### Minutes of 5th JCC Meeting

### The Assistance Related to Delhi Water Supply Improvement Project

10th March 2016

The 5th JCC meeting started at 16:00 PM

The meeting started with a presentation by Mr. Vikram Singh, SE (Project) Water III and Mapping, DJB, on behalf of the Assistance Related to Delhi Water Supply Improvement Project (the Project) to present agenda, progress and key issues related to the Project.

- 1. Progress of the Yen loan project and the Project until December 2015
  - (1) Activities for the yen- loan Project and the Project
    Among the 3 Activities in the Project, activities 1 and 3 have already been completed. DJB is
    preparing design and tender document of the Yen- loan project using the results of the activities 1
    and 3 of the Project.

The remaining activity 2 was scheduled to complete by May 2016. However, the activity 2 needs to be extended due to the delay in installing the SCADA system and the need for improvement of the chambers and other activities required to avoid electricity leakage and accidents which may be caused by water entry to the chambers. For the prevention of accidents that may be caused by electricity leakage due to water logging in the chambers, DJB, JICA Expert Team (JET), and JICA have had series of discussions to find solutions on this issue.

- (2) Agreed items in the previous meeting between JICA and DJB In December 2015 JICA headquarters dispatched a mission to India and came to agree on the following items in the Minutes of Meeting signed on 10 December 2015 (M/M). All parties reconfirmed the contents of M/M.
  - a) Demarcation of responsibilities for undertaking countermeasures for prevention of electricity leakage in valve chambers
  - Assignment of DJB counterparts for technology transfer during implementation of countermeasures against electricity leakage in valve chambers
  - c) Implementation schedule of the Project
  - d) Reasons and justification for extension of the Project duration
  - e) Amendments to the Records of Discussions (R/D) on the project
  - f) Ownership and demarcation of responsibilities between stakeholder for construction/installation, operation and maintenance of chambers and SCADA system
  - g) Maintenance of SCADA system after it is handed over from JICA to DJB
  - h) Revision of Project Design Matrix (PDM) and Plan of Operation (PO).

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### 2. Revision of PDM and PO

Based on the agreement of M/M, JICA and DJB need to revise PDM and PO to reflect the new implementation schedule extended beyond the original schedule. DJB, JET and JICA agreed on the revised PDM shown in Attachment 1 and the revised PO shown in Attachment 2. All parties also confirmed that the revised PDM and PO would take effect after the approval of the Government of India for the Minutes of Meeting between JICA and DJB for amendment of the Records of Discussions, which has already been circulated in the Government of India.

### 3. Implementation schedule of the project

All parties confirmed the revised tentative implementation schedule of the Project as shown in Attachment 3 which can be supplemental information of PO. JET plans to start the required actions and activities according to Attachment 3 for improvement works of the constructed chambers and others together with the counterparts of DJB listed in M/M.

In connection with improvement works of the chambers and others, DJB indicated test site of DJB Pitampura office for model improvement works of valve chambers. DJB also assured to take improvement measures against side walls of the existing chambers to prevent water ingress through them.

Regarding the test chamber for carrying out the water seepage measures, JET required DJB's cooperation for the following items. DJB agreed on the following proposed items.

- (1) In order to inspect the inside of chamber 10 and 11, pump out the water that has accumulated inside.
- (2) Permission to construct the test chamber at the Pitampura sewage pumping station.
- (3) Arrange water for leak test of test chamber.
- (4) Arrange man-power for the various works.
- (5) Determination of counterparts from DJB.

In addition, the following items were discussed and agreed:

- (1) Joint inspection by both DJB and JET will be done to check if water ingress is stopped or still occurring in two chambers (No.10 & 11).
- (2) Mr. V. K. Singh, EE (NW) III is the nodal contact person for Activity 2. JET is requested to contact him for any assistance / coordination that may be required.

### 4. Sharing knowledge and technology with the Indian side

All parties confirmed that knowledge and technology for preventing the problems on electricity leakage and water ingress throughout the stages of design, tendering, and construction supervision of valve chambers should be transferred to DJB counterparts, while they are working together with JET for the improvement work. DJB also promised to take actions to share its know-how of the countermeasures within DJB such as making guidelines and conducting the seminars.

In his remarks JICA representative Mr. Itaru Chiba emphasized the active involvement of DJB, knowledge sharing and sustainability. In his closing remarks, Additional CEO (Project Director) Mr. Neeraj Semwal emphasized the need to speed up the work to make for the lost time. He also assured that regular follow-up will be done and whatever beneficial knowledge and experiences are obtained from this project, the same may be utilized by DJB in other projects also.

The 5th JCC meeting closed at 17:00 PM

Mr. Neeraj Semwal

Additional CEO (Project Director)

Ilana Oloka

DJB

for Mr. Kazufumi MOMOSE

Chief Advisor

JICA Expert Team

Mr. Itaru Chiba

Representative

JICA India Office

### Attachments:

- 1. Revised PDM
- 2. Revised PO
- 3. Revised Implementation Schedule of the Project
- 4. Presentation Sheet including Agenda
- 5. Attendance list

Project area: Chandrawal treatment system area and Pitampura area	Target group: DJB personnel		11 11 (11	-,-	
Narrative Summary	Objectively Verifiable  a. Service hours in Chandrawal WTP		Means of Ver	incation	Important Assumption
Overall Goal:  To achieve the equitable and continuous water distribution in the Vational Capital Territory of Delhi, by improving the water supply network including service network to customers, thereby contributing in upgrading citizen's living standard	b. NRW ratio in Chandrawal WTP co 15%. c. Tariff collection ratio in Chandraw	mmand area is less than	Same as evaluation of Supply Improvement		6 0 Call
Project Purpose:  JIB's capacity for the implementation of "Delhi water supply mprovement project" is strengthened.	more than 90%  a. Basic information on pipe-network components 2-4 of "Delhi Water S Project" prepared by DJB.  b. The gap among DMAs in water pr on DMAs' demand is reduced. (Pr to meters, Volume: From meters, Volume: From meters, Volume: Guideline for introduction of asset scenarios for stage wise developm application is reflected in DPR for Water Supply Improvement Projec	upply Improvement essure and volume based essure: From X meters per connection to Y management based on ent of GIS/RMS component 5 of "Delhi	a. Confirmation of con     b. Reports on water pr     volume of DMAs     c. Confirmation of con	essure and	"Delhi Water Supply Improvement Project" is completed as planned
Outputs:  1. DJB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened.  2. DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.  3. Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared  0. The assistance is managed and coordinated properly	Construction methods of pipe cro and major roads) and laying methor Trenchless) for "Delhi Water Suppare determined by DJB.      Locations (alignment and depth) distribution pipes for "Delhi Water Project" are determined by DJB      DJB can control the water flow/p SCADA based on the manuals and the Assistance in the pilot project so NRW ratio is clarified and contin pilot project area     Draft of guideline for introduction prepared	ssing (railways, rivers, d (Open-cut and ly Improvement Project* of transmission and Supply Improvement ressure properly with guidelines prepared by area uously observed in the of asset management is	DIB's Authorization method     DIB's Authorization pipeline route     Field Assessment I experts     DiB's Authorization pipeline route     Assessment I experts     Minutes of Meeting of draft of guideling management to Di	on of Reports on  by concerned  NRW ratio  on submission  te on asset	Consultants of "Delhi Water Supply Improvement Project" implement the detailed design work as scheduled.
Activities  1. Strengthening capacity to manage data and information on water supply facilities in Chandrawal command area 1-1. Obtain necessary information for detailed design of Delhi water supply improvement project 1-1-2. Selection for replacement 1-1-3. Review on new pipes suggested in Master Plan 1-1-4. Distribution pipe network confirmation with support of local staff and GIS data 1-1-5. Design proposal of pipes laying location 1-1-6. Preliminary Design of laying and crossing methods 1-1-7. Survey for new pipe lines 1-2. Surveys and GIS data creation on Chandrawal WTP and booster pumping station and examination on pipes information 2. Upgrading capacity to monitor and control the water distribution 21. Summarizing issues by reviewing the situation of SCADA use in DJB 22. Introduction of Japanese experience and its system to DJB 23. Operation of pilot project (equitable distribution and NRW monitoring) 231. Confirmation on existing distribution pipes network condition in pilot area 22. Pilot project operation plan 233. Quantitative estimate of demand in each DMA 234. Procurement of equipment and test operation for pilot project 2-3.5. Flow amount and pressure monitoring within SCADA pilot project area 236. Identification of issues related to equitable water supply and discussion and determination for its solution 237. Implementation of control method and examination of its effectiveness 238. Water bill calculation within the pilot area based on revenue management system data 231. Leakage detection demonstration in the pilot area 231. Formulation of manual and guideline for flow amount and pressure controls and NRW monitoring 31. Exeminar presenting the results of pilot project 24. Identification of issues around equitable distribution and NRW monitoring 31. Exeminar presenting the results of pilot project 31. Formulation of GIS/RMS application in DJB 3.1. Review on DJB's administration strategy, vision and operation plan 31. Formulation of GIS and RMS util	[Japanese Side]  1. Japanese Experts: (1)Chief Advisor (2)GIS Application (3)Pipe-Network(1) (4)Pipe-Network(2) (5)GIS Mapping/Project Coordinator (6)SCADA (7)NRW Analyst (8)DMA (9)Leak Detection (10)Water Supply Management (11)Project Coordinator (12)Others (by Mutual consent) (13)Civil engineer  2. Local Consultants 3. Equipment 4. Training of DJB personnel concerned with the Assistance in Japan 5. Seminars on Japanese water utilities in Delhi 6. Civil work for construction of a demonstration chamber 7. Civil work for improvement of chambers	Inputs  [DJB Side] (a) Management Personn 1. Counterpart personn 1. Project Director 2) Project Manager 3) Deputy Project Ma 4) Officer in charge of (b) Technical personnel 1) WTP &Rising Mai Command Area 2) Distribution networ Command Area 3) Pipe network in Pil 4) Pumping Station in 5) SCADA 6) GIS Mapping 7) GIS Application 8) RMS 9) Civil in Pilot Proje 10) E&M in Pilot Proje 10) E&M in Pilot Proje 10) E&M in Pilot Proje 5. Civil work for chamb 6. Permissions to access DJB's GIS data and 4. Daily payment to CP, 5. Civil work for chamb 6. Permission for construauthorities 7. Civil work for improv	el  nager Pilot Project  n in Chandrawal  rk in Chandrawal  ot Project area Pilot project area  et area et area et trea elitites DSSDI and existing necessary information cost of operation er construction nection from related	Precondition:  1. DSSDI GI: water pipel 2. The scope	S data on utilities other tha lines can be used. of "Delhi Water Supply ent Project" is not changed

PO/APO and the indicators of the PDM through JCC

Notes: Unfixed figures (X and Y) in PDM shall be decided during activity 2-3-5

This PDM is approved at the 5th JCC. The "Duration of Period", however, becomes effective after approval of "Minutes of meetings for amendment of the record of discussions".





