

## SCADA 調達進捗会議

JICA インド事務所、SCADA 機器調達・据付けの RDS、DJB、JET 他の出席により、工事の進捗実績及び今後の作業予定を確認する SCADA 調達進捗会議が開催された。SCADA 調達進捗会議の日時、出席者、及び主な協議内容を以下に示す。

## 第 1 回 SCADA 調達進捗会議

日時 : 2014 年 7 月 11 日 (水) 11:00am ~ 12:00 pm

場所 : SE Chamber, Office of SE (NW), DJB, MU Block, Pitampura, Delhi

主な協議内容 :

- ・発注者、受注者、DJB、コンサルタントの紹介
- ・緊急連絡体制の確認
- ・調達、据付け、試運転のスケジュール確認

出席者

名前	所属
<b>JICA India</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Mr. Itaru Chiba	Representative (project in charge)
Ms. Sachiko Imamura	Additional Chief Administrative Officer
<b>DJB</b>	
Mr. Ramesh Thakur	SE (North West)
Mr. V. K. Singh	EE (NW) III
Mr. Yash Prakash	EE (NW) E&M
Mr. Sandeep Sharma	ZE (NW)
<b>JET</b>	
Mr. Manabu Fukushima	SCADA specialist
Mr. Koichiro Azui	DMA
Mr. Sanjay Prasad	GIS specialist
Mr. Absar Khan	Construction Supervisor
Ms. Jyoti Dhar	Supporting Construction Supervisor (SCADA part)
<b>Recktronic Devices and Systems (RDS)</b>	
Mr. Saurabh Varma	Contract Director
Mr. Jalaj Malhotra	Contract Manager

## 第 2 回 SCADA 調達進捗会議

日時 : 2014 年 7 月 25 日 10:30am ~ 1:00pm

場所 : Pitampura UGR, DJB, MU Block, Pitampura, Delhi

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認

出席者

名前	所属
<b>DJB</b>	
Mr. Yash Parkash	EE(E&M)NW
Mr. Sandeep Sharma	ZE(NW)
<b>JET</b>	
Mr. Manabu Fukushima	SCADA Expert
Mr. Absar Khan	Construction Supervisor
Mr. Sanjay Prasad	GIS Expert
<b>RDS</b>	
Mr. Saurabh Verma	Contract Director
Mr. Jalaj Malhotra	Contract Manager

### 第3回 SCADA 調達進捗会議

日時 : 2014年8月28日 2:00pm ~ 3:00pm  
場所 : Pitampura UGR, DJB, MU Block, Pitampura, Delhi.  
主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・提出書類の遅れへの RDS への改善指示

出席者

名前	所属
<b>JICA India</b>	
Mr. Itaru Chiba	Representative (project in charge)
Ms.Sachiko Imamura	Additional Chief Administrative Officer
<b>DJB</b>	
Mr.Yash Parkash	EE(E&M)NW
Mr.V.K.Singh	EE(NW)III
<b>JET</b>	
Mr.Manabu Fukushima	SCADA Expert
Mr.Koichiro Azui	DMA Expert
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr.Jalaj Malhotra	Contract Manager

### 第4回 SCADA 調達進捗会議

日時 : 2014年9月24日 2:00 pm ~ 3:00pm  
場所 : Pitampura UGR, DJB, MU Block, Pitampura, Delhi.  
主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・RDS からの現場盤(PLC 盤)の仕様変更提案に対する提出書類の指示

出席者

名前	所属
<b>JICA India</b>	
Mr. Itaru Chiba	Representative (project in charge)
Ms.Sachiko Imamura	Additional Chief Administrative Officer
<b>DJB</b>	
Mr.Ramesh Thakur	SE(NW)
Mr.Yash Parkash	EE(E&M)NW
Mr.Sandeep Sharma	ZE(NW)III
<b>JET</b>	
Mr.Phatta Thapa	JICA Expert, Pipe Line-1
Mr.Sanjay Prasad	GIS Expert
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr.Jalaj Malhotra	Contract Manager

### 第5回 SCADA 調達進捗会議

日時 : 2014年10月31日 1:00pm ~ 2:00pm  
場所 : JICA India Office, 2nd Floor, Gopal Das Bhawan, 28, Bara Khamba Road, Delhi.  
主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・RDS の進捗遅れに対する改善指示

出席者

名前	所属
<b>JICA India</b>	
Mr. Itaru Chiba	Representative (project in charge)
Ms.Sachiko Imamura	Additional Chief Administrative Officer
Mr.Kiyoto Onishi	Advisor(Procurement)
<b>DJB</b>	

Mr.Yash Parkash	EE(E&M)NW
<b>JET</b>	
Mr.Minoru Ikei	Dy. Chief Advisor, JICA TA Team
Mr.Sanjay Prasad	GIS Expert
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr.Saurabh Varma	Contract Director
Mr.Jalaj Malhotra	Contract Manager

### 第6回 SCADA 調達進捗会議

日時 : 26<sup>th</sup> November 2014 年 11 月 26 日 9:00am ~ 10:00am

場所 : JICA India Office, 2<sup>nd</sup> Floor, Gopal Das Bhawan, 28, Bara Khamba Road, Delhi

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・DJB へ道路掘削許可申請を依頼

出席者

名前	所属
<b>JICA India</b>	
Mr. Itaru Chiba	Representative (project in charge)
Ms.Sachiko Imamura	Additional Chief Administrative Officer
Mr.Kiyoto Onishi	Advisor(Procurement)
<b>DJB</b>	
Mr.V.K.Singh	EE(NW)III
<b>JET</b>	
Mr.Minoru Ikei	Dy. Chief Advisor, JICA TA Team
Mr.Sanjay Prasad	GIS Expert
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr.Saurabh Varma	Contract Director

### 第7回 SCADA 調達進捗会議

日時 : 2014 年 12 月 19 日

場所 : DJB Headquarter

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・RDS の SCADA デザインに対する DJB の承認
- ・SCADA システムの工場検査に関する実施日程の確認

出席者

名前	所属
<b>JICA India</b>	
Mr. Itaru Chiba	Representative (project in charge)
Ms.Sachiko Imamura	Additional Chief Administrative Officer
<b>DJB</b>	
Mr.Amit Satija	Addl.CEO
Mr.Vikram Singh	SE(Project)W-III
Mr.Yash Parkash	EE(E&M)WS-NW
Mr.V.K.Singh	EE(NW)III
<b>JET</b>	
Mr.Kazufumi Momose	Chief Advisor
Mr.Manabu Fukushima	SCADA
Mr.Yamamoto Yoichi	Water Supply Management
Mr.Hiroshi Izumoto	GIS Application
Mr.Sanjay Prasad	GIS Mapping
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr.Gaurav Varma	Contract Manager

