of battery.

(3) Meter-reading and Maintenance

It should be noted that meter-reading of prepaid meters should be regularly done by a water service provider itself or by a contractor unless the service provider maintains data collection and analysis of individual customers at the time of pre-payment of water charges. If this process of customer information is omitted, an opportunity to detect malfunctioning meters or illegal connections including meter-bypassing will be lost.

JICA is planning to extend technical assistance to a city in Palestine, and suburbs of the city is found successfully deploying prepaid meters. The water service provider of the suburbs contracted with the supplier of prepaid meters for performance guarantee and maintenance services of meters. The same service provider required the meter supplier tailoring software to accommodate the provider's requests such as lower water rate for limited consumption by low income families, recording seasonal and daily fluctuation of demands, and abnormally high or low consumption of individual customers.

Unless such systematic cares are taken by water provider, use of prepaid meters is critical in terms of NRW reduction and the financial aspect of water service provider.

4 Delay of Work Schedule and/or Problems (if any)

4-1 Detail

(1) Delay of the Project

Available monitoring period of Activities 1-2 to 1-5 will be insufficient due to delay in the Activities. The Project needs at least six months for monitoring the Activities 1-2 to 1-5.

(2) SMA out of PMA Monitoring Area

PMA meters were relocated from originally-designed position to other position in Jabi and Garki I due to difficulty in implementation, which results in making a SMA each be out of PMA monitoring area.

4-2 Cause

(1) Delay of the Project

(1)-1 The chamber construction for bulk flowmeters and procurement of necessary materials for pilot activities has delayed and suspended due to non-release of the Counterpart Fund in 2015&2016.

(1)-2 It takes a lot of time to obtain the correct situation due to non-existence of the as-built drawings and the restriction of GIS usage. FCTWB has to update GIS network drawings by physical verification during routine maintenance and capturing GPS locations for existing facilities.

(2) SMA out of PMA Monitoring Area

Jabi (SMA1)

It founds that it was physically difficult to settle the PMA flowmeter and to monitor water flow at the original location, because the distance from the ground level to the location of pipeline was unexpectedly deep (6.3m from the ground level). See the Annex-3: Location of the SMAs to be removed from PMA Monitoring.

This is why the Project Team has to change the location for setting the PMA flowmeter to other location.

Garki I (SMA2-1)

It founds that FCTWB could not supply water to the western area in SMA2 if the Project Team closes the valve at the original location. See the Annex-3: Location of the SMAs to be removed from PMA Monitoring.

This is why the Project Team has to change the location for setting the PMA flowmeter to other location in order to continue supplying water to habitants in the western area in SMA2.

The reason why such situation happened is that FCTWB does not have as-built drawings which reflect the latest correct situation.

4-3 Action to be taken

(1) Against "Delay of the Project"

(1)-1 Extension of the Project Period

As a result of the second joint monitoring survey, both sides found the Project delays six months from the original plan of operation, and also found that it is impossible to secure necessary time frame to monitor the monthly water production, consumption and NRW ratio within the present project period. Without the monitoring of them, the Project cannot make a realistic NRW reduction strategic plan through the activities of Output 3, so that it is indispensable for securing the Project's outcome. In addition, both sides confirmed that the Nigerian side cannot fulfill some undertaking (completion of the chamber construction of bulk flowmeter and cable installation) due to the non-release of the Counterpart Fund.

Therefore, as a countermeasure against this issue, the Nigerian side requested to the Japanese side to extend the project period in order to secure the necessary time frame to monitor the monthly water production, consumption and NRW ratio.

(1)-2 Taking over the Chamber Construction and Procurement of Small Materials for Pilot Activities

FCTWB is liaising closely with FCTA for quick release of the Counterpart Fund, however, both sides confirmed that it is almost difficult for the Nigerian side to complete the chamber construction for bulk flowmeter. It is indispensable to complete the construction in order to set the bulk flowmeter for monitoring monthly water production in Output 1 activities.

In addition, both sides confirmed that there are some possibilities to procure small materials for Pilot activities in Output 2.

Therefore, as a countermeasure against this issue, the Nigerian side requested to the Japanese side to take some undertakings as below:

- The total cost of chamber construction for bulk flowmeters (civil works and cable installation) (* related to Output 1)
- Procurement of small materials for pilot activities that are yet to be procured by FCTWB

(*related to Output 2)

(1)-3 Relaxing the Restriction of GIS Usage

Now that FCTWB cannot get access to some critical information for the Project activities, the restriction has to be relaxed.