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(Proposed in the 5th JCC on March 2016) 2-39 Calculate NRW ratio Worth A Printed Room Plan of Operations (PO) of THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT IN THE REPUBLIC OF INDIA That and enablate the proporterinal medic benefit to (3). Based on the above (4), preparent publications for improving (3). Executely enables to a proportering charactering character \* Programment Commenced after RD's approval in the Indian government 2,3,4 (4), (5) and (6) Cust For A Physical Leptor \* Note 2
2-64 Install the equipment and confact test operation for SCADA system
(1) Controlled in model destrict in Plonging 101-files.
(2) Controlled and Standard in Plonging 101-files.
(3) Building Carty Informatic Carty Informatic Cart Carty Car 224 (3)(3) (3) will be will be A Transcon Ropert gillst project for equivable distribution an 2-34 Calculate the and velture Fivaley idled to the contamerities of mRMS 2-3-9 1-3-4 A Language (SAM)

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(10) the hericand for coming Note 1 Activities 2 shaded by Yellow are revised schedule. Output 2: Dul's expectly to monitor and control the water distribution for equitable distribution and mon-eversus water management is upgraded. Output 3:
Draft of scenarios for
stage wise development
of GIS/NMS
application in DJB is
prepared Training in Japan Seminar

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Attachment 2

Apr May Implementation Schedule of Countermeasures to prevent Water Ingress to the Chambers Feb Mar DLP Jan Nov Dec O structed (JET)

Design (Revised R/D and second revised consultant agreement is remired to start design Oct Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep SCADA Operation (DJB and JET)
Seminar SCADA transfer to DJB 2017 Measures against electrocity leakage SCADA trial run SCADA Installation (JICA India and RDS) Installation of Actuator Negotiation (Revised consultant agreement is required to do negotiation) Extended Period Tendering (Revised consultant agreement is required to do tendering) Monitoring Manual Pre Construction Manufacturing Ontract Revision / Procurement (JICA India and RDS) \* Contract Award Tendering Design by RDS 1st Revised Consultant Agreement Rainy season Construction \* Test 2 Contract Revision Rev sed Consultant Agr \* Contract Award Jun Jul • Improvement to the \*Revised RD 2016 ★ Test 1 Mar Apr May \*.... Specification (already done) Oct Nov Dec Jan Feb Design (already done) Model Chamber (JET) Attachment 3 2015

7 2 X

### Attachment - 4.



### A Japen Internatio

### The Assistance Related to Delhi Water Supply Improvement Project

5th JCC Meeting

10 March 2016 DJB Conference Hall Delhi Jal Board JICA Expert Team

# 1. Agenda Time Contents Contents Contents Contents Contents Contents Contents DiB: Mr. Neeraj Semwal, Addi. C.E.O. (Project Director) IICA: Mr. Indian Side Ochicus Achievement (July 2015 to December 2015) Confirmation of Minutes of Meeting on 10th December Ochicus Modification of PDM. Approval of RD Observers Conclusion & Closing remarks Conclusion & Closing remarks Conclusion & Conclus

# 3. Purpose of the three Activities

### Activity 1:

DJB's capacity to manage data and information on water supply facilities in Chandrawal WTP command area is strengthened.

### Activity 2:

DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.

### Activity 3:

Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared.

\* Target Group is DJB's Personnel



## 2. Purpose of the Project

Overall Goal : "Delhi Water Supply Improvement Project" (in Chandrawal WTP Command Area) To achieve equitable and continuous water distribution in the National Capital Territory of Delhi, by improving the water supply network including service network to customers, thereby contributing to upgrading citizen's living standard.

Project Purpose: "The Assistance related to Delhi Water Supply Improvement Project" (in Chandrawal WTP Command Area) DJB's capacity for the implementation of Delhi water supply improvement project (in Chandrawal WTP Command Area] is strengthened.

# 4. Achievement of Assistance Project and Status of PMSC Project

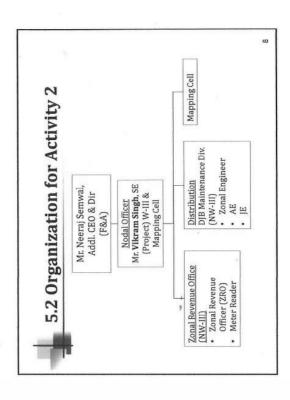
- Activity 1 and 3
- Results Completed and transferred to DJB.
- DJB/PMSC have prepared or is preparing DPRs

5. Activity 2

- Activity 2
- On-going

## 5.1 Purpose of Activity-2

- □ DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.
  - Acquired know-how can be exported to Chandrawal WTP project.
- Know-hows should be shared among every staff of DJB even after Assistance Project.



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## 5.3 Achievement Target of DJB staffs in Activity 2

- □ Basics of SCADA system
- □ Operate SCADA system for equitable distribution and NRW reduction

6. Progress of Activity 2

- □ Monitor inflow and pressure
- □ Monitor billed consumed water amount
- □ Estimate NRW comparing inflow amount with consumed amount

□ Develop manual on SCADA operation and NRW measurement

6.1 Project Progress up to June 2015

- Facilities were being constructed under Activity 2.
- DMAs with valves, meters, SCADA system were almost ready for operation.
- Concern arises on water ingress to the constructed valve and meter chambers in May to June 2015.

 Water ingress may cause electricity leakage inside the chambers.

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6.2 Physical Works Suspension from July 2015 to 10 March 2016

 Countermeasures and revised schedule was preliminarily discussed and agreed in the 4<sup>th</sup> JCC meeting between DJB and JICA expert team.

• The above was further clarified and the minutes were agreed between DJB and JICA in December 2015.

• Field surveys on every connections including both registered and unregistered ones completed.

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7. Contents of M/M agreed on 10 December 2015

Ownership and demarcation of responsibilities for construction/installation, operation and maintenance of

Amendments to the Record of Discussions (R/D)

duration

Maintenance of SCADA system after it is handed over from

As a result, the Project is extended for

JICA to DJB. Revision of PDM and PO about 2 years to March 2018.

Reasons and justifications for extension of the Project

Implementation schedule

Assignments of DJB counterparts for technology transfer

Demarcation of responsibilities for undertaking countermeasures for prevention of electricity leakage in

The following issues are agreed;

7. (a) Project Extension Agreed

v.1 (a) Demarcations of Responsibilities for undertaking countermeasures for prevention of electricity leakage in valve chambers and 7.2 (a)

Assignments of DJB counterparts for technology transfer

Countermeasures	Responsibl	Implement	Monitorin	Monitoring & Quality Control
	e Party	ing Agency	Bro	JET
1-1 Stopping ingress of rain water from top manhole / opening covers of chambers	JICA	Ħ	(Civil)	Civil Works
1-2 Plugging leakages through the side walls of chambers	DJB	DJB*	(Civil)	Civil
2 Installation of alarm device and electric circuit breaker	JICA	RDS	EE (E&M)	SCADA
3-1 Procurement of water-proof materials and equipment	JICA (already done)	RDS (already done)	EE (E&M)	SCADA
3-2 Ensuring electrical safety of staff and equipment with grounding and leakage prevention circuit breaker	JICA	RDS	EE (E&M)	SCADA
4 Regular inspection, cleaning and dewatering of chambers	DJB	DJB*	(Civil)	Civil Works#
* DJB or Contractor assigned by DJB, # only du	nly during th	# only during the implementation of the Project	ation of the	e Project

7.1 (b) Demarcations of Responsibilities for undertaking countermeasures for prevention of electricity leakage in valve chambers and 7.2 (b) Assignments of DJB counterparts for technology transfer

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 DJB will prepare a manual and hold a seminar on the following issues so as to share the acquired information among DIB.

 Design and supervision of the proposed countermeasures mentioned in the previous sheet. 16

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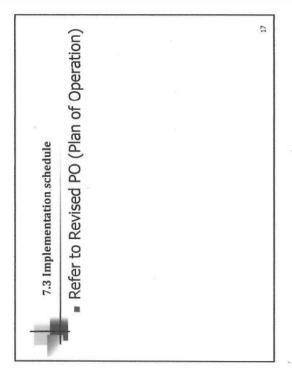
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Expected to be approved by MoUD and

Refer to item 5, M/M dated on 10 December 2015

DEA by May 2016.



18 7.4 Reasons and justifications for extension of the Selection of SCADA agency: 9 months Water ingress into valve chambers: 1 Refer to item 4, M/M dated on 10 December 2015 year and 1 month Project duration

responsibilities between stakeholders for construction / installation, operation and 7.6 (a) Ownership and demarcation of maintenance of chambers

Duration of Assistance" of the Record of

7.5 Amendments to the Record of Discussions (R/D)

from "3 years from June 2013" to "4 Discussion (R/D) should be changed

Documents are now in the hand of /ears 10 months from June 2013".

MoUD as of 8th March 2016.

After DLP Operation and Maintenance from Oct. 2017 DJB Feb. 2017 to Oct. 2017 DLP DJB DJB Handover February 2017 Monitoring by JET/ JICA DJB for side walls/ JICA for top slab Construction to January 2017 DJB DJB Improvement Maintenance Construction Expected Ownership Operation Works

7.6 (b) Ownership and demarcation of responsibilities between stakeholders for construction / installation, operation and maintenance of SCADA system and 7.7 Maintenance of SCADA system

7.8 (a) Revision of PDM and PO

 PDM, refer to revised PDM ■ PO, refer to revised PO

	To the Heatler		Operation and	Operation and Maintenance
Expected	Installation	nandover	DLP	After DLP
Period	to January 2017	February 2017	Feb. 2017 to Oct. 2017	from Oct. 2017
Installation	RDS			
Operation	ı	1	DJB	DJB
Maintenance	DJB		DJB	DJB *
Ownership	RDS	JICA	DJB *	¥
	Monitoring by JET/ JICA	/ JET/ JICA		
* DJB or contracto Refer to Attachmer	* DJB or contractor assigned by DJB. Refer to Attachment 4, M/M dated 10 December 2015	December 2015		

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Planned Additional Activities 8. Project Status and

# 8.1 Project Status as of March 2016

- Specifications of the model chamber and additional devices of SCADA are already prepared.
- Then, improvements to the existing valve chambers can start in Match by IICA Expert Team together with DJB.