	
第1回 SCADA 調達進捗会議 2014年7月11日	第2回 SCADA 調達進捗会議 2014年7月25日
	
第3回 SCADA 調達進捗会議 2014年8月28日	第4回 SCADA 調達進捗会議 2014年9月24日
	
第5回 SCADA 調達進捗会議 2014年10月31日	第7回 SCADA 調達進捗会議 2014年12月19日

### 第8回 SCADA 調達進捗会議

日時 : 2015年1月27日 2:00pm ~ 3:00 pm

場所 : ピッタンプラ DJB 事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・RDS に対する提出書類遅れへの指摘及び据付け工事の早期開始の指示

出席者

名前	所属
<b>JICA India</b>	
Mr.Kiyoto Onishi	Project Formulation Advisor (Procurement)
Mr. Itaru Chiba	Representative (project in charge)
<b>DJB</b>	
Mr.Sandeep Sharma	ZE(NW)III
<b>JET</b>	
Mr.Koichiro Azui	DMA
Mr.Sanjay Prasad	GIS Mapping
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr. Jalaj Malhotra	Contract Manager

### 第9回 SCADA 調達進捗会議

日時 : 2015年2月17日 3:00pm ~ 4:00pm

場所 : ピッタンプラ DJB 事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・RDS に対する提出書類遅れへの指摘及び据付け工事の早期開始の指示 (再度)

出席者

名前	所属
<b>JICA India</b>	
Mr.Kiyoto Onishi	Project Formulation Advisor (Procurement)
Ms. Sachiko Imamura	Additional Chief Administrative Officer
<b>DJB</b>	
Mr.Ramesh Thakur	SE(NW)
Mr.V.K Singh	EE(NW)III
Mr.Sandeep Sharma	ZE(NW)III
<b>JET</b>	
Mr.Koichiro Azui	DMA
Mr.Sanjay Prasad	GIS Mapping
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Director

### 第10回 SCADA 調達進捗会議

日時 : 2015年3月23日 3:30pm ~ 4:30pm

場所 : JICA インド事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・RDS に対する提出書類遅れへの指摘及び据付け工事の早期開始の指示 (再々度)
- ・工期延長に対する契約変更手続きの確認

出席者

名前	所属
<b>JICA India</b>	
Mr.Kiyoto Onishi	Project Formulation Advisor (Procurement)
Mr. Itaru Chiba	Representative (project in charge)
Ms. Sachiko Imamura	Additional Chief Administrative Officer
<b>DJB</b>	
Mr.V.K Singh	EE(NW)III
<b>JET</b>	
Mr.Kazufumi Momose	Chief Advisor
Mr.Koichiro Azui	DMA
Mr.Sanjay Prasad	GIS Mapping
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Director

### 第11回 SCADA 調達進捗会議

日時 : 2015年4月20日 2:00pm ~ 2:30pm

場所 : JICA インド事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・納品が遅れている管材の調達状況確認、及び対応策

出席者

名前	所属
<b>JICA India</b>	
Mr.Kiyoto Onishi	Project Formulation Advisor (Procurement)

Mr. Itaru Chiba	Representative (project in charge)
Ms. Sachiko Imamura	Additional Chief Administrative Officer
<b>DJB</b>	
None	
<b>JET</b>	
Mr.Minoru Ikei	Deputy Chief Advisor
Mr.Sanjay Prasad	GIS Mapping
Mr.Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr. Jalaj Malhotra	Regional Manager

## 第 12 回 SCADA 調達進捗会議

日時 : 2015 年 5 月 7 日 11:00 am ~ 1:30pm

場所 : ピットンプラ DJB 事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・納品が遅れている管材の調達状況確認、及び対応策（再度）
- ・DJB 側による電気・通信契約の状況確認
- ・DJB 側によるバルブ、流量計用のチャンバーの耐水性の確認

出席者

名前	所属
<b>JICA India</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Mr. Itaru Chiba	Representative (project in charge)
Ms. Miki Enoki	Administration Officer
<b>DJB</b>	
Mr. Yash Prakash	EE(E&M)NW
Mr. Yogender Singh	JE(Civil)/EE(NW)III
<b>JET</b>	
Mr. Koichiro Azui	DMA
Mr. Sanjay Prasad	GIS Mapping
Mr. Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager
Mr. Binu Gorge	Site Manager

## 第 13 回 SCADA 調達進捗会議

日時 : 2015 年 6 月 29 日 2:30 pm ~ 4:00pm

場所 : JICA インド事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・電気接続工事(DJB 手配)の遅れへの対応
- ・配水管切廻しに関する契約変更の状況確認 (RDS、JICA)
- ・DJB 側によるバルブ、流量計用のチャンバーの耐水性、及び浸水時の漏電対策の確認

出席者

名前	所属
<b>JICA India</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Mr. Itaru Chiba	Representative (project in charge)
Ms. Miki Enoki	Administration Officer
<b>DJB</b>	
欠席	
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
Mr. Sanjay Prasad	GIS Mapping
Mr. Absar Khan	Construction Supervisor
<b>RDS</b>	

Mr. Saurabh Varma	Contract Manager
Mr. Binu Gorge	Site Manager

	
第 8 回 SCADA 調達進捗会議 (2015 年 1 月 27 日)	第 9 回 SCADA 調達進捗会議 (2015 年 2 月 17 日)

### 第 14 回 SCADA 調達進捗会議

日時 : 2015 年 7 月 29 日 1:30 pm ~ 3:35 pm

場所 : DJB ピタンプラ事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・電気接続工事(DJB 側)の遅れへの対応
- ・配水管切廻しに関する契約変更の状況確認 (RDS、JICA)
- ・チャンバーの耐水性の問題についての対応 (No.9 チャンバーの材質について)

出席者

名前	所属
<b>JICA India</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Mr. Itaru Chiba	Representative (project in charge)
<b>DJB</b>	
Mr. Yash Parkash	EE(E&M)NW
Mr. Sandeep Sharma	ZE(NW)III
Mr. K.C. Verma	AE(E&M)NW
<b>JET</b>	
Mr. Absar Khan	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager
Mr. Binu Gorge	Site Manager