(2) Against "SMA out of PMA Monitoring Area"

(2)-1 Removing the SMA out of PMA

Both sides technically confirmed that SMA 1 in Jabi and SMA 2-1 in Garki I are constrained to be out of PMA monitoring area. See the Annex-3: Location of the SMAs to be removed from PMA Monitoring. In order to avoid further delay of the Project activities (Activity 2-8 to 2-16), the Project Team has to remove these SMAs from the target of the Project. As a result, the number of SMAs need to be reduced as below:

- Jabi : 2 areas
- Garki I : 3 areas (SMA2-2 will not be removed.)

(2)-2 Collecting necessary Information from FCDA

FCTWB has to get the necessary information in order to implement the Project activities efficiently.

4-4 Roles of Responsible Persons/Organization

[Nigerian Side]

(1) For "Delay of the Project"

(1)-1 Extension of the Project Period

If JICA headquarters approves this Monitoring Sheet, the Japanese side prepares the draft revised Record of Discussion (R/D) for this purpose. After the discussion on the revised version of R/D, the Nigerian side signs the revised one.

(1)-2 Taking over the Chamber Construction and Procurement of Small Materials for Pilot Activities

If JICA headquarters approves this Monitoring Sheet, FCTWB terminates the original contract between FCTWB and contractors as soon as possible before the JICA Expert Team conducts a new contract with the contractors based on terms and conditions of the original contract.

(1)-3 Relaxing the Restriction of GIS Usage

FCTWB has referred the challenge to FCTA's Permanent Secretary and is working closely

with AGIS to solve the issue.

(2) For "SMA out of PMA Monitoring Area"

FCTWB obtains necessary as-built drawings of new/old facilities certainly from FCDA's Engineering Services Department and FCT Agency for Mass Housing.

[Japanese Side]

(1) For "Delay of the Project"

(1)-1 Extension of the Project Period

Based on the request from the Nigerian side, the Japanese side considers the extension of Project period after completion of the chamber construction for bulk flowmeter to secure the necessary time frame for the monitoring period for the monthly water production, consumption and NRW ratio.

If JICA headquarters approves the extension of the project period, the Japanese side prepares the draft revised R/D for this purpose.

(1)-2 Taking over the Chamber Construction and Procurement of Small Materials for Pilot Activities

Based on the request from the Nigerian side, the Japanese side considers taking over some undertakings in order to avoid further delay of the Project as below:

- The total cost of chamber construction for bulk flowmeters (civil works and cable installation) (*related to Output 1)
- Procurement of small materials for pilot activities that are yet to be procured by FCTWB (*related to Output 2)

5 Modification of the Project Implementation Plan

5-1 Plan of Operation

As described above, based on the request from the Nigerian side, the extension of Project period will be considered by the Japanese side after completion of the chamber construction for bulk flowmeter to secure the necessary time frame for the monitoring period for the monthly water production, consumption and NRW ratio.

5-2 Other modifications on detailed implementation plan

None.

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target

group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA headquarters. If the Project Team deems it necessary to modify any part of R/D and PDM, the Team may propose the draft.)

6 Preparation by Nigerian side toward after completion of the Project

To be considered.

II. Project Monitoring Sheet I & II (as attached)

Annex

Annex-1: List of Equipment for the Project
Annex-2: The Second Training in Japan
Annex-3: Location of the SMAs to be removed from PMA Monitoring
Annex-4: Participants in Preparation of Monitoring Sheet and Photos

Project Monitoring Sheet I (Revision of Project Design Matrix)

PDM3

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project
Project Period: October 2014 to March 2018
Implementing Organization: Federal Capital Territory Administration (FCTA) / Federal Capital Territory Water Board (FCTWB)
Dicrect Beneficiaries: FCTWB, relevant staff of FCTWB Headquarters and pilot Area Offices
Project Site: FCT　　**Pilot Area Offices:** Jabi, Garki I and Gudu