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7.8 (b) Revision of PDM

One of the "Objectively Verifiable Indicators",

meters to Y meters, Volume: From X m3 per connection based on DMAs' demand is reduced. (Pressure: From X The gap among DMAs in water pressure and volume to Y m3 per connection.)

SCADA operation, namely Activity 2-3-5 starts" due to delay of SCADA installation work. Scheduled date will be However, it is to be revised as "within 2 months after the This was to be decided in 25 months after the project start when SCADA operation was expected to start. A

expected in April 2017.

### 1

## 8.2 Additional Project Plan (1st stage: Model Chamber)

Firstly, Model chamber similar to the existing chambers already constructed will be constructed within DJB premises by JET.

Water-tightness of the chamber will be examined.

improvements of water tightness to the

existing chambers will be prepared

improvements to the existing chambers

with cost estimation.

Then, SCADA operation will start.

will be implemented.

The 2nd stage can start only after RD

8.3 Additional Project Plan (2nd stage: Improvements to the Existing Chambers)

If the implemented countermeasures

approval.

are acceptable, specifications

examined.
Countermeasures will be proposed and implemented based on the examination.

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Thank You!

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Efficient Maintenance Management for Facilities TMWB's Business Administration, 9. Seminar by Waterworks Bureau of Finance and General Information **Tokyo Metropolitan Government** SCADA Operation and Others Topic / Content Asset Management Plan NRW Reduction To be decided March 2015 Feb 2017? Aug. 2017? Feb. 2014 Aug. 2014 Aug 2013 Date No. Year 2nd 4th 374 3rd eth

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Japan International Cooperation Agency

### DELHI WATER SUPPLY IMPROVEMENT PROJECT" 5th JCC

Delhi Jal Board and Japan International Cooperation Agency Date: 10th of Mar 2016 Organized By

Location: Delhi, India
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SE (CENTRAL)
Elman Copus
Representative, JUCA
SCADA . TET





Japan International Cooperation Agency

S<sup>th</sup> JCC
DELHI WATER SUPPLY IMPROVEMENT PROJECT"
Organized By

Delhi Jal Board and Japan International Cooperation Agency

	elhi, India	Signature
Mar 2016	Location: Do	Title
Date: 10" of	Venue: DJB Conference Hall	Name

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SE, P	PHATTA THAFA	SICA EXPERT	200
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5.	VIKEAM SINGH	SE, (PROJ.) W-III	
	Sanjay Prasad	JICA ENPORT	B
	Noboru Sall	-	A.C.

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### MINUTES OF MEETING

ON

### THE SIXTH JOINT COORDINATING COMMITTEE

**FOR** 

THE ASSISTANCE RELATED TO

### DELHI WATER SUPPLY IMPROVEMENT PROJECT

### IN THE REPUBLIC OF INDIA

Delhi, 4 August 2016

Neeraj Semwal Project Director Additional CEO

Delhi Jal Board

India

Kazufumi MOMOSE

Chief Advisor

JICA Expert Team

Takayoshi TANGE

Senior Representative

Japan International Cooperation Agency (JICA)

India Office

The sixth Joint Coordinating Committee (hereinafter referred to as "JCC") meeting for the Assistance Related to Delhi Water Supply Improvement Project (hereinafter referred to as "the Project") was held on 4 August 2016 with the JCC members as shown in Attachment 4 (attendance list) at the conference room of Delhi Jal Board (hereinafter referred to as "DJB"). All parties discussed and agreed on the items below;

Progress of the Yen - loan project and the Project until July 2016
 Among the 3 Activities in the Project, activities 1 and 3 have already been completed. DJB is preparing design and tender document of the Yen- loan project using the results of the activities 1 and 3 of the Project.

### 2. Confirmation of PDM

DJB, JET and JICA agreed on the revised PDM (ver.5) shown in Attachment 1 that conforms exactly to the expressions used in the Record of Discussion (R/D) between DJB and JICA. Previously used PDM was same as the one in the R/D in the meanings but different in the expressions.

Confirmation of PO

DJB, JET and JICA agreed the PO (Plan of Operation) for the 4<sup>th</sup> year covering from July 2016 to June 2017 as shown in Attachment 2.

4. Construction of Demonstration Chamber

All parties confirmed the revised implementation schedule of the Project as shown in Attachment 3 which can be supplemental information of PO. According to the schedule, JET has constructed the model chamber in the Pitampura sewage pumping station and JET, DJB and JICA have proved that the constructed model chambers can practically prevent water from entering into the chambers.

5. Improvement Works to Chambers and SCADA System

- JET will conduct improvement works to the constructed chambers with the DJB counterparts for the purpose of knowledge and technology sharing while JICA will conduct improvement works to SCADA system in Pitampura.
- (2) DJB assured to take improvement measures against side walls and bottom & top slabs (inside plaster only) of the existing chambers to prevent water ingress by the active participation of the relevant counterparts.
- (3) DJB also assured to construct the remaining one chamber after installation of the control valve and flow meter by Recktronic Devices and Systems (RDS) was completed.

6. Sharing knowledge and technology with the Indian side

All parties confirmed that knowledge and technology for preventing the problems on water ingress and electricity leakage throughout the stages of design, tendering, and construction supervision of valve chambers should be transferred to DJB assigned counterparts, such as an Executive Engineer NW III (Civil) and an Executive Engineer NW (E&M) while they are working closely with JET for the improvement works. DJB also promised to take actions to share its know-how of the countermeasures within DJB such as making guidelines and conducting seminars.

7. SCADA Operation

(1) DJB re-assured that they will assign engineers and officers by February 2017 when SCADA trial run is scheduled. The assigned engineers and officers need to actively participate in SCADA operation for equitable water distribution and monitoring of non-revenue water particularly at the initial stage and during absence of JET that will be in the Pilot Project site only a few times. The

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assigned engineers and officers will also demonstrate and train the acquired know-hows to other engineers and officers who will be responsible for similar operation in Chandrawal WTP command area.

- (2) DJB and JET agreed that SCADA operation will be the topic of the seminar to be held in 2017.
- 8. Utilization of the pilot SCADA system after completion of the Project DJB re-assured that the pilot SCADA system will continuously be utilized as a training facility for the enhancement of equitable water distribution and NRW monitoring even after completion of the Project.
- 9. Operation and Maintenance of Pitampura Training Centre for SCADA system
  All parties reconfirmed that DJB would be responsible for the operation and maintenance of the SCADA system in Pitampura (Pitampura Training Centre for SCADA system) after handing over of the SCADA from JICA to DJB in February 2017 and a specialized agency will be hired by CE (West), DJB and he should therefore secure necessary budget for this purpose.

### Attachments:

- 1. PDM (ver.5)
- 2. PO (4th Year)
- 3. Implementation Schedule of Improvements to Chambers and SCADA System
- 4. Attendance list

4

Project Design Matrix(PDM)

Title of the Project: "The Assistance related to Delhi Water Supply Improvement Project"

Project Area: Chandrawal Command Area and part of Pitampura area in Delhi

Executing and Implementing Organization: Delhi Jal Board (DJB)

PDM Version 5 as of 4 August 2016
Duration of the Project: four years and ten months from June 2013 (June 2013 -March 2018)

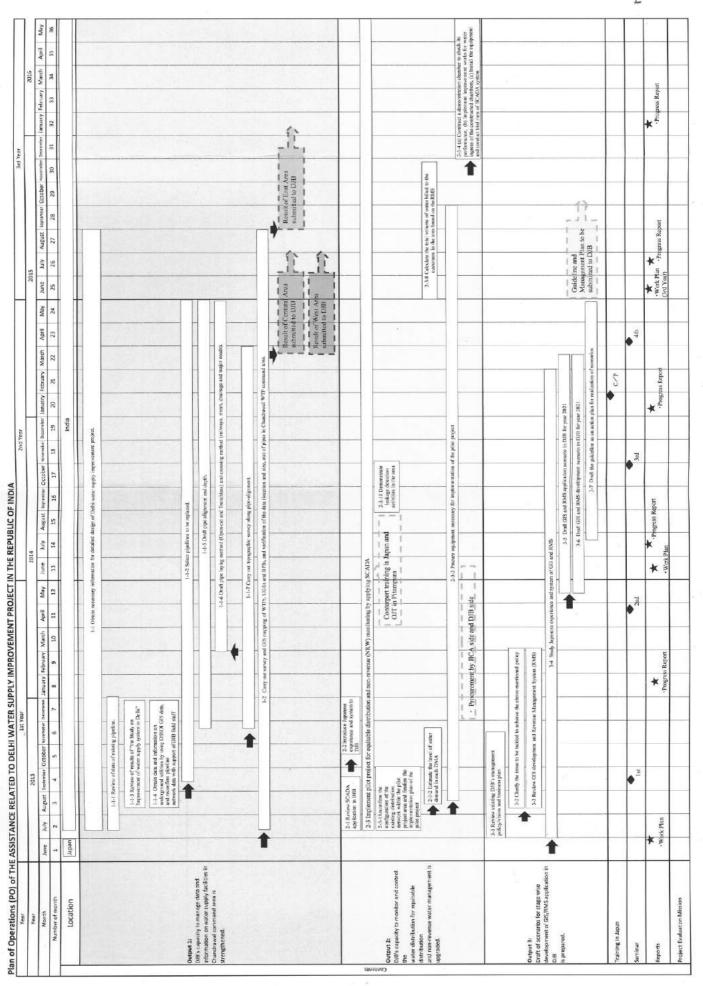
Beneficiary: DJB Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
Overall Goal> To achieve the equitable and continuous water distribution in the National Capital Territory of Delhi, by improving the water supply network including service network to customers, thereby contributing in upgrading citizen's living standard	Service hours in Chandrawal WTP command area to customers(hours/day) is 24 hours     NRW ratio in Chandrawal WTP command area is less than 15%.     Tariff collection ratio in Chandrawal WTP command area is more than 90%.	Same as evaluation of "Delhi Water Supply Improvement Project"	
<project purpose=""> DJB's capacity to implement, operate and maintain "Delhi water supply improvement project" is strengthened.</project>	<ul> <li>a. Basic information on pipe-networks is reflected in DPR for components 2-4 of "Delhi Water Supply Improvement Project" prepared by DJB.</li> <li>b. The gap among DMAs in water pressure and volume based on DMAs' demand is reduced. (Pressure: From X meters to Y meters, Volume: From Xm<sup>3</sup> per connection to Ym<sup>3</sup> per connection to Ym<sup>3</sup> per connection of asset management based on scenarios for stage wise development of GIS/RMS application is reflected in DPR for component 5 of "Delhi Water Supply Improvement Project" prepared by DJB</li> </ul>	a&c. Confirmation of contents of DPRs b. Report on water pressure and volume of DMAs	"Delhi Water Supply Improvement Project" is completed as planned.
<outputs> 1. DJB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened.</outputs>	<ol> <li>Construction methods of pipe crossing (railways, rivers, and major roads) and laying method (Open-cut and Trenchless) for "Delhi Water Supply Improvement Project" are determined by DJB.</li> <li>Locations (alignment and depth) of transmission and distribution pipes for "Delhi Water Supply Improvement Project" are determined by DJB</li> </ol>	1a. DJB's Authorization on construction method 1b. DJB's Authorization of Reports on pipeline route	Consultants of "Delhi Water Supply Improvement
<ol> <li>DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.</li> </ol>	DJB can control the water flow/pressure properly with SCADA based on the manuals and guidelines prepared by the Assistance in the pilot project area 2b. NRW ratio is clarified and continuously observed in the pilot project area	2a. Field Assessment by concerned experts 2b.Record on data of NRW ratio	Project" implement the detailed design work as scheduled.
Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared	3. Draft of guideline for introduction of asset management is prepared	Minutes of Meeting on submission of draft of guideline on asset management to DJB	
The assistance is managed and coordinated properly     *Note: Unfixed figures (X and Y) in PDM s	and decided during policity 2.2.5		