### 第 15 回 SCADA 調達進捗会議

日時 : 2015 年 10 月 7 日 10:00 am ~ 11:00 am

場所 : JICA インド事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・第 4 回 JCC を受けて、漏電対策・チャンバー改善対策の説明
- ・デモンストレーション用チャンバーを用いた耐水性実験の実施について
- ・漏電対策について RDS へ実施を依頼
- ・チャンバーの耐水性の問題についての対応 (No.9 チャンバーの材質について)

出席者

名前	所属
<b>JICA India</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Mr. Itaru Chiba	Representative (project in charge)
Ms. Miki Enoki	Administration Officer, JICA
Mr. M. P. Singh	Addl. Chief Dev. Specialist, JICA
<b>DJB</b>	

Mr. Yogendra Singh	JE(NW)III
<b>JET</b>	
Mr. Manabu Fukushima	SCADA, JICA TA
Mr. Wataru Shimizu	NRW, JICA TA
Mr. Sanjay Prasad	GIS, JICA TA
Mr. Anupam Joshi	JICA TA
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager

### 第 16 回 SCADA 調達進捗会議

日時 : 2015 年 12 月 8 日 11:30 am ~ 12:30 pm

場所 : JICA インド事務所

主な協議内容 :

- ・実施した作業の報告、および今後実施する作業内容の確認
- ・チャンバー改善対策の概要説明、および今後の作業工程
- ・デモンストレーション用チャンバーの DJB 敷地への設置、使用する水の提供等の確認
- ・DJB、JET、RDS のそれぞれの漏電対策についての作業内容確認

出席者

名前	所属
<b>JICA</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement), JICA India
Mr. Itaru Chiba	Representative (project in charge), JICA India
Mr. Sawara Sadanobu	Senior Advisor, JICA HQ
Mr. Singo Fujiwara	Representative, JICA HQ
<b>DJB</b>	
Mr. V. K. Singh	EE(NW)III
Mr. U. K. Rastogi	EE(E&M)NW
Mr. Sandeep Sharma	ZE(NW)III
Mr. K.C. Verma	AE(E&M)NW
Mr. Yogendra Singh	JE(NW)III
<b>JET</b>	
Mr. Manabu Fukushima	SCADA, JICA TA
Mr. Koichiro Azui	DMA, JICA TA
Mr. Noboru Saito	JICA TA
Mr. Hirhoshi Kojima	JICA TA
Mr. Sanjay Prasad	GIS, JICA TA
Mr. Anupam Joshi	JICA TA
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager



第 16 回 SCADA 調達進捗会議

### 第 17 回 SCADA 調達進捗会議

日時 : 2016 年 4 月 22 日 14:00 am ~ 15:00 pm

場所 : JICA インド事務所

主な協議内容 :

- ・RDS、DJB からの現況報告



- ・チャンバー改善対策の概要、および工程説明
- ・デモンストレーション用チャンバーの発注、および実施内容の説明
- ・RDS への漏電対策についての見積依頼

出席者

名前	所属
<b>JICA</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement), JICA India
Mr. Itaru Chiba	Representative (project in charge), JICA India
Ms. Yuko Fujiwara	Administration Specialist, JICA India
<b>DJB</b>	
Mr. Yogendra Singh	JE(Civil)/EE(NW)III
<b>JET</b>	
Mr. Manabu Fukushima	SCADA, JICA TA
Mr. Hirhoshi Kojima	CIVIL, JICA TA
Mr. Sanjay Prasad	GIS, JICA TA
Mr. Anupam Joshi	JICA TA
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager

### 第 18 回 SCADA 調達進捗会議

日時 : 2016 年 12 月 15 日 10:30 am ~ 12:00 pm

場所 : DJB ピタンプラ事務所

主な協議内容:

- ・チャンバー改善（防水対策）工事（No.9 を除く）
- ・No.9 チャンバーへの制御弁、流量計設置工事
- ・No.9 チャンバー建設工事実施時期、道路掘削許可申請の確認
- ・RDS による弁アクチュエーター設置、漏電対策、試運転工程の確認

出席者

名前	所属
<b>JICA India</b>	
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Ms. Yuko Fujiwara	Administration Specialist
<b>DJB</b>	
Mr. Ramesh Takuru	CE (WEST)
Mr. P K Jain	SE (NW)
Mr. Ajay Kumar	SE (Project) W-III
Mr. U.K.Rastogi	EE (NW) E&M
Mr. Mukesh Jindal	EE (NW) III
Mr. B.S.Rawat	EE (Project) W-III
Mr. Pradeep Kumar	EE (Project) W-II
Mr. Pukhraj Singh	AE (Project) W-II
Mr. Sandeep Sharma	ZE (NW) III
Mr. R.P.Goswami	AE (E&M) II
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
Mr. Hirhoshi Kojima	Civil
Mr. Sanjay Prasad	GIS
Mr. Anupam Joshi	Interpreter
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager
<b>Koli Contractor</b>	
Mr. Pradeep Kumar	Contractor

### 第 19 回 SCADA 調達進捗会議

日時 : 2017 年 2 月 23 日 14:30 ~ 16:00

場所 : JICA インド事務所

主な協議内容:

- ・ RDS No.9 チャンバーへの制御弁、流量計設置、アクチュエーター設置、漏電対策、試運転工程の確認

- ・ DJB No.9 チャンバー建設工事、No.10 チャンバー再建設工事、及び電源・通信工事状況の確認

出席者

名前	所属
<b>JICA India</b>	
Ms. Momoko Furuhashi	Representative
Mr. M.P. Sign	Chief Development Specialist
Ms. Sachiko Imamura	Procurement Advisor
Mr. Kiyoto Onishi	Procurement
Ms. Yuko Fujiwara	Procurement
<b>DJB</b>	
Mr. Mukesh Jindal	EE (NW) III
Mr. B.S.Rawat	EE (Project) W-III
Mr. Pukhraj Singh	AE (Project) W-II
Mr. Sandeep Sharma	ZE (NW) III
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
Mr. Hirhoshi Kojima	Civil
Mr. Sanjay Prasad	GIS
Mr. Anupam Joshi	Interpreter
Mr. V.K.Gupta	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager

### 第 20 回 SCADA 調達進捗会議

日時 : 2017年7月6日 15:00 ~ 16:30

場所 : DJB ピタンプラ事務所

主な協議内容:

- ・ RDS による進捗報告 SCADA 設置工事状況、チャンバー外への No.7,8,14 圧力計の設置検討（追加費用、工期延長要否）。SIM カードテスト準備、その他。
- ・ DJB 民間企業に SMI の発注不可のため、JET 及び JICA へリクエストレターを要請。SCADA 室エアコン、デスク、椅子手配の確認。