Version 3
Dated 22 Sep. 2016

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<Overall Goal> Level of Non-Revenue Water (NRW) is reduced at the service area of FCTWB	a: Annual NRW ratio is reduced to X%(*) at the end of the year 2021 Note(*): Target value (X%), which is expected to be determined in the medium-term strategic plan for NRW reduction, shall be tentatively filled when the final draft was approved by the Director of FCTWB, which shall be finalized when the plan is approved by FCTA	a. Record of NRW ratio kept by Distribution Department		None.	
<Project Purpose> Capacity of FCTWB for NRW reduction is strengthened	a. The medium-term strategic plan for NRW reduction (2018-2022) is approved by FCTA by the end of the Project. b. NRW reduction operations of the first quarter of 2018 specified in the annual plan of the above plan are carried out according to the plan by FCTWB. c. Relevant staff of FCTWB (i.e. members of NRW Management Team and Pilot NRW Action Teams) become equipped with skills and knowledge necessary for NRW reduction according to the criteria set by the Project for each level. d. NRW ratio of each PMA in the last quarter of the Project reaches its respective target (**). Note(**): Target for each PMA is expected to be determined by the end of the first quarter of the second year.	a. Date of approval of the plan b. Result of monitoring by NRW Management Team c. Results of joint assessment based on the criteria set by the Project d. Record of NRW ratio kept by Distribution Department	A. Policy support for NRW reduction is not discontinued Policy support for NRW reduction is not discontinued B. Natural disaster/ political instability/ economic crisis that affect the service area of FCTWB do not occur C. Activities to implement the medium-tem strategic plan are not discontinued or delayed	Indicator a: None. Indicator b: None. Indicator c: Enhanced capacity has not yet been assessed, but skills and knowledge has been developed through lectures, OJT by JICA Expert Team and two trainings in Japan in August 2015 and June-July 2016. Indicator d: None.	
<Outputs>					
1. Level of NRW of both the service area of FCWTB and water distribution areas is monitored regularly	1a. Record of monthly NRW ratio is kept by Distribution Department from the third quarter of the second year of the Project. 1b. Monthly NRW ratio of the service area of FCTWB is reported to its monthly Joint Management Meeting from the third quarter of the second year of the Project. 1c. Quarterly NRW ratio of the service area of FCTWB is reported to Management of FCTWB from the third quarter of the second year of the Project. 1d. Periodic records of data on water distribution management such as water flow of zonal meters and water pressure are kept by Distribution Department from the first quarter of the third year of the Project.	1a. Monthly record of NRW ratio 1b&1c. Material for meetings submitted by the Distribution Department 1d. Periodic records of data on water distribution management	A. Staff of FCTWB (i.e. members of NRW Management Team and Pilot NRW Action Teams) trained through the Project do not leave the office in large numbers	Indicator 1a&1b&1c: None and delayed as a result of delay in Activities 1-1 to 1-5 and input from the Nigerian side. Indicator 1d: None	
2. Methods/operational procedures for effective NRW reduction are established through pilot projects at Pilot Metering Areas (PMAs) under pilot Area Offices (*1)	2a. Decrease rate of NRW ratio for each Sub Metering Area of a PMA reaches at least 80% of its target at the end of the respective NRW reduction operations. 2b. Technical manuals for Area Office managers and field operators (i.e. technical officers and meter readers), including audio visual materials, are approved by Head of Department (HoD) for Distribution and HoD for Commerce by the first quarter of the third year of the Project.	2a. Record of NRW ratio kept by the Distribution Department 2b. Date of approval of the manuals		Indicator 2a: None and delayed as a result of delay in Activities 2-5, 2-8 to 2-16 and input from the Nigerian side. Indicator 2b: None	
3. A medium-term strategic plan of FCTWB for NRW reduction is developed, utilizing the results of Output 1-2 (*2)	3a. By October 2017, draft medium-term strategic plan for NRW reduction (2018-2022) is submitted by FCTWB to FCTA for review and approval. 3b. By October 2017, an annual NRW reduction plan (2018) is incorporated in FCWTB's annual recurrent and capital plan (2018) for submission to FCTA for review and approval. 3c. A planning manual for NRW reduction is approved by the Director of FCTWB by the end of the Project. 3d. By November 2016, framework of water distribution management is established.	3a&3b. Date of official letter submitting draft strategic plan and annual recurrent and capital plan 3c. Date of approval of the manual 3d. Implementing structure and workflow of water distribution management		Indicator 3a: None. Indicator 3b: None. Indicator 3c: None. Indicator 3d: Water Distribution Management Committee was established and concept was endorsed.	