:Activities>	<inputs></inputs>	1.Water is delivered to
Strengthing capacity to manage data and information on water supply facilities in Chandrawal command area	DJB Side	UGR in the
Strengthing capacity to manage data and information on water supply facilities in constitution of the supply facilities and information of the supply facilities	Counterpart personnel	Pitampura pilot
1-1. Obtain necessary information for detailed design of Delhi water supply improvement project.	(a) Management Personnel	project area from the
1-1-1. Review of data of existing pipeline.	1) Project Director	Halderpur Water
1-1-2. Select pipelines to be replaced.	2) Project Manager	Treatment Plant
1-1-3. Review of results of "the Study on Improvement of water supply system in Delhi" to install new pipes.	2) Project Manager	
1-1-4. Obtain data and information on underground utilities by using DSSDI GIS data, and reconfirm pipeline	3) Deputy Project Manager	2. Pumps and other
network data with support of DJB field staff.	Officer in charge of Pilot Project	
1-1-5. Draft pipe alignment and depth.	(b) Technical personnel	equipment run
1-1-6. Draft pipe laying method (Open-cut and Trenchless) and crossing method (railways, rivers, drainage and major roads).	WTP &Rising Main in Chandrawal Command Area	without major disruptions
1.1.7 Carry out topographic survey along nine-alignment.	<ol><li>Distribution network in Chandrawal</li></ol>	
1-2. Carry out survey and GIS mapping of WTPs, UGEs and BPSs, and verification of the data (location and	Command Area	100
size, etc) of pipes in Chandrawal WTP command area.	Pipe network in Pilot Project area	
size, etc) of pipes in Chandrawai vi in Command area.	4) Pumping Station in Pilot project Area	
	5) SCADA	Precondition:
2. Upgrading capacity to monitor and control the water distribution	6) GIS Mapping	1. DSSDI GIS data on
2-1. Review SCADA application in DJB	7) GIS Application	utilities other than
2-2. Introduce Japanese experience and system to DJB		
2-3 Implement pilot project for equitable distribution and non-revenue (NRW) monitoring by applying SCADA	8) RMS	water pipelines can
2-3-1. Reconfirm the configuration of the existing distribution network within the pilot project area and finalize the	2. Office Spaces and Facilities	be used for the
implementation plan of the pilot project	3. Permissions to access DSSDI and existing	"Assistance Project".
2-3-2. Estimate the level of water demand in each DMA	DJB's GIS data and Necessary Information	
	4. Allowance and Running Expenses	2. The scope of "Delhi
2-3-3. Procure equipment necessary for implementation of the pilot project	5. Civil Works for Pilot Project	Water Supply
2-3-4. (a) Construct a demonstration chamber to check its performance	6. Permission from related authorities	Improvement
(b) Implement improvement works for water ingress of the constructed chambers		Project" is not
(c) Install the equipment and conduct trial runs of SCADA system	Japanese Side	changed
2-3-5. Monitor flows and pressures within the pilot project area through SCADA system	1. Japanese Experts	
2-3-6. Monitor inequitable water supply in DMAs and study how to control flow/pressure to enhance equitable		dramatically.
water supply	(1) Chief Advisor	
2-3-7. Implement the flow/pressure control and confirm its effectiveness	(2) GIS Application	
2-3-8. Calculate the total volume of water billed to the customers in the area based on the RMS	(3) Pipe-Network	
2-3-9. Calculate NRW ratio in the area	(4) GIS Mapping	
2-3-10. Demonstrate leakage detection activities in the area	(5) SCADA	
2-3-11. Prepare manuals and guidelines for flow/pressure control and NRW monitoring	(6) NRW Analyst	
2-3-12. Hold a seminar to disseminate the scope and outcome of the pilot project across the entire DJB	(7) DMA	
2-3-12. Hold a seminar to disseminate the scope and outcome of the phot project across the entire beautiful and MDM	(8) Leak Detection	1
2-4. Identify issues that need to be addressed for further enhancement of equitable distribution and NRW	(9) Water Supply Management	
monitoring	(10) Project Coordinator	
	(11) Others (by Mutual consent)	
<ol><li>Draft of scenarios for stage wise development of GIS/RMS application in DJB</li></ol>	e.g.Civil Work	1
3-1 Review existing D.IR's management policy/vision and business plan		1
3-2 Clarify the issue to be tackled to achieve the above-mentioned policy /vision and plan	2. Local Experts	
3-3. Review GIS development and Revenue Management System (RMS) in DJB	3. Equipment	
3-4. Study Japanese experience and system of GIS and RMS	Training of DJB personnel concerned with the	
3-5. Draft GIS and RMS application scenario in DJB for year 2021	Assistance in Japan	
3-6. Draft GIS and RMS development scenario in DJB for year 2021	5. Seminars on Japanese water utilities in Delhi	
3-7. Draft the guideline as an action plan for realization of scenarios	1	1
	J	1
Assistance Management and Coordination	1	
0-1. Organize Joint Coordinating Committee (JCC) meeting at least once a year		1
0-2. Finalize the indicators of the PDM and the Plan of Operations (PO) for approval of the first JCC meeting		
0-3. Prepare a draft Annual Plan of Operations (APO) based on the PO and an annual progress report for review		
by ICC for approval of the ICC		
		1
0-4. Monitor the progress and achievement of the Assistance based on PO/APO and the indicators of the PDM	1	





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	and could interest the					6	2.3.5 Month	or flows and p	resures within	2.3-3 Monton flows and pressures within the pilot project						1	
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the water distribution for equitable		_							-	o entenc	e equisble was	er supply	mence equitable water supply	A STATE OF		and outcome	of the
distribution and non-revenue water management is		_	L				2-3-9 Calcula	2-3-9 Calculate NRW ratio in the ones	in the ones.		r important in	i iowinessii	To any to	MTH HS DROOM		the entire DJE	8 8
upgraded.	_	c of available	e RMS data ii	· Use of available RMS data in Pilot project	r -				-								
	2-3-4 (a) Construct a demo	nstration chant	per to check is pe	rformance, (b) in	plement impro	1 memer			2-3-11 Pre	2.3-11 Prepare manuals and gaidelines for flow/pressure control and NRW monitoring	nidelines for B	o amesandos	often and NRW a	guinning			
	works for water ingress of the constructed chambers. (G) install the equipment and conduct trial rate of SCADA system	the constructed	chambers, (c) Ins	all the equipment	and conduct tr	Jo suro Joi		2-4 literal	fy bases that is	2-d Morrify tows that need to be addressed for further entensors on equinable distribution and NRW morticoting	for further end	эретем об	political distribution	on and NRW	Tronstoefing		
Output 3: Draft of scenarios for stage wirer development of GS/ReAS application in DB is propered.		8		- 1			,										
raining in Japan																	
Seminar						<b>•</b> "	, gg									• Oth	
Reports	★ •Work Plan★ •Progress Report (4th Your)	ss Report			d. <b>★</b>	★ • Progress Report			₩.	.★.Pro (5th Year)	* Progress Report	000				·Completion Repor	ion Re
Project Evaluation Micakon	<b>→</b>	a military										*	-Final Review				