出席者

名前	所属
<b>JICA India</b>	
Mr. Toru Uemachi	Senior Representative (Procurement)
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Ms. Yuko Fujiwara	Administration Specialist
<b>DJB</b>	
Mr. U.K.Rastogi	EE (NW) E&M
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
Mr. Noboru Saito	Civil
Ms. Mantrana Goa	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager
Mr. Binu Gorge	Site Manager

### 第 21 回 SCADA 調達進捗会議

日時 : 2017年7月20日 11:00 ~ 13:00

場所 : 技プロ ピタンプラ事務所

主な協議内容:

- ・ No. 7 制御弁故障 原因、対策、工期延期、修理費用
- ・ No.6,7 チャンバー現場確認

出席者

名前	所属
<b>JICA India</b>	
Ms. Momoko Furuhashi	Representative

名前	所属
Ms. Sachiko Imamura	Procurement Advisor
Mr. Kiyoto Onishi	Project Formulation Advisor (Procurement)
Ms. Yuko Fujiwara	Administration Specialist
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
Mr. Sanjay Prasad	GIS
Ms. Mantrana Goa	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager

## 第 22 回 SCADA 調達進捗会議

日時 : 2017 年 9 月 11 日 16:00 ~ 17:00

場所 : JICA インド事務所

主な協議内容:

- ・ RDS ペンディング事項 (マニュアル提出、No.2、8 の信号が SCADA に送信されない等) の確認
- ・ トライアルランおよびトレーニングの日程確認

出席者

名前	所属
<b>JICA India</b>	
Ms. Yuko Fujiwara	Administration Specialist
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager

## 第 23 回 SCADA 調達進捗会議

日時 : 2017 年 10 月 25 日 10:30 ~ 11:30

場所 : AddCEO office (Dariya Ganj)

主な協議内容

- ・ SCADA 工事工程、状況の報告
- ・ トライアル&トレーニングの日程確認。最終検査に DJB 参加。
- ・ ハンドオーバー手続き、メンテナンス契約

出席者

名前	所属
<b>JICA India</b>	
Mr. Takayoshi Tange	Senior Representative
Mr. M. P. Singh	Chief Dev. Specialist
<b>DJB</b>	
Ms. Nidhi Srivastava	Add. CEO/Dir Revenue
Mr. Ramesh Thakur	CE-West
Mr. M. K. Hans	SE (E&M)- WC/WWI
Mr. U. K. Rastogi	EE (E&M)- WS/NW
Mr. Sandeep Sharma	ZE I, NW-III
<b>JET</b>	
Mr. Kazufumi Momose	Chief Advisor
Mr. Manabu Fukushima	SCADA
Mr. Sanjay Prasad	GIS

## 第 24 回 SCADA 調達進捗会議

日時 : 2017 年 10 月 30 日 16:30 ~ 17:30

場所 : JICA インド事務所

主な協議内容

- ・ 今後のスケジュールについての確認  
インターナルトライアル (11 月 6 日~8 日)、残件 (11 月 7 日までにパネル関係の完了、11 月 14 日までにそれ以外の完了)

JICA、JET、RDS による最終トライアル&トレーニング（11月15日～17日）は、DJB モニタリング期間を2週間とった後の12月1日を工事完了予定とする。

出席者

名前	所属
<b>JICA India</b>	
Mr. Takayoshi Tange	Senior Representative
Ms. Kaori Honda	Programme Specialist
Ms. Yuko Fujiwara	Administration Specialist
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
Mr. Sanjay Prasad	GIS
Ms. Mantrana Goa	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager
Mr. Abhishek Kacchap	Technician

### 第25回 SCADA 調達進捗会議

日時 : 2017年11月28日 16:00 ~ 17:30

場所 : JICA インド事務所

主な協議内容

- ・ RDS 残件、及び対応状況報告
- ・ 今後のスケジュール（最終合同検査、DLP 無し）、工事完了手続き確認

出席者

名前	所属
<b>JICA India</b>	
Ms. Kaori Honda	Programme Specialist
Ms. Yuko Fujiwara	Administration Specialist
Ms. Sachiko Imamura	Procurement Advisor
Ms. Keiko Shibata	Administration Specialist
<b>JET</b>	
Mr. Manabu Fukushima	SCADA
Mr. Sanjay Prasad	GIS
Ms. Mantrana Goa	Construction Supervisor
<b>RDS</b>	
Mr. Saurabh Varma	Contract Manager
Mr. Jalaj Malhotra	Technical Expert

## 議事録集

ページ	会議名	開催日	備考
A8-2	Work Plan	2013年6月24日	プロジェクト開始時の Work Plan に関する MM
A8-6	第1回 JCC	2013年8月30日	
A8-26	第2回 JCC	2014年8月27日	
A8-35	本邦研修時のメモ	2014年11月25日	
A8-38	第3回 JCC	2015年3月26日	
A8-51	第4回 JCC	2015年9月24日	
A8-65	チャンバー改善対策	2015年12月10日	チャンバー改善対策に関する JICAとDJBのMM
A8-74	第5回 JCC	2016年3月10日	
A8-88	第6回 JCC	2016年8月4日	
A8-97	第7回 JCC	2017年8月29日	
A8-112	第8回 JCC	2018年1月29日	



**MINUTES OF MEETING  
ON  
WORK PLAN  
FOR  
THE ASSISTANCE RELATED TO  
DELHI WATER SUPPLY IMPROVEMENT PROJECT  
IN  
THE REPUBLIC OF INDIA**

**AGREED UPON BETWEEN  
DELHI JAL BOARD**

**AND**

**EXPERT TEAM OF JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA EXPERT TEAM)**

Delhi, 24<sup>th</sup> of June 2013



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Ms. Nandini Paliwal  
Project Director  
Additional CEO / Director (F&A)  
Delhi Jal Board



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Mr. Kazufumi Momose  
Chief Adviser  
JICA Expert Team

Upon the commencement of THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT in the Republic of India (hereinafter referred to as "the Project"), Japan International Cooperation Agency (hereinafter referred to as "JICA") Expert Team headed by Mr. Kazufumi Momose, Chief Adviser of the Project, submitted a work plan (hereinafter referred to as W/P) to Delhi Jal Board (hereinafter referred to as DJB), and held discussions on the implementation plan of the Project during 19th and 21st of June 2013. DJB accepted the W/P in principle.