Note (*1): NRW components targeted by Output 2 are (i) invisible leakage; (ii) customer meter malfunction; and (iii) illegal connection
Note (*2): A medium-term strategic plan is a five-year plan which may include medium-term target, strategies and actions, timeframe, human resource requirement, on-the-job training mechanism, cost-benefit analysis of NRW reduction, etc. It is noted that NRW components addressed by the strategic plan are not limited to the ones mentioned in (*1) above: they shall be discussed and determined in developing the outline of the strategic plan (through Activity 3-4).

Activities	Inputs		Important Assumption	
	The Nigerian Side	**The Japanese Side**	A. Natural disaster / political / instability / economic crisis that affect the Project activities do not occur.	
1-1 Install bulk meters to water treatment plants 1 and 2 1-2 Measure monthly water production of water treatment plants 1, 2, 3 and 4 1-3 Tally the above water production data monthly 1-4 Calculate the monthly water consumption based on the billing data 1-5 Calculate monthly NRW ratio of the service area of FCTWB using the data obtained from Activity 1-3 and 1-4 1-6 Install zonal meters, water pressure sensor and pilot remote monitoring (telemetry) system 1-7 Measure and collect data for water distribution management such as water flow of zonal meters and water pressure	**Project Personnel** 1. Project Director: Director of Economic Planning, Research and Statistic Department, FCTA 2. Project Manager: Director of FCTWB 3. Deputy Project Manager: HoD for Administration and Supply/FCTWB 4. Technical Managers (Also Leaders of NRW Management Team): HoD for Distribution and HoD for Commerce /FCTWB 5. Members of NRW Management Team (FCTWB): - Head of Special Project Unit of Distribution Department (as Coordinator) - Relevant Head of Unit (HoU) and officers of the Distribution Department, Commerce Department, and Administration and Supply Department 6. Heads of other relevant Departments and Unit of FCTWB: HoD for Finance, HoD for Production, HoU for Planning Research and Statistics (PRS) 7. Members of NRW Action Team: Area Manager, Assistant Area Manager (Distribution), Assistant Area Manager (Commerce), technical officers (Distribution) and meter readers (Commerce) of each pilot Area Office 8. Other personnel mutually agreed upon as necessary	**Japanese Experts** 1. Chief Advisor / NRW Reduction Planning / Water Distribution Management 1 2. Deputy Chief Advisor / NRW Reduction Planning 3. NRW Reduction Operations Management 4. Leakage Detection Technology 5. Commercial Loss 6. Hydraulic Analysis / GIS 7. Procurement Manage't / Coordinator 8. Facility Design / Construction Supervision 9. Equipment Design / Installation 10. Water Distribution Management 2 11. Remote Monitoring 12. Other experts mutually agreed upon as necessary	**Pre-Conditions** A. Furnished offices for Japanese Experts are secured at the Headquarters and each Pilot Area Office of FCTWB. B. Project Personnel is assigned with the finalized list.	
2-1 Review existing NRW reduction operations at each pilot Area Office 2-2 Conduct capacity assessment of the relevant staff of each pilot Area Office 2-3 Identify and select a Pilot Metering Area (PMA) for each pilot Area Office based on the selection criteria of PMA(*3) 2-4 Prepare/update distribution network drawings for each PMA 2-5 Install water flow meters to each PMA and measure in/outflows monthly 2-6 Zone each PMA into Sub Metering Areas (SMA) 2-7 Isolate a SMA by installing valves 2-8 Update the distribution network drawings for each SMA 2-9 Measure an initial level of NRW of each SMA 2-10 Detect target NRW components (i.e. invisible leakage, customer meter malfunction, and illegal connection) of each SMA 2-11 Develop a NRW reduction operation plan of each SMA ,including reduction target, for review by Head of Distribution Department 2-12 Review and approve NRW reduction operation plan of each SMA 2-13 Implement the NRW reduction operations at each SMA 2-14 Monitor the progress of the NRW reduction operations of each SMA 2-15 Measure level of NRW of each SMA at the end of the respective operations 2-16 Prepare a report on pilot projects, covering Activity 2-1~2-15 2-17 Develop manuals for NRW reduction for Area Office managers and field operators (i.e. technical officers and meter readers), including audio visual materials	**Land, Building and Facilities** 1. Office building and facilities necessary for the implementation of the Project 2. Office spaces and necessary facilities for the Japanese Experts at the FCTWB Headquarters and each pilot Area Office, including internet connection and air conditioners 3. Chambers for ~~bulk meters for water treatment plants,~~ flow meters and valves for the selected PMAs/SMAs. 4. Electric wiring to bulk/zonal meters, loggers and pressure sensors. 5. Other facilities mutually agreed upon as necessary **Local Costs** 1. Cost for installation, operation and maintenance of the provided equipment and cost for pipe repair at PMAs 2. Administration and operational costs, including cost for local travel for the Project Personnel, demurrage at local customs point, licensing cost of radio application and cost for communication of telemetric device for selected zonal meter(s) and water pressure sensor(s) 3. Other costs mutually agreed upon as necessary	**Equipment** 1. Bulk meters and loggers for water treatment plants 2. Water flow meters, valves, and customer meters for SMA 3. Leakage detection equipment for PMA 4. Pipe repair equipment for PMA 5. Vehicles (Pick-ups) 6. Generator for project office 7. Zonal meters, loggers and water pressure sensors 8. Telemetric monitoring system with standby power generating facility for selected zonal meter(s) and/or water pressure sensor(s). 9. Other equipment mutually agreed upon as necessary **Facilities** 1. Modification of existing billing system 2. Chambers for bulk meters for water treatment plants, zonal meters and water pressure sensors **Training of the Nigerian Project Personnel** 1. Four persons mutually agreed upon will be trained in Japan annually 2. GIS training in Nigeria		
3-1 Establish a Working Group for NRW planning (*4) 3-2 Review existing plans, implementation structure, on-the-job training mechanism, etc. related to NRW reduction at FCTWB 3-3 Conduct hydraulic and water pressure distribution analyses of the pipeline networks 3-4 Develop outlines of the medium-term strategic plan and its annual NRW reduction plan 3-5 Develop the first medium-term strategic plan (2018-2022) for approval by FCTA 3-6 Develop an annual NRW reduction plan based on the strategic plan as an integral part of an annual recurrent and capital plan of FCTWB for approval by FCTA 3-7 Develop a planning manual for NRW reduction 3-8 Review existing plans, activities and implementing structure, etc. related to water distribution management 3-9 Establish framework of water distribution management				