Year					1	4th Year	aar					Year 4th Year	Equipment & Materials	& Materials	
Year				2016						2017		or and an		Reidopt	Progress as of 31May 2016
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Number of month	37	38	39	40	41	42	43	44	45	46	47 48				
Output-1															Completed by 3rd year
	2-3 lm	plemer	nt pilot p	2-3 Implement pilot project for equitable distribution and monitoring by applying SCADA	or equi	table	listribu	tion an		non-revenue (NRW)	(NRW)	JICA Experts; SCADA, DMA,	_	-JICA India office	[Completed] 2-1. Review SCADA application in DJB 2-2. Introduce Japanese experience and system to DJB 2-2. Introduce Japanese experience and system to DJB 2-3. Reconfirm the configuration of the existing distribution
		(a) Con	struct a den	2-3-4 (a) Construct a demonstration chamber to check its performance,	2-3-4	to check i	ts perform	iance,	1	2-3-5 Monitor flows pressures within the project area through SCADA system	2-3-5 Monitor flows and pressures within the pilot project area through SCADA system	NRW Analyst, or Civil DJB;	Control valves, Flow meters, Pressure gauges, Measures against electricity		network within the pilot project area and finalize the implementation plan of the pilot project 2-3-2 Estimate the level of water demand in each DMA 2-3-3 Procure equipment necessary for implementation of the
	(6) H	nplement (c) Insta	improveme ill the equip	<ul> <li>(b) Implement improvement works for water ingress of the constructed chamb</li> <li>(c) Install the equipment and conduct trial runs of SCADA system</li> </ul>	r water in, onduct tri.	gress of the	SCADA	cted chail system	ibers,	2-3-6 Monitor inequitable wa in DMAs and	2-3-6 Monitor inequitable water supply in DMAs and study how		leakage) - Construction of	-JICA Expert Team	pilot project 2.3-8 Calculate the total volume of water billed to the customers in the area based on the RMS 2.3-10 Namonstrate laskage defection activities in the area
Output-2:										to control flow/press o enhance equitable water supply	to control flow/pressure t o enhance equitable water supply	E.E. (E&M) W&S N/W	demonstration chamber and water tightness test	by JICA fund	[In Progress] 2-3. Implement pilot project for equitable distribution and nor-
DJB's capacity to monitor and control				L		2-5	3-9 Calcul	ate NRW	2-3-9 Calculate NRW ratio in the area	e area			- Sealing the		revenue (NRW) monitoring by applying SCADA 2-3-4 (a) Construct a demonstration chamber to check its
the water distribution for equitable distribution and		· Use	of availat	· Use of available RMS data in Pilot project	ata in Pil	lot projec		1	1	2-3-11 Prepare magnidelines for flow control and NRW monitoring.	2-3-11 Prepare manuals and guidelines for flow/pressure control and NRW monitoring	nd	hole covers and carry-in openings	DJB	performance (b) Implement improvement works for water ingress of the constructed chambers (c) Install the equipment and conduct trial runs of SCADA system
non-revenue water management is upgraded.			1		1				1	2-4 Identify issues that need to be addressed for further enhancement of equitable distribution at NRW monitoring	24 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring	1	chambers - Improvement of side walls and top slab Operation cost		[Not yet started] 2-3-5 Monitor flows and pressures within the pilot project area through SCADA system 2-3-6 Monitor inequitable water supply in DNAs and study how
									1				(electricity and communication)		to control flow/pressure to enhance equitable water supply 2-3-7 implement the flow/pressure control and confirm its effectiveness 2-3-9 Calculate NRW ratio in the area 2-3-11 Prepare manuals and gwidelines for flow/pressure control and NRW monitoring 2-3-22 Hold a seminar to disseminate the scope and outcome of the pilot project across the entire DIB 2-4 identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring
Output-3															Completed by 2nd year
Seminar												Tokyo MWB & DJB	1	1	1
Reports	·Work ⊞	Plan★'	★ •Work Plan★ •Progress Report (4th Year)	sport			- 72	*	* Progress Report	eport		All Experts	1	1	1
Project Evaluation Mission			· Mid	· Mid-tem Review	W					81		JICA	1	1	ı

Annual Plan of Operation (APO-4th Year) of

### Implementation Schedule of Improvements to Chambers and SCADA System

		Item	Oct Nov Dec	Jan	Feh N	Mar Apr	May	2016 Jun Jul	Aug	Sep Oct	Nov	Dec J		17 b Mar		· Mar
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Model	Chamber (JET)														-	
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		Tendering Contract Award				7	-									
		Construction														
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		Contract Preparation													+	
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SCAD	A operation								-					1000		
		SCADA trial run		1										- 60		🐼
		SCADA operation (DJB and JET)	4													
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.N. A	Activity	paration for chamber		t Au	/			Oc	t			Dec			_	
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Japan International Cooperation Agency

Reporting of Mid Term Review & Signing of the Minutes

6th Joint Coordinating Committee (JCC)

"The Assistance Related to Delhi Water Supply Improvement Project" Organized By

Delhi Jal Board and Japan International Cooperation Agency Date: 04th of Aug 2016

	Title	Signature
Sh. Neoral Semural.	In chain, DIB	M
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Sadanobu SAWARA	JICA H/AS	黃色戶信
	JICA India	1
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Japan International Cooperation Agency

Reporting of Mid Term Review & Signing of the Minutes

6th Joint Coordinating Committee (JCC)

"The Assistance Related to Delhi Water Supply Improvement Project" Organized By

Delhi Jal Board and Japan International Cooperation Agency Date: 04th of Aug 2016

Venue: DJB Conference Hall	Location: Delhi, India	ni, India
Name	Title	Signature
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MINUTES OF MEETING

ON

THE SEVENTH JOINT COORDINATING COMMITTEE

**FOR** 

THE ASSISTANCE RELATED TO

DELHI WATER SUPPLY IMPROVEMENT PROJECT

IN THE REPUBLIC OF INDIA

Delhi, 29 August 2017

Ms. Nidhi Srivastava

Project Director Additional CEO Delhi Jal Board (DJB) India Kazufumi MOMOSE Chief Advisor JICA Expert Team (JET) The seventh Joint Coordinating Committee (hereinafter referred to as "JCC") meeting for the Assistance Related to Delhi Water Supply Improvement Project (hereinafter referred to as "the Project")was held on 29August 2017 with the JCC members as shown in Attachment1(attendance list) at Hotel Crowne Plaza, Rohini, Delhi. All parties discussed and agreed on the items below;

1. Confirmation of Plan of Operation (PO)

DJB, JICA Expert Team(JET) and JICA agreed the PO for the 5<sup>th</sup> year covering from July 2017 to March 2018as shown in Attachment 2. DJB and JET agreed the weekly schedule as shown in Attachment 7 based on the PO and the both parties agreed further to monitor it and revise it, if required.

2. Focal points for SCADA Operation

DJB re-assured that the following from DJB will be responsible for operation and maintenance of SCADA system and related facilities;

Overall: Addl. CEO (Project Director); Ms. Nidhi Srivastava

Nodal Officer: CE (West); Mr. Ramesh Thakur
Civil (chambers): EE (NW) III; Mr. Mukesh Jindal
SCADA system: EE (NW) E&M; Mr. U. K. Rastogi

Non-revenue Water: Director (Revenue); Ms. Nidhi Srivastava

EE (NW) III; Mr. Mukesh Jindal

EE (Mapping cell); Mr. Chander Prakash

3. Improvement Works to Chambers and SCADA System before Handover to DJB Each party will conduct the followings until handover to DJB by JICA:

- (1) DJB will continue to monitor water ingress to the chambers after every significant rainfall.
- (2) JICA will continue to improve SCADA system(both equipment and chambers in chambers No. 6, 7 and 10 and other small works) in Pitampura.
- (3) When ingress is observed, DJB (Civil) will drain water out of chamber(s) while JICA will check function of SCADA system.
- (4) If required, DJB (Civil) will conduct improvement works to chamber(s) immediately.
- 4. SCADA system will be transferred to DJB immediately after completion of SCADA installation. The trainings will be conducted as per the plan shown in Attachment 4.
- 5. Operation and Maintenance of SCADA system by DJB All parties reconfirmed that DJB would be responsible for the operation and maintenance of the SCADA system in Pitampura starting after transferring to DJB. DJB Chief Engineer (West) shall appoint a specialized agency for O&M of the SCADA system and he should therefore start the required process including (i) budget preparation, (ii) preparation of TOR for hiring the agency, (iii) request for quotation, and (iv) contract documentation by 1stDecember 2017 at the latest. Schedule of contract documentation is attached to Attachment 5.
- 6. DJB has confirmed that of SCADA system including the chambers will be inspected at least two times every year (once before and once after the rainy season) plus after every major rainfall event during rainy season. Responsible section, method and frequency of inspection are outlined in Attachment 6.



- 7. Utilization of the SCADA system as a Training Facility after the Project DJB reconfirmed that after handing over from JICA to DJB, the SCADA system in Pitampura will be developed as 'Pitampura Training Centre for SCADA System' and will continuously be utilized as a training facility for the enhancement of equitable water distribution and NRW monitoring in future. The trainings will be conducted as per the plan shown in Attachment 4.
- 8. Sharing Knowledge and Technology with the Indian Side All parties reconfirmed that knowledge and technology for preventing the problems on water ingress and electricity leakage throughout the stages of design, tendering, and construction supervision of valve chambers should continue to be transferred to DJB assigned counterparts, such as the Executive Engineers NWIII (Civil) and NW (E&M) while they are working closely with JET for the improvement works. DJB also promised to take actions to share its know-how of the countermeasures within DJB such as making guidelines and conducting seminars.

### Attachments:

- 1. Attendance list
- 2. Plan of Operation (5<sup>th</sup> Year)
- 3. Project Design Matrix
- 4. Plan of training in Pitampura Training Centre for SCADA
- 5. Schedule of contract documentation for maintenance of SCADA equipment
- 6. Responsible section, method and frequency of inspection of SCADA equipment and chamber
- 7. Weekly Schedule

Note: FEE (NW) II should be read as EE (NW) III.

Q 3

Japan International Cooperation Agency

## THE SEVENTH JCC UNDER "THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT"

Organized By

# Delhi Jal Board and Japan International Cooperation Agency Date: 29th of Aug 2017

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Attachment-1





Japan International Cooperation Agency

### "THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT" THE SEVENTH JCC UNDER

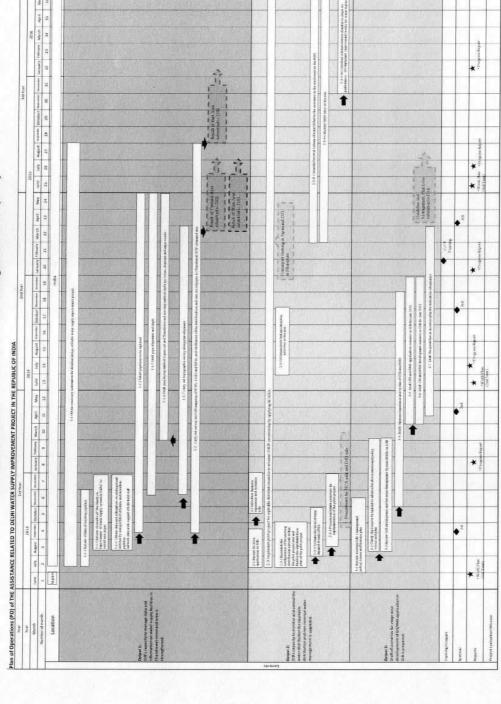
Delhi Jal Board and Japan International Cooperation Agency Date: 29th of Aug 2017

Organized By

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Attachment 2 (1/3)Plan of Operation (1/2)





Attachment 2 (2/3)Plan of Operation (2/2)



# Attachment 2 (3/3) Annual Plan of Operation

Annual Plan of Operation (APO-5th Year) of

5th Edition 2-3-5 Monitor flows and pressures within the pilot project area through SCADA system 2-3-5 Monitor inequitable water supply in DMAs and study how to control flow/pressu 2-3-3 Procure equipment necessary for implementation of the pilot project 2-3-8 Calculate the total volume of water billed to the customers in the area? y applying SCADA.