The major points of discussion and agreement are summarized as follows:

**1. Confirmation of Purpose and Schedule of the Project**

DJB confirmed contents and schedule of the Project as indicated in W/P, which is prepared based on Record of Discussion (hereinafter referred to as R/D) and Minutes of Meetings (hereinafter referred to as M/M) signed on the 25th of March 2013 between JICA and the Indian side.

**2. Arrangement of Counterpart**

DJB agreed that DJB will assign suitable counterpart staff members for effective implementation of the Project.

**3. Provision of Office Spaces and Facilities**

DJB confirmed that DJB would provide the office spaces and facilities listed below:

- Furnished office spaces in DJB Headquarters for about 10 persons
- One furnished office near the pilot site (at Pitampura UGR) for about 5 persons
- Availability of existing operation room for SCADA

**4. Provision of Permissions to Access DSSDI and existing DJB's GIS Data, RMS, and Necessary Information**

DJB agreed that DJB would allow the JICA Expert Team to access DSSDI and existing DJB's GIS databases, RMS, and other necessary information in relation to implementation of the Project, specifically to obtain the data on the following items:

- Pipe information in Chandrawal Command Area
- Pipe and Customer Information in Pitampura area
- Meter Reading Records for all billing cycles in Pitampura area during the Project period
- Flow data at Pitampura BPS
- Underground utility information which was obtained through Ground penetrating Radar System under DSSDI Project
- Other necessary information to implement this Project



**5. Allowance and Running Expenses**

DJB confirmed that DJB would bear allowances for counterpart personnel and necessary running costs such as electricity charges, telephone and internet charges, water charges, and other incidental charges related to the Project.

**6. Civil Works for Pilot Project**

DJB agreed that DJB would provide civil works for Chamber constructions for establishment of DMAs. DJB confirmed that it will take about 3 months for tendering process of civil works.

**7. Permission from Related Authorities**

DJB agreed that DJB would obtain necessary permissions from related authorities to excavate test pits and determine the construction method for "Delhi Water Supply Improvement Project".

**8. Formation of Joint Coordination Committee**

DJB agreed and confirmed the Joint Coordination Committee members given in the Record of Discussions signed on 25<sup>th</sup> March 2013. However, in case of any change, DJB agreed to reconfirm the same to the JICA Expert Team.

A

B

## List of Participants

### DJB

1	B. M. Dhaul	Member (WS)
2	Nandini Paliwal	Addl.CEO /Dir (Fin)
3	J. P. Goel	C.E. (Project) Water
4	Vikram Singh	S.E. (Project) W-III
5	Bhupesh Kumar	S.E. (E&M) WC
6	R. K. Bhalla	S.E. (WW) -I
7	Ajay Gupta	S.E. (Central)
8	Naresh Kumar	DDR (HQ) RMS
9	R. K. Singhal	E.E. (Project) W-II
10	V. K. Singh	E.E. (WW)-III
11	Pukhraj Singh	A.E.(C) /(Pro) W-II
12	Sandeep Sharma	Z.E-I (WW)III

### JICA

1	Sadanobu Sawara	JICA HQ
2	Satoshi Hamano	JICA HQ
3	Momo Fukushima	JICA HQ
4	Chihiro Fukuda	JICA India Office
5	M. P. Singh	JICA India Office

### JICA Experts

1	Kazufumi Momose	TECI
2	Yoichi Yamamoto	TSS
3	Katayama Alokumar	TECI
4	Koichiro Azui	TECI
5	Sanjay Prasad	TECI

MINUTES OF MEETING  
BETWEEN  
JICA EXPERT TEAM  
AND  
DELHI HAL BOARD  
OF THE REPUBLIC OF INDIA  
ON  
THE FIRST JOINT COORDINATION COMMITTEE  
ON  
JAPANESE TECHNICAL COOPERATION  
FOR  
THE ASSISTANCE  
RELATED TO  
WATER SUPPLY IMPROVEMENT PROJECT  
IN DELHI

DELHI, 3 SEPTEMBER, 2013



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Ms. Nandini Paliwal  
Additional CEO  
Director of Finance and Administration  
Delhi Jal Board (DJB)



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Mr. Kazufumi MOMOSE  
Chief Advisore  
JICA Expert Team

Witness:



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Mr. Tomohide ICHIGUCHI  
Senior Representative  
JICA Indian Office

## Minutes of 1<sup>st</sup> JCC Meeting

2013/08/30

The JCC meeting started at 14:15.

At the outset in her opening remarks, the Project Director and Additional Chief Executive Officer, Delhi Jal Board, Ms. Nandini Paliwal lauded JICA assistance for Delhi Water Supply Improvement Project and also the Assistance related in the form of the technical cooperation extended by JICA experts team. The Project Director advocated the strong need for DJB and JICA Expert Team to work together as a team.

Mr. T Ichiguchi, Senior Representative, JICA, in his opening remarks emphasized on two important issues; DJB's high level dedication is essential for maximizing the benefits from the project and DJB should have maximum benefits from the experience of Tokyo Metropolitan Government, which has already achieved NRW level of less than 3% in Tokyo.

Thereafter, JICA Expert Team leader Mr. Kazufumi Momose, Chief Advisor, made power point presentation on behalf of DJB to present agenda, progress of the project, and key issues related to progress of the Assistance.

JCC had intensive discussions and made following decisions on the key issues. As a result, the following are confirmed.

1. Project Design Matrix (PDM), Operation Plan (OP), and first year Annual Operation Plan (AOP) were approved at the meeting.
2. The expert team requested DJB to provide WATERGEMS network modeling software which was purchased and used during Study on Improvement of Water Supply in Delhi. DJB agreed to provide the same by 15<sup>th</sup> September which will provide license for use during this Assistance project.
3. Office Provision and ID Card

At Pitampura site: The office is ready except the furniture. DJB assured that furnishing work would be completed by the first week of September.

At DJB Head Quarters: Still under refurbishment. DJB promised to complete it by the end of September so that the Expert Team would be able to move there from 1<sup>st</sup> of October. However, DJB mentioned that establishing of data communication line from DJB mapping cell to the new office

may take some more time and during that time mapping work by the Expert Team can be done from mapping cell.

ID Card: DJB assured that ID Cards will be provided within first week of September.

#### 4. Activity 1 (a)

Pipe network information in the planned command area of Chandrawal WTPs has been thoroughly checked and duplicate items have been identified by Expert Team. Clarifications on such points have been requested from the concerned EE, ZE and AE by middle of September.

Confirmation of pipe information by digging test pits is to start in October.