Issues & Countermesures

A. Delay of the Project: Available monitoring period of Activities 1-2 to 1-5 will be insufficient due to delay in the Activities.

(Cause)

- Delay and suspension of the chamber construction for bulk flowmeters and procurement of necessary materials for pilot activities due to non-release of the Counterpart Fund in 2015&2016.
- Taking a lot of time to obtain the correct situation due to non-existence of the as-built drawings and the restriction of GIS usage.

(Countermeasure)

- Extension of the project period based on the request from the Nigerian side.
- Taking over the chamber construction and procurement of small materials for Pilot activities from the Nigerian side to the Japanese side based on the request from the Nigerian side.
- Relaxing the restriction of GIS usage

B. SMA out of PMA Monitoring Area: PMA meters were relocated from originally-designed position to other position in Jabi and Garki I due to difficulty in implementation.

(Cause)

It was physically difficult to settle the PMA flowmeter and to monitor water flow at the original location, because the distance from the ground level to the location of pipeline was unexpectedly deep in Jabi (SMA1). FCTWB could not supply water to the western area in SMA2 if the Project Team closes the isolating valve at the original location in Garki I (SMA2-1).

(Countermeasure)

- Removing the SMA out of PMA: Both sides technically confirmed that SMA 1 in Jabi and SMA 2-1 in Garki I are constrained to be out of PMA monitoring area. In order to avoid further delay of the Project activities (Activity 2-8 to 2-16), the Project Team has to remove these SMAs from the target of the Project.
- Collecting necessary Information from FCDA: FCTWB has to get the necessary information in order to implement the Project activities efficiently.

Note (*3) Selection criteria of PMA are as follows: (i) Safety for night works is secured in measuring minimum night flow: (ii) Distribution network is separated and it is easy to isolate it in measuring NRW ratio: and (iii) NRW ratio is supposedly high.

Note (*4) Working Group for NRW planning would consist of Project Manager (as chair), Deputy Project Manager, Technical Managers, Head of Finance Dept., Head of Production Dept., Head of PRS Unit, and members of NRW Management Team.