2-3-4 (a) Construct a demonstration chamber to check its performance.

(b) Implement improvement works for water ingress of the construct (c) Install the equipment and conduct that iums of SCADA system. 2-4 identify issues that need to be addressed for further enhance Progress as of 15 June 2017 1-3-10 Demonstrate leakage detection activities in the area 2-2. Introduce Japanese experience and system to DJB 2-3-1. Reconfirm the configuration of the existing distribu 2-3-2 Estimate the level of water demand in each DMA 2-3-9 Calculate NRW ratio in the area 2-3-11 Prepare manuals and guideline 2-3-12 Hold a seminar to disseminate [Completed] 2-1, Review SCADA application in DJB ance equitable water supply Completed on 2nd year Completed by 3rd year Completed by 2nd year [in Progress] JICA Expert Team JICA India office Budget Equipment & Materials IICA fund DIB meters, Pressure gauges, Measures -Improvement of side walls and top Equipment (SCADA, Control valves, Flow chamber and water -Construction of demonstration openings on man-hole covers and gainst electricity carry-in openings Construction of Operation cost (electricity and unication Installation of ightness test Items Sealing the E hambers eakage) THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT IN THE REPUBLIC OF INDIA E.E. (E&M) W&S N/W Engineers Tokyo MWB & DJB S.E. (Project) Water Person in charge Fokyo MWB + DJB DMA, NRW Analyst, Civil JICA Experts; All Experts S.E. (NW) SCADA, JICA January February March ompletion Repor 58 2-3-12 Hoda seminar to disseminate the scope and outcome of the pilot project across the entire DJB 2-3 Implement pilot project for equitable distribution and non-revenue 2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring 2018 57 2-3-11 Prepare manuals and guidelines for flowlyressure control and NRW 2-3-5 Monitor flows and pressures within the pilot project area through SCADA system 2-3-6 Monitor inequitable water supply in DMAs and study how to control flow/pressure to enhance equitable water supply. 2-3-7 Implement the flow/pressure control and confirm its effectiveness 99 July August September October Novemeber December 55 nonitoring 54 2-3-8. Calculate the total volume of water billed to the customers in the areabased on the RMS (NRW) monitoring by applying SCADA 2-3-9 Calculate NRW ratio in thearea 23 · Final Review 2017 25 · Use of available RMSdata ★ -Work Plan ★ · Progress Report (5th Year) (b) Implement improvement works for water ingress of the constructed chambers.

(c) Install the equipment and conduct trial runs of SCADA (a) Construct a demonstration chamber to check its 51 in Pilot project 20 June 49 itor and control the nd non-revenue water, itable distribution Number of month project Evaluation DJB's capacity to Training in Japan nanagementis Month Year Contents upgraded. Output-3 Reports



Project Design Matrix(PDM)

Title of the Project: "The Assistance related to Delhi Water Supply Improvement Project"

Project Area: Chandrawal Command Area and part of Pitampura area in Delhi

Executing and Implementing Organization: Delhi Jal Board (DJB)

Beneficiary: DJB

PDM ver. 5 as of July/2016 Duration of the Project: four years and ten months from June 2013 (June 2013 -March 2018)

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
<u>Soverall Goal&gt;</u> To achieve the equitable and continuous water distribution in the National Capital Territory of Delhi, by improving the water supply network including service network to customers, thereby contributing in upgrading citizen's living standard	Service hours in Chandrawal WTP command area to customers(hours/day) is 24 hours     NRW ratio in Chandrawal WTP command area is less than 15%.     Tariff collection ratio in Chandrawal WTP command area is more than 90%.	Same as evaluation of 'Delhi Water Supply Improvement Project'	resumption
<u>Project Purpose&gt;</u> D.IB's capacity to implement, operate and maintain "Delhi water supply improvement project" is strengthened.	a. Basic information on pies-networks is reflected in DPR for components 2-4 of "Delhi Water Supply Improvement Project" prepared by DJB. b. The gap among DMAs in water pressure and volume based on DMAs demand is reduced. (Pressure-From X meters to Y meters, Volume: From X m per connection to Ym per connection?) c. Guideline for introduction of asset management based on scenarios for stage wise development of GIS/KMS application is reflected in DPR for component 5 of "Delhi Water Supply Improvement Project" prepared by DJB.	a&c. Confirmation of contents of DPRs. b. Report on water pressure and volume of DMAs	"Delhi Water Supply Improvement Project" is completed as planned
Outputs> 1.DJB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened.	Construction methods of pipe crossing (railways, rivers, and major roads) and laying method (Open-cut and Trenchless) for 'Delhi Water Supply Improvement Project' are determined by DJB.     Locabons (alignment and deplh) of transmission and distribution pipes for 'Delhi Water Supply Improvement Project' are determined by DJB.	DJB's Authorization on construction method     DJB's Authorization of Reports on pipeline route	
2.DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.	DJB can control the water flow/pressure properly with SCADA based on the manuals and guidelines prepared by the Assistance in the pilot project area     NRW ratio is clarified and continuously observed in the pilot project area	2a. Field Assessment by concerned experts 2b. Record on data of NRW ratio	Consultants of "Delhi Water Supply Improvement Project implement the detailed
Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared	3. Draft of guideline for introduction of asset management is prepared	Minutes of Meeting on submission of draft of guideline on asset management to DJB	design work as scheduled.
The assistance is managed and coordinated properly			

<activities></activities>	<inputs></inputs>	1 1999 Carrier Street
1. Strengthing capacity to manage data and information on water supply facilities in Chandrawal command area  1.1. Obtain necessary information for detailed design of Delhi water supply improvement project.  1.1.1. Review of data of existing pipeline.  1.1.2. Select pipelines to be replaced.  1.1.3. Review of results of "the Study on Improvement of water supply system in Delhi" to install new pipes.  1.1.4. Obtain data and information on underground utilities by using DSSDI GIS data, and reconfirm pipeline network data with support of DJB field staff.  1.1.5. Draft pipe alignment and depth.  1.1.6. Draft pipe laying method (Open-cut and Trenchless) and crossing method (railways, rivers, drainage and major roads).  1.1.7. Carry out topographic survey along pipe-alignment.  1.2. Carry out survey and GIS mapping of WTPs, UGEs and BPSs, and verification of the data (location and size, etc.) of pipes in Chandrawal WTP command area.	DJB Side  1. Counterpart personnel (a) Management Personnel 1) Project Director 2) Project Manager 3) Deputy Project Manager 4) Officer in charge of Pilot Project (b) Technical personnel 1) WTP &Rising Main in Chandrawal Command Area 2) Distribution network in Chandrawal Command Area 3) Pipe network in Pilot Project area	Water is delivered to LIGR in the Pitampura pilot project area from the Haiderpur Water Treatment Plant     Pumps and other equipment run without majo disruptions.
2. Upgrading capacity to monitor and control the water distribution	Pumping Station in Pilot project Area     SCADA	
2-1. Review SCADA application in DJB  2-2. Introduce Japanese experience and system to DJB  2-3. Implement pilot project for equitable distribution and non-revenue (NRW) monitoring by applying SCADA  2-3-1. Reconfirm the configuration of the existing distribution network within the pilot project area and finalize the implementation plan of the pilot project  2-3-2. Estimate the level of water demand in each DMA  2-3-3. Procure equipment necessary for implementation of the pilot project  2-3-4. (a) Construct a demonstration chamber to check its performance  (b) Implement improvement works for water ingress of the constructed chambers (c) Install the equipment and conduct trial runs of SCADA system  2-3-5. Monitor flows and pressures within the pilot project area through SCADA system  2-3-6. Monitor inequitable water supply in DMAs and study how to control flow/pressure to enhance equitable water supply  3-7. Implement the flow/pressure control and confirm its effectiveness  2-3-8. Calculate the total volume of water billed to the customers in the area based on the RMS  2-3-9. Calculate NRW ratio in the area  2-3-11. Prepare manuals and guidelines for flow/pressure control and NRW monitoring  2-3-11. Prepare manuals and guidelines for flow/pressure control and NRW monitoring  2-3-12. Hold a seminar to disseminate the scope and outcome of the pilot project across the entire DJB  2-4. Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring	6) GIS Mapping 7) GIS Application 8) RMS 2. Office Spaces and Facilities 3. Permissions to access DSSDI and existing DJB's GIS data and Necessary Information 4. Allowance and Running Expenses 5. Civil Works for Pilot Project 6. Permission from related authorities  Uapanese Side 1. Japanese Experts (1) Chief Advisor (2) GIS Application (3) Pipe-Network (4) GIS Mapping (5) SCADA (6) NRW Analyst (7) DMA (8) Leak Detection (9) Water Supply Management	Precondition:  1 DSSDI DIS data on utilities other than water pipelines can be used for the "Assistance Project".  2. The scope of "Deihi Water Supply Improvement Project" is not changed dramatically.
3. Draft of scenarios for stage wise development of GIS/RMS application in DJB 3-1. Review existing DJB's management policy/vision and business plan 3-2. Clarify the issue to be tackled to achieve the above-mentioned policy /vision and plan 3-3. Review GIS development and Revenue Management System (RMS) in DJB 3-4. Study Japanese experience and system of GIS and RMS 3-5. Draft GIS and RMS application scenario in DJB for year 2021 3-6. Draft GIS and RMS development scenario in DJB for year 2021 3-7. Draft the guideline as an action plan for realization of scenarios 0. Assistance Management and Coordination 0-1. Organize Joint Coordinating Committee (JCC) meeting at least once a year 0-2. Finalize the indicators of the PDM and the Plan of Operations (PO) for approval of the first JCC meeting 0-3. Prepare a draft Annual Plan of Operations (APO) based on the PO and an annual progress report for review by JCC for approval of the JCC 0-4. Monitor the progress and achievement of the Assistance based on PO/APO and the indicators of the PDM through JCC	(10) Project Coordinator (11) Others (by Mutual consent) e.g. Civil Work 2. Local Experts 3. Equipment 4. Training of DJB personnel concerned with the Assistance in Japan 5. Seminars on Japanese water utilities in Delhi	



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S N	Trainer	Trainees	Duration	Sep	17	Oc	t 17	Nov	/ 17	Dec				Feb	18	2018/ Mar ~	2019	202
1	RDS	EE (NW) III EE (NW) E&M ZE (NW) III AE (NW) E&M	1 day		•													
2	JICA Expert	EE (NW) III EE (NW) E&M ZE (NW) III AE (NW) E&M	1 day each time		•		•											
	The	Group 1	1 day each time				-			+			-		•	•	••	••
3	of S.N. 1	Group 2	1 day each time		H		H		H		-		•		-	•	••	•••
	and 2 above	Group 3	1 day each time							$\blacksquare$	•				•	•		•
rair	nees:				П	П										Hijiri		

Note: Training is organized by DJB.