#### 5. Activity 1 (b)

As to the permission for road cutting (for test pits), Blanket permission has been requested. DJB agreed to facilitate for providing specific site approval from the concerned authorities in writing. For road cutting permission, DJB need information on trial-pits location to initiate the process with MCD and/or PWD. As regards the Payment procedure to MCD, PWD etc., road restoration charge would be direct payment through DJB by a contractor. Road restoration charge is to be estimated by the published MCD rate. The expert team will select trial-pit sites and the information shall be provided to DJB by September 30. DJB will initiate the process of permission with related organizations immediately.

DJB assured to take up the matter with PWD/MCD for getting the road restoration permissions.

#### 6. Activity 2 (a)

One of the DMAs in Pitampura pilot area has been substituted due to existence of several big diameter pipes on the main road thereby becoming difficult for any construction work on this road. This, however, does not make any change in the objective because both near and far DMAs are unchanged.

Pipe size and material in the DMAs have already been confirmed by the Engineers. Re-confirmation of the above by digging is planned in around 20 September. DJB is requested to obtain permission for digging.

Change of DMA was approved at the meeting. For digging permission, DJB will try its best to obtain it as soon as possible.

#### 7. Activity 2 (b)

For SCADA works in Pitampura pilot area, DJB agreed to provide electricity and Data Network connections on about 15 RTU locations. The expenditure on excavation for the valves/ flow meters will be borne by JICA side. The rest, chambers construction, backfilling and road restoration will be borne by DJB side.

For construction order of chambers and RTUs, DJB will try to maximize its efforts. JICA team will inform to DJB on the security related issues encountered in the past elsewhere, Security issues of RTU will be discussed with DJB and the expert team continuously and most robust design will be used for protection of the facilities. It was also discussed to provide for maintenance of all fitted installations by the executing agencies.

#### 8. Others

DJB proposed Mr. Chander Prakash, Executive Engineer from mapping cell as a new member of JCC. It has been agreed.

JCC was concluded at 15:15 with closing remarks by the Project Director.

#### Attachments:

1. Agenda
2. Attendance list
3. Presentation material
4. Project Design Matrix (PDM)
5. Plan of operation (PO)
6. Work breakdown structure

Attachment 1: Agenda

### Agenda of 1<sup>st</sup> JCC Meeting

Time, Date: 14:15-15:45, 30 August, 2013

Place: Crest Hall, Hotel Metropolitan, New Delhi

Schedule:

Time	Contents
14:15	1. Opening remarks DJB: Ms Nandini Paliwal Addl.C.E.O and Project Director JICA: Mr. Tomohide Ichiguchi, Senior Representative, JICA Indian Office
14:30	2. Agenda - Progress of Project - Confirmation of PDM (Project Design Matrix) and PO (Plan of Operation) - Key issues - Next steps - Others
15:15	3. Discussion and decisions on key issues
15:45	4. Conclusion & Closing remarks DJB: Ms. Nandini Paliwal Addl.C.E.O. and Project Director

Attachment 2: Attendance List

1<sup>st</sup> JCC Meeting Attendance

Embassy of Japan

1	Yosuihiro SENSUO	First Secretary
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JICA Headquarter

1	Momo FUKUSHIMA	Officer
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JICA India Office

1	Tomohide ICHIGUSHI	Senior Representative
2	Chihiro FUKUDA	Representative
3	M.P. SINGH	Additional Chief Development Specialist

Tokyo Waterworks

1	Koichiro OGARI	Improvement Water works Management
2	Kazuhisa FUJIKAWA	Asset Management
3	Yosuihiro NAMAKURA	Coordinator
4	Anupam JOSHI	Interpreter

JICA Expert Team


1	Kazufumi MOMOSE	Chief Adviser / Water Supply Planning
2	Minoru IKEI	Deputy Chief Adviser / Pipe- Network (2)
3	Phatta THAPA	Pipe- Network (1)
4	Sanjay PRASAD	GIS Mapping
5	Katayama ALOKKUMAR	Project Coordinator/GIS Mapping (2)
6	Manabu FUKUSHIMA	SCADA
7	Koichiro AZUI	DMA
8	Yoichi YAMAMOTO	Water Supply Management
9	Hiroshi IZUMOTO	GIS Application
10	Yuhei ITO	Project Coordinator/GIS Mapping
11	Hiroshi KOJIMA	Water Supply Management

De.hi Jal Board

1	Nandini PALIWAL	Additional Chief Executive Officer
2	R.K. SINGHAL	Executive Engineer (Project) W-II



3	J.P. GOEL	C.E. (Water) Project
4	Vikram SINGH	SE (PROJ) W-III
5	Ajay GUPTA	S.E. (Central)
6	Ramesh THAKUR	S.E. (North West)
7	Chander PARKASH	E.E. (Mapping)

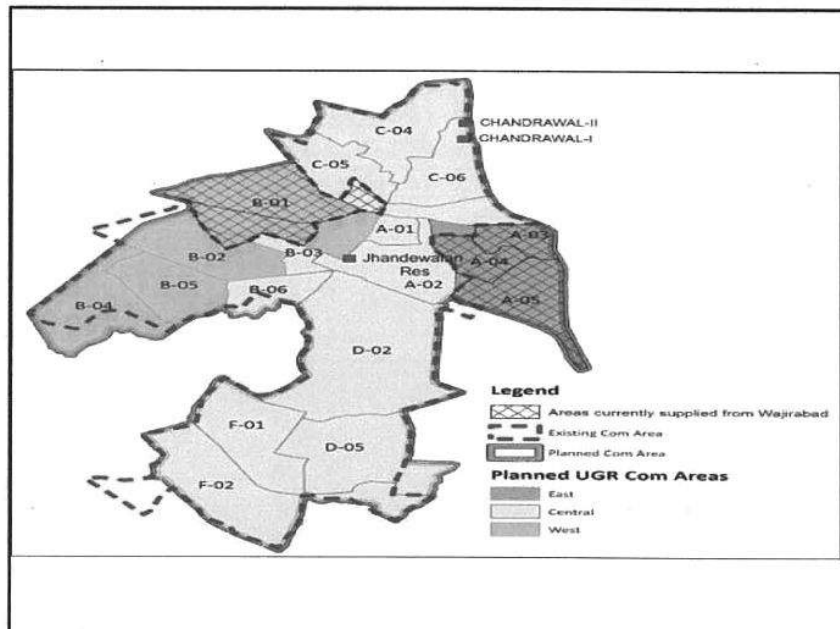
  Japan International Cooperation Agency