PM Form 3-1 Project Monitoring Sheet II

Project Monitoring Sheet II (Plan of Operations)

PO$_3$

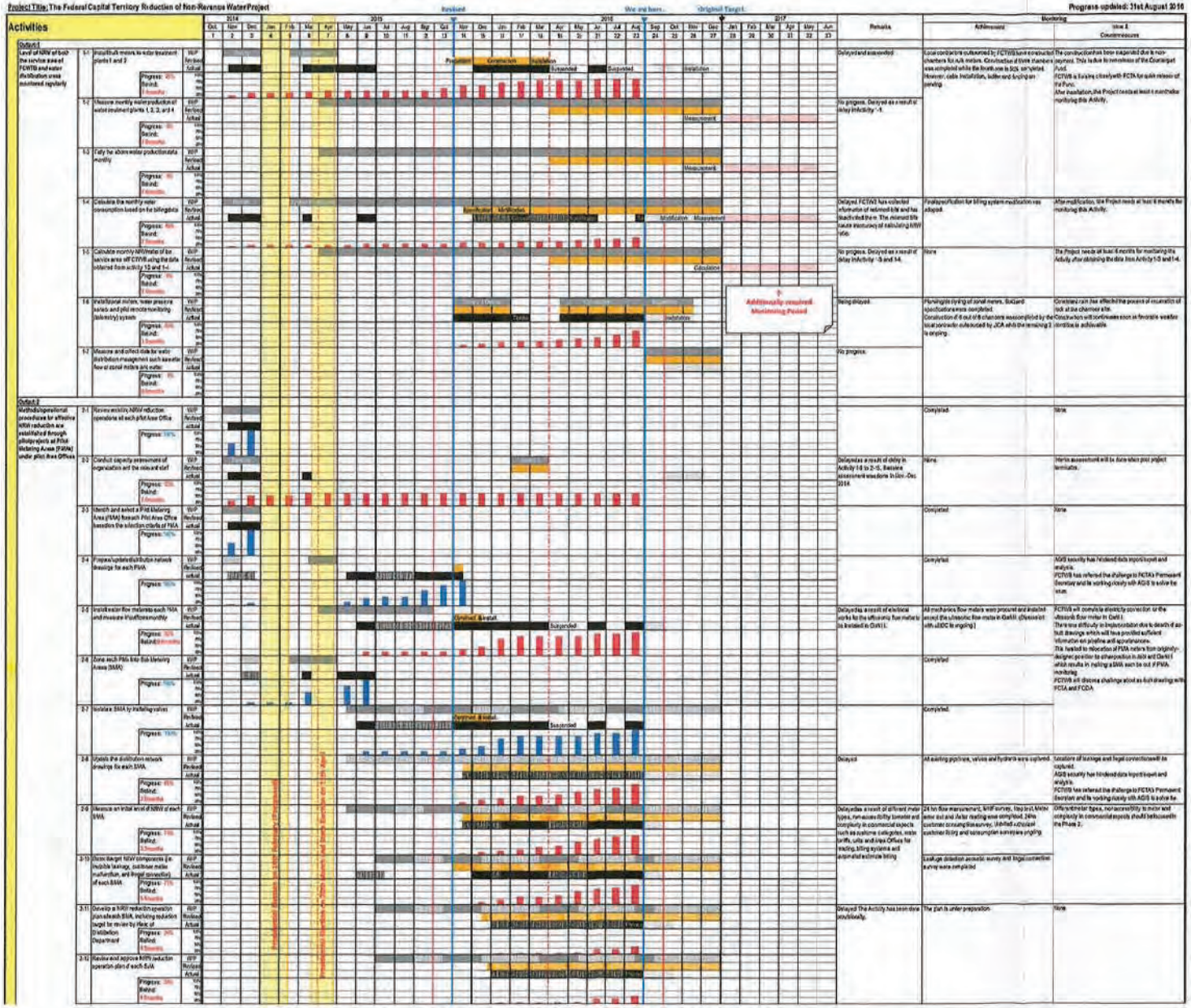
Version: 3

Dated: 22 Sep. 2016

Original Plan (Work Plan) and Revision of Schedule, Actual Works and Progress

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project

Progress updated: 31st August 2016



Project Monitoring Sheet II (Plan of Operations)