Contract for SCADA System Maintenance

1. Target of Contract

End of November 2017 at the latest.

If contract can start 1<sup>st</sup> December SCADA equipment are to be guaranteed seamlessly after defect liability period between JICA and RDS expires at the end of November 2017.

### 2. Terms of Reference

Prepared by 8th September

General Condition: DJB format

Particular Condition:

- · Daily Inspection: excluded and to be conducted by EE (E & M)
- Regular Inspection: included, 1 to 2 times, items to be inspected, refer to inspection sheet prepared by JET
- Emergency call: included, 2 ways; one is fixed amount regardless of repairs and another
  is on-call basis that will require cost quotation or pre-arranged cost at the contract.

The above can be discussed with RDS and reflected into particular condition, if necessary. Meeting is to be held on 4<sup>th</sup> September.

### 3. Budget Arrangement

End of November 2017 by the latest.

### 4. Tendering Schedule

Procedure	Required Minimum Time	Time Line
0. Preparation of Tender Document		8 September
1. Selection of Bidder		
2. Preparation of Bid	30 days ?	
3. Notice and Receiving of Bid		
4. Evaluation of Bid		
5. Decision of Contractor by Board	15 days ? or when board meeting is scheduled in October?	
6. Contract Award		1 November at the latest

To be finalized after hearing from DJB

### 4. Reporting of Tendering Process to JET



### Inspection of SCADA System

### I. Responsible Section

Overall:

Addl. CEO (Project Director); Ms. Nidhi Srivastava

Nodal Officer:

CE (West); Mr. Ramesh Thakur

Civil (chambers):

EE (NW) III; Mr. Mukesh Jindal

SCADA equipment: EE (NW) E&M; Mr. U. K. Rastogi

Non-revenue Water: Director (Revenue); Ms. Nidhi Srivastava

EE (NW) III; Mr. Mukesh Jindal

EE (Mapping cell); Mr. Chander Prakash Time of Inspection

### II. Inspection of SCADA Equipment

### Frequency of Inspection

### (1) Regular Inspection

Twice a year (According to schedule of chamber inspection)

### Pre-monsoon season

SCADA server, clients: Visual appearance inspection of the exterior of the equipment, checking the normal operation of each application and checking for alarms and errors. If alarms and errors are occurring frequently, identify the cause and respond.

Local station: Visual appearance inspection of the local panel. Also, operating the switch from the local panel and checking the operation.

### ② Post-rainy season

In addition to ①, at the timing of opening the chamber, Visual appearance inspection of the equipment and wiring inside the chamber, checking the valve opening / closing operation and sound together. Respond immediately when there is any serious damage.

### (2) Emergency Response

- After occurrence of water level alarm and draining of accumulated water in chambers by EE (Civil), checking the equipment inside the chamber.
- ② If any equipment in the chamber has failed, identify the cause and respond.

### 2. Inspection Method

### (1) SCADA server, clients

- Error contents and frequency of the operating system
- Alarm contents and frequency of the SCADA screen
- Operation and soundness of each application
- Operation and soundness from the clients
- GPRS network communication



### (2) Local panel

- ① Slippage, rattling, deformation, and cracking of panel
- ② Indicators and lamps of panel
- Oracking, corroding, and damaging of parts inside panel
- Working condition of each equipment such as PLC, modem, relay, etc.
- Opening / closing operation by electric valve switch

### (3) Equipment in the chamber

- Opening / closing operation from the local panel
- ② Slippage, rattling, deformation, cracking of flow meter, pressure gauge and wiring

### III. Inspection of Chamber

(1) Regular Inspection

Two times a year

- Before rainy season
- Appearance inspection of outer wall
- After rainy season
   Appearance inspection of outer and inner walls

### (2) Emergency Response

- After receiving accident warning signal of water level alarm from EE (E&M), inspect
   water in chamber and drain accumulated water in chambers after rainfall.
- ② Analyze causes of water ingress and repair it.

### (3) Other Inspection

Inspection of chambers can be conducted when SCADA equipment is inspected. Coordination between EE (Civil) and EE (E&M) is required. Whenever chambers are opened for their inspection and repair, conduct sealing works on manholes and openings immediately after the repair is finished, based on the procedures JET conducted during the Project.

### 2. Inspection Method

- (1) Top Slab (Appearance)
  - ① Crack and fracture
  - Slippage, rattling, deformation, cracking of manholes and openings including their frames
  - Oracking and peeling-off of joints and caulking compound
  - Parked cars and goods (Garbage, material etc.)



### (2) Inside of Chamber

- Loss of material (peeling, scaling, cracking, deformation, damage) on water-proofing mortar
- Exposure of I-steel and reinforced bars and their rust
- ③ Cracking, corrosion, and damage of joints of steps with wall
- Exposure of bricks
- ⑤ Deformation of walls and scaling of water-proofing mortar
- © Trace of water on slab, walls, and floor
- Water or trace of water

### (3) Pipe and Appurtenances

- Corrosion of pipe, appurtenances, and flange bolts
- Leakage from joints of pipe and appurtenances.



### Monitoring Sheet (1/2)

JATE Pilatoshima ing India reviee Coustructions ing the Coustructions ing the Coustruction in the Coustruction of Coustruction	- Trial Run (17:30-30:30 20th,21h,22th) - Aure with Completion	Salts, Kojima  Salts, Kojima  Visit India  - Visit India  - Superves seating work of at No. 2, 6, 7, 5, 10  If the monocon war over  - Visit India  - Supervise improvement work at No. 6, 7 of DJB  - OJT of chamber inspection after monocon	If the most our was oner  - Execution of improvement work at 70 c. 6, 2	- Visit India - Assist training from HDS to DJE	U.K.Ractogi  U.K.Ractogi  - Training from RDS using free tructions of annual (18-00-1726, 18-dt, 19-lt, 20-dt, 21-dt, 22-dt)	- Confirm Panning of Training In other divisions of D.B.	U.K.Rastogi U.K.Rastogi U.K.Rastogi Submit JET the Planning of Training will be decided later  Training to other division of DJB
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rybe installation of setuators and No 10 eter rybse internal trial run 25 I bulia rybse Construction I Run rowe of Submitted final ups and documents	(17:30-20:30 20th,21h,22th) - Azecc with Completion	Supervose seating work of at No. 2, 6, 7, 5, 10  If the morecon was over - Veil India - Supervise improvement work at No. 6, 7 of DJB - OJT of Chamber impection	If the monom was oner  - Execution of improvement work at 70, 5, 2  - OJF of chamber inspection	- Axist training from ICDS to DJ18	Instruction Manual (18:00-17:30,	Training  Training  Look over of training to	Training will be decided later
OS I India cryise Construction I Run rove of Submitted final up; and documents	(17:30-20:30 20th,21h,22th) - Azecc with Completion	If the monotoon was over  - Visit India - Supervise improvement work at No. 6, 7 of DJB  - OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection	- Axist training from ICDS to DJ18	Instruction Manual (18:00-17:30,	- Lank over of training to other divisions of D.JB	Training will be decided later
Run rove of Submitted final ngs and documents	- Agree with Completion	If the monotoon was over  - Visit India - Supervise improvement work at No. 6, 7 of DJB  - OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection	DIR	Instruction Manual (18:00-17:30,	- Look over of training to other division of D.JB	Training will be decided later
ngs and documents		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection		(1886, 1916, 2006, 216, 22ds)	- Look over of training to other division of DJB	Training will be decided later
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Lank over of training to other divisions of D.JB	Training will be decided later
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Look over of training to other division of D.JB	- Training to other division
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Look over of training to other division of D.JB	- Training to other division
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Look over of training to other division of D.JB	- Training to other division of DJB.
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Look over of training to other division of D.JB	- Tenining to other division of DJB
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Look over of training to other decision of DJB	- Training to other division of DJB.
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection	•		- Look over of training to other division of D.JB	- Training to other divisions of DJB
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Lank over of training to other divisions of D.JB	- Training to other division of DJB.
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Look over af training to other deckins of DJB	- Training to other division of DJB
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			-Look over of training to other divisions of DJB	- Training to other divisions of DJB.
		Visit India     Supervise improvement work at No. 6, 7 of DJB     OJT of chamber inspection	Execution of improvement work at No. 6, 7      OJT of chamber inspection			- Look over of training to other divisions of DJB	- Training to other division of DJB
		- Supervise improvement work at No. 6, 7 of DJB - OJT of chamber inspection	work at No. 6, 7  OJT of chamber inspection			- Look over of training to other divisions of DJB	- Training to other division of DJB
	4	- OJT of chamber inspection after mouseon	OJT of chamber inspection after monsoon			- Look over of training to other divisions of DJB	- Training to other divisions of DJB
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							et DJB
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							- Training to other divisions of D.IB
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### Monitoring Sheet (2/2)