# The Assistance Related to Delhi Water Supply Improvement Project

**1<sup>st</sup> JCC Meeting**  
on 30 August 2013  
at Hotel Metropolitan, New Delhi

TEC International Co., Ltd  
Tokyo Suido Services Co., Ltd

1



# Project Design Matrix (PDM)

**PROJECT DESIGN MATRIX (PDM)**

Name of project : The Assistance related to Delhi Water Supply Improvement Project		Duration of Period : three years from June 2013	
Project area : Chandrawal treatment system area and Panampura area		Target group : DJB personnel	
N	Objectively Verifiable Indicator	Means of Verification	Important Assumption
Overall Goal : 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.	a. Service hours in Chandrawal WTP command area to customers (hours/day) is 24 hours b. N less than 15% c. T Recession rate in Chandrawal WTP command area is more than 90%	Same as overall Delhi Water Supply Improvement Project	
Project Purpose : DJB's capacity for the implementation of Delhi water supply improvement project is strengthened.	a. Basic information on pipelinetree/lot is reflected in DPR for components 3 & 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 'N' meters to 'T' meters. Volume: From 'N' cu per connection to 'T' cu per connection.) c. Guideline for introduction of asset management based on scenarios for stage wise development of GIS/RMS application is reflected in DPR for component 3 of Delhi Water Supply.	a. Confirmation of contents of DPRs b. Reports on water pressure and volume of DMAs c. Confirmation of contents of DPRs	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 distribution and non-revenue water management is upgraded. 3. Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared. 4. T	a. Construction methods of pipe crossing (rivers, rivers and major roads) and lot (Open-cut and Trenchless) for Delhi Water Supply Improvement Project are determined by DJB. 1b. Locations (alignment and depth) of transmission and distribution pipes for Delhi Water Supply Improvement Project are determined by DJB. 2a. DJB can control low pressure properly with SMDA based on the manuals and guidelines prepared by the Assistance in the pilot project area. 2b. N is observed in the pilot project area. 3. D line for introduction of asset management is prepared.	1a. DJB's Authorization on construction method 1b. DJB's Authorization of Reports on pipeline route 2a. Field Assessment by concerned experts 2b. Record on data of NRW ratio 3. Minutes of Meeting on submission of draft of guideline on asset management to DJB.	Consultants of Delhi Water Supply Im is.

Note: Extracted from original PDM in R/D

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## Purpose of the Project

Overall Goal for "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 for "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.

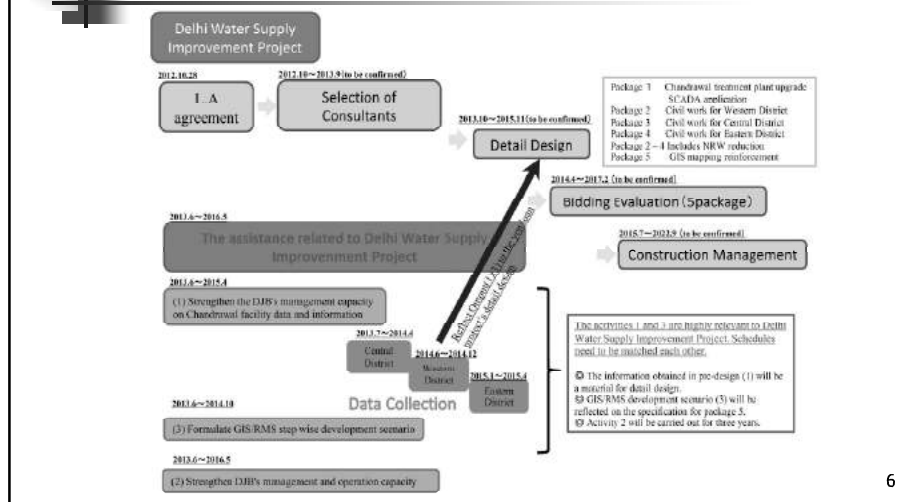
4

## Outputs of the Project

- 1) DJB's capacity to manage data and information on water supply facilities in Chandrawal WTP 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.

5

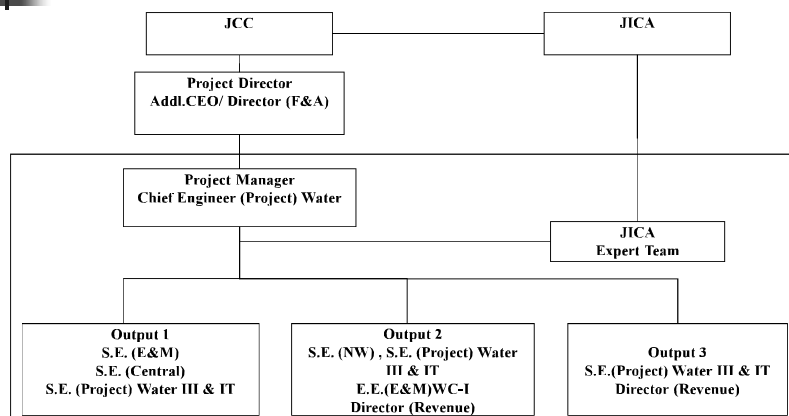
## Relationship of the Assistance Project and Improvement Project



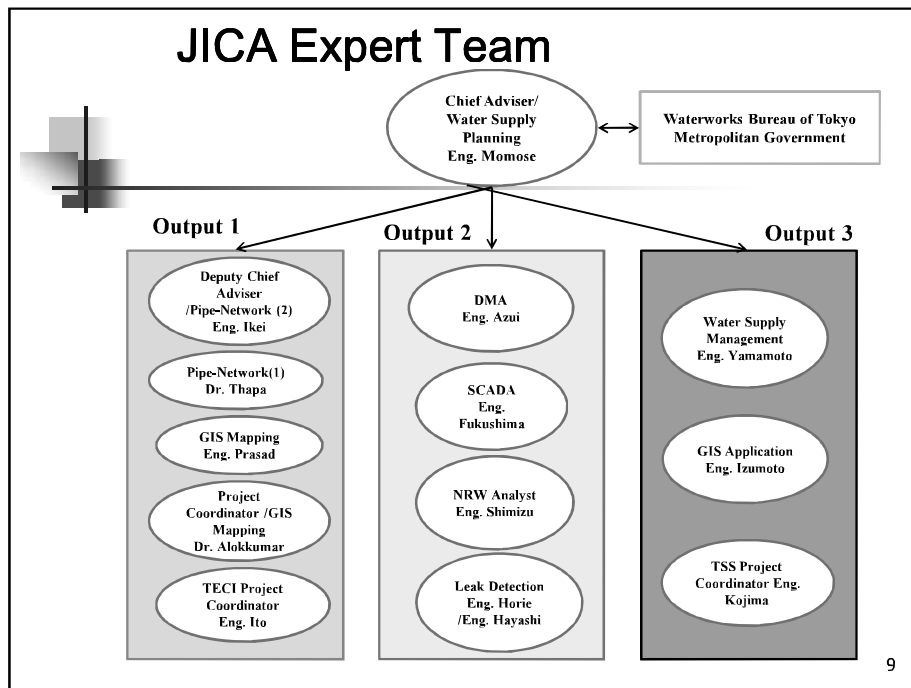
- Schedule of the Project
- 1st Year Plan of Operation