PO3

Version: 3
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Original Plan (Work Plan) and Revision of Schedule, Actual Works and Progress

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project

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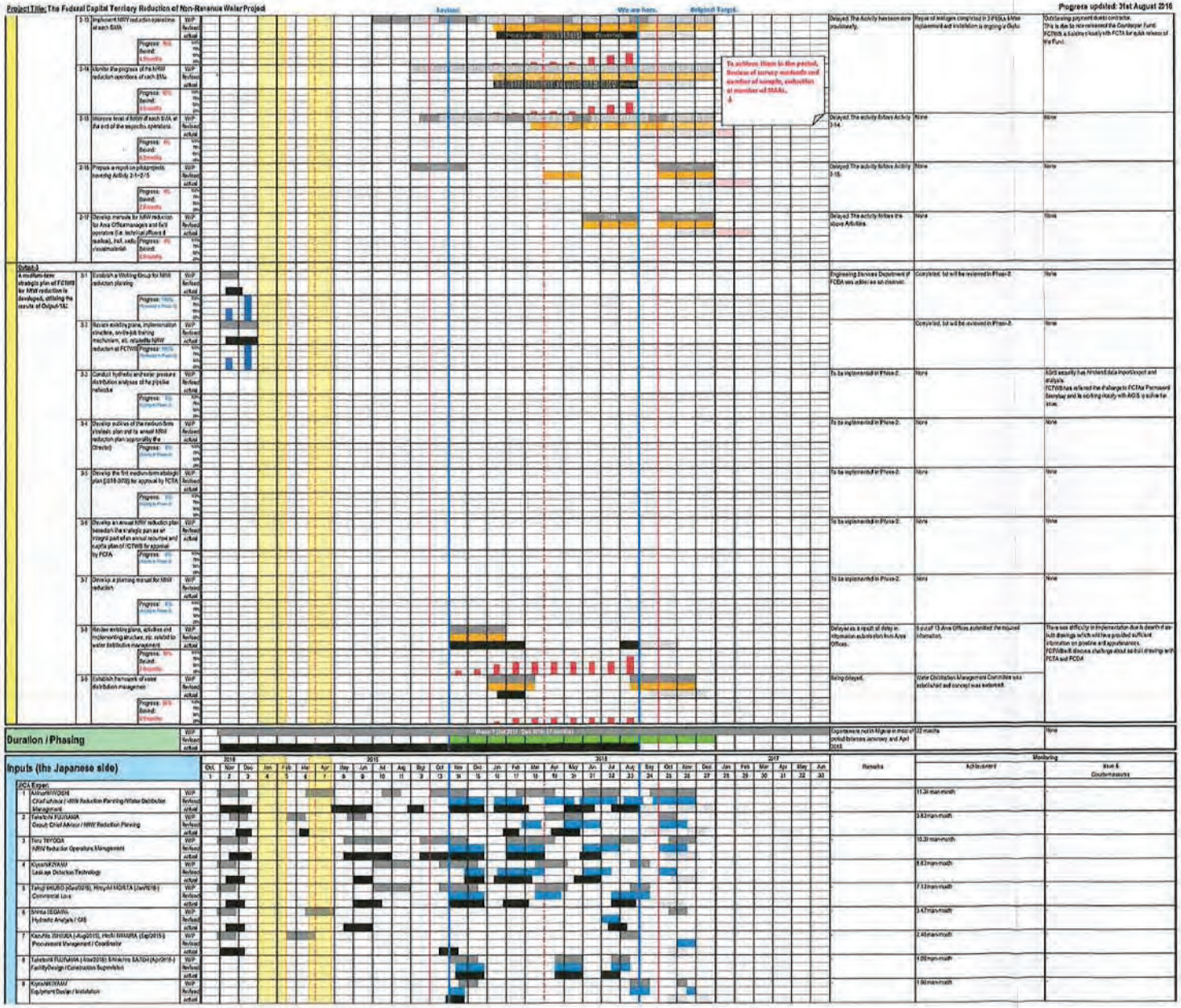

Annex2-191

Project Monitoring Sheet II (Plan of Operations)

Original Plan (Work Plan) and Revision of Schedule, Actual Works and Progress

PO$_3$
Version: 3
Dated: 22Sep, 2016
Progress updated: 31st August 2016

Project Title: The Federal Capital Territory Reduction of Non-Revenue Water Project