	JET	Operation DJB	JET	nd Guideline DJB	JET	nance Contract D.18	16.0	NRW DJU	-
4C Accidy I	Fukushima	U.K.Rastegi	Fukushima	U.K.Rastogi	Mamose	U.K.Rastogi	Shimizu	Mukesh Jindal	Bevenne
S Ang	Tan .				- Support of Tender	33.00.00	5-8700059		
					Document				
					- Leave India				
-Sep			- Quality check of		-				
			Instruction nameds of operation and maintenance			The second second			
1-Sep	- Visit India		- Visit India		- Support of Tender	- Preparation of Tendor		- Door to door Survey	
	<ul> <li>Prepare weekly report and daily record format</li> </ul>		- Quality check of Instruction manuals of		Document	Document			
	7/		operation and maintenance						
			from RDS						
18 Sop	- Vicis India - Prepare weekly report and		Study of mononl and	-Study of manual and				- Door to door Survey	
	daily record format		guideline contents	guideline contents and schedule				- Check Data every week (Pressure, Flow)	
								- Send Data to JET by e-mail	
								(Pressure, Flow)	
25-Sep		- Daily operation and record		- Making manual and guide line				- Door to door Survey	
		pressures		- Report to Mr. Fukushimu				- Check Data every week (Pressure, Flow)	
t-Oct		- Report to Mr. Fukushings - Daily operation and record		every end of month by mail - Making manual and		- Bidding			
		of monitor flows and		guide line		- Ballang		- Door to door Survey - Check Data every week	
		- Report to Mr. Fuksehima						(Pressure, Flow) - Send Data to JET by e-mail	
9-Oct	- Visit India	every Friday by mail						(Pressure, Flow)	
y-On	- Identify issues of	- Identify issues of monitoring operation	- Visit India - checking progress	- Review of manual and guideline from flows and		- Decision of Contractor by Board		- Door to door Survey - Check Data every week	
	- Study how to control	- Study how to control flow/pressure to enhance	- Review of manual and guideline from flows and	pressures monitoring operation				(Pressure, Flow)	
	flow/pressure to enhance	equitable vater	pressures monitoring	орегания	2/			Applicacy scottering	
16-Oct	- Support of control	- Try to control flowigeess are	operation	- M aking manual and		1 1 1			
- ott	flow/pressure to enhance	to enhance equitable water		- Making manual and guideline				- Door to door Survey - Check Data every week	
	equitable water			S-SUUSEAN.				(Pressure, How)	
23-0x1		- Daily operation and record		- Making manual and				- Door to door Survey	
		of equitable water controlling - Report to Mr. Fukushima		guide line				- Check Data every week	
ni o		every Friday by mail						(Pressure, Flow)	
39-Oct		<ul> <li>Daily operation and record of equitable water controlling</li> </ul>		- Making menont and guide line		- Contract Award		- Door to door Survey	
		- Report to Mrs Pukusalmu		- Report to Mr. Fukanhuna		1		- Check Data every week (Pressure, Flow)	
-Nov		every Friday by mail - Daily operation and record		every end of month by mail - Making manual and				- Door to door Survey	
		of equitable water controlling - Report to Mr. Fukushima		guideline				- Check Data every week	
		every Friday by mail						- Send Data to JET by e-mail	
13-Nov	- Visit India	- Identify issues of equitable	- Visit India	- Keview of manual and				(Pressare, Flow)	orina commence
	- Identify issues of equitable	water controlling operation	- checking progress	guideline from equitable				- Duor to door Survey - Check Data every week	
	water controlling operation - Study of improvement on	- Study of improvement on equitable water controlling	- Review of namual and guideline from equitable	water controlling operation				(Pressure, Flore)	
20-Nov	equitable water controlling	operation	water controlling operation						
ZII-NOV	- Support of control flow/pressure to enhance	<ul> <li>Try to control flow/pressure to enfunce equitable water</li> </ul>		- Making manual and guideline				- Door to door to Survey - Check Data every week	
	equitable water	- 22		7)				(Pressure, Flow)	
27-Nov		- Daily operation and record		- Making manual and		- Handing over SCADA		- Deer to deer Survey	
		of equitable water controlling		guide line		system from JICA		- Check Data every week	
		- Report to Mr. Fukushima every Friday by mail		- Report to Mr. Fukushima every end of month by mail				(Pressure, Flow)	
I-Dec		<ul> <li>Daily operation and record of equitable water controlling</li> </ul>		- Making munual and guideline		- Start Maintenance	- Calculate NRW(Trial)	- Check Data every week	- Send Revenue Data to N
		- Report to Mr. Fukushima	0	guide line		Contract		(Pressure, Flow) - Send Data to JET by e-mail	Jindal and JET(DMA1,2 a
		every Friday by mail						(Processor, Plane) - Calculate NRW(Trial)	
H-Dec		- Daily operation and record		- Making manual and			- Calculate NRW(Trial)	- Check Data every week	
		of equitable water controlling - Report to Mr. Fukushima	6	guide line				(Pressure, Flow) - Calculate NRW(Trial)	
18-Dec		every Friday by mail						and the second s	
- set		<ul> <li>Daily operation and record of equitable water controlling</li> </ul>		- Making manual and guideline			- Calculate NRW(Trial)	- Check Data every week (Pressure, Flow)	
		- Report to Mr. Fukushima						- Calculate NRW(Trial)	
25 Dec		every Friday by mail  Duity operation and record		- 51 obling manual and			- Catcutate NRW(Tetal)	- Check Data every week	
		of equitable water controlling - Report to Mr. Fokushima		guide line - Report to Mr. Fukus hima			- Andrew Andrews	(Pressure, Flow)	
		every Friday by mail		every end of month by mail				- Calculate NRW(Trial)	
l-Jan		<ul> <li>Daily operation and record of equitable water controlling</li> </ul>		- M aking manual and guide line				- Check Data every week	
		- Report to Mr. Fukushima						- Send Data to JET by e-mail	
		every Friday by mail			1212			(Pressure, Flow) - Calculate NRW(Trial)	
8-Jan		- Daily operation and record		- Making manual and				- Check Data every week	
		of equitable water controlling - Report to Mr. Fukushima		guideline				(Pressure, Flow)	
15-Jan		every Priday by mail  - Daily operation and record		Matter		-			
- PART		of equitable water controlling		- Making manual and guide line				- Check Data every week (Pressure, Flow)	
		- Report to Mr. Fukushima every Friday by mail		CC10000012-4				whose endfiller	
22-Jan		- Daily operation and record		- Making manual and				- Check Data every week	
		of equitable water controlling - Report to Mr. Folksebbins		guide line				(Pressure, Flow)	
		every Friday by mail							
9-Jan		<ul> <li>Daily operation and woord of equitable water controlling</li> </ul>		- Making manual and guide line				- Check Data every week (Pressure, Flow)	
		- Report to Mr. Fukushima		- Report to Mr. Fukushima		1		G TESTAIR, FROM)	
5-Feb		every Friday by mail - Daily operation and record		every end of month by mail - Making manual and			- Visit India	- Calculate NRW	
		of equitable water controlling		guideline			- Check DMA site and	CHRUME NKW	
		- Report to Mr. Fukushima every Friday by mail					Check NRW		
12-Feb		- Daily operation and record		- Making manual and					
		of equitable water controlling - Report to Mr. Fukushima		guide line					
		every Friday by muli							
9 Feb	- Visit India - Identify issues that need to	<ul> <li>Identify issues that need to be addressed for further</li> </ul>	- Visit India - Support of Finalize of	- Finalize of manual and guideline					
	be addressed for further	enhancement of equitable	manual and guideline	-					
	enhancement of equitable distribution	distribution - Report to entire DJB on							
-	COST DE DE CONTROL DE								

### MINUTES OF MEETING

ON

### THE EIGHTH JOINT COORDINATING COMMITTEE

**FOR** 

THE ASSISTANCE RELATED TO

### DELHI WATER SUPPLY IMPROVEMENT PROJECT

### IN THE REPUBLIC OF INDIA

Delhi, 29 January 2018

Ms. Nidhi Srivastava

Project Director Additional CEO Delhi Jal Board (DJB) India Kazufumi MOMOSE Chief Advisor

JICA Expert Team (JET)

The eighth Joint Coordinating Committee (hereinafter referred to as "JCC") meeting for the Assistance Related to Delhi Water Supply Improvement Project (hereinafter referred to as "the Project") was held on 29 January 2018 at the DJB Conference Room, Delhi with the JCC members as shown in Attachment 1 (attendance list). Following the opening remarks made by the Additional C.E.O of DJB and the Senior Representative of JICA India Office, one of the DJB counterparts to the Project presented the progress and outcome of the Project, which was then followed by the presentation of the results of the terminal evaluation of the Project by the Joint Terminal Evaluation Team. The JCC meeting then discussed some technical issues, in which DJB agreed to the following:

- 1. The DJB's Training Cell in collaboration with Chief Engineer (West) will implement training on SCADA according to the long-term training plan on SCADA developed in the Project and also utilizing the pilot SCADA system located in Pitampura.
- 2. Draft Guidelines for operation and maintenance of SCADA system, calculation of NRW and periodic reporting which was prepared in the Project is accepted by DJB as being the final version.

Attachments:

Attendance list





### THE EIGHTH JCC UNDER "THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT"

Organized By

### Delhi Jal Board and Japan International Cooperation Agency Date: 29th of Jan 2018

Venue: DJB Conference Hall		02.00 I	M Onwards, Loca	tion: Delhi, India
Name	Designati	on	Contact Number	Signature
Mr Nidhi Snivestura	Add CEO			0
B.S. Rawat	EE(Pray.) W	-TI		B C
AJAY KUHAR	SECROW			23
Mukeul Tindal	EE (410)			1 70
Promod Kr Jouin	SE(NW)			you 1
4.K. Rastoge	EE (EAM) N	BINN		
RAMESH THAKUR.	CE (West)			(policy
Ble				13
Takayoshi Tange	Sen. Rep. / Dty	. C.R.		
Sadanobu SAWARA	Senior Advi	sor to		· 苍鹭 宸
MDH12.9.M	chief Dev. Spec	ialisto		Okea
Fujita Akiko	Deputy Die	729		fuzitos
Kaori Honla	Programme S			Kuthonda
Kazufum Mourose	JICA Expert	Ten		可形形义
Akiko Hirano				, 5
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Sanjay Prasad	JICA Expen			
Pradeepkumon	AE (Boy)n	4		Cry
Arun Vome	JEllry) w			apon,
Alok Chhabre	JE Project	14-15		M