7

## Joint Coordination Committee (JCC)



8



## Seminar in Delhi by Waterworks Bureau of Tokyo Metropolitan Government

### Contents of seminar (tentative)

	Year	Target Listener	Theme/Content	Main Speaker
1st	1st Year	DJB, Relevant Authorities	TMWB's Business Administration, Finance and General Information	TMWB
2nd			Efficient Maintenance Management for Facilities	TMWB
1st	2nd Year		GIS Usage, 24Hour Supply, Equitable Distribution	TMWB, Project Team
2nd			Asset Management Plan	TMWB, Project Team
1st	3rd Year		Example of NRW Reduction from TMWG	TMWB, Project Team
2nd			Equitable Distribution and NRW Manual	TMWB, Project Team

TMWB: Waterworks Bureau of Tokyo Metropolitan Government

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## Training in Japan

### Contents of C/P training (tentative)

	NRW Reduction & DMA Setting	GIS/RMS Usage	Equitable Distribution by SCADA
Purpose	Strengthen the DJB's capacity of management and operation for NRW reduction	<ul style="list-style-type: none"> <li>Strengthen the capacity of GIS mapping and RMS utilization</li> <li>Enhance understanding of asset management</li> </ul>	Strengthen the capacity of equitable distribution by SCADA
Content	<ul style="list-style-type: none"> <li>Lecture on NRW reduction</li> <li>Demonstration of leak detection at field</li> </ul>	<ul style="list-style-type: none"> <li>Lecture on asset management summary</li> <li>GIS mapping practice</li> <li>Inspection of RMS usage</li> </ul>	<ul style="list-style-type: none"> <li>Lectures on Japanese example of SCADA system</li> <li>I</li> </ul>
			, Ltd.

TMWB: Waterworks Bureau of Tokyo Metropolitan Government

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## Undertakings of DJB

- a) Assignment of Counterpart Personnel
- b) Provision of Office Spaces and Facilities
- c) Provision of Permissions to Access DSSDI and existing DJB's GIS Data, RMS and Necessary Information
- d) Allowances for staff and Running Expenses
- e) Civil Works for Pilot Project
- f) Obtaining Permission from related Authorities for test pits excavation
- g) WATERGEM s (Request)

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## Issues to be Attended Immediately

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- General: Office Provision and ID Card
- 1-1-1 g. Confirmation of uncertain pipe information
- 1-1-2 d. Road digging permission
- 2-3-4 f. Road digging permission
- 1-1-3 a. Network Analysis
- 2-3-4 Schedule Modification:
  - Procurement of Equipment (SCADA, Valves etc.)
- 2-3-4 h. Valve Chambers Construction



## Office Provision and ID Card

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- At Pitampura: Can be used when furnitures are provided.
- At HQ: Still under refurbishment.
- ID Card





### Activity 1 a

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- Pipe information in DSSDI and GIS confirmed and Inconsistency information already identified.
- Clarification requested to the concerned EE, ZE and AE by middle of September.
- Confirmation on pipe information by digging to start in October.



### Activity 1 b

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- Blanket permission of Road Cutting requested.
- Payment procedure to MCD, PWD etc. for Road Restoration charge.
- RR cost estimated by the published MCD rate.
- Either direct payment or indirect payment through DJB by a contractor.



### **Activity 2 a**

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- One of the DMAs substituted.
- Confirmation of pipe size and material confirmed by the Engineers.
- Re-confirmation of the above by digging in around 20, September.
- Requested Permission of digging.



### **Activity 2 b**

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- Requested to select Contractor for Valves chamber construction.
- Requested electricity and telephone connections on about 15 RTU spots.
- Excavation on the installation sites of the valves/ flow meters will be borne by JICA side. The rest, chambers construction, backfilling and road restoration will be borne by DJB side.

**Project Design Matrix (PDM)**

Name of project: The Assistance related to Delhi Water Supply Improvement Project		Duration of Period: three years from June 2013	
Project area: Chandrawal treatment system area and Pitampura area		Target group: DJB personnel	
Narrative Summary		Objectively Verifiable Indicator	
Overall Goal:		Means of Verification	
Project Purpose:		Important Assumption	
Outputs:			
Activities		Inputs	
<p>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</p>		<p>a. Service hours in Chandrawal WTP command area to customers(hours/day) is 24 hours                      b. NRW ratio in Chandrawal WTP command area is less than 15%.                      c. Tariff collection ratio in Chandrawal WTP command area is more than 90%</p>	
<p>DJB's capacity for the implementation of "Delhi water supply improvement project" is strengthened.</p>		<p>a. Confirmation of contents of DPRs                      b. Reports on water pressure and volume of DMAs                      c. Confirmation of contents of DPRs</p>	
<p>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                      4. The assistance is managed and coordinated properly</p>		<p>1a. 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.                      1b. Locations (alignment and depth) of transmission and distribution pipes for "Delhi Water Supply Improvement Project" are determined by DJB                      2a. 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                      3. Draft of guideline for introduction of asset management is prepared</p>	
<p>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                      1-1-1. Review of the existing distribution pipes                      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                      2-1. Summarizing issues by reviewing the situation of SCADA use in DJB                      2-2. Introduction of Japanese experience and its system to DJB                      2-3. Operation of pilot project (equitable distribution and NRW monitoring)                      2-3-1. Confirmation on existing distribution pipes network condition in pilot area                      2-3-2. Pilot project operation plan                      2-3-3. Quantitative estimate of demand in each DMA                      2-3-4. Procurement of equipment and test operation for pilot project                      2-3-5. Flow amount and pressure monitoring within SCADA pilot project area                      2-3-6. Identification of issues related to equitable water supply and discussion and determination for its solution                      2-3-7. Implementation of control method and examination of its effectiveness                      2-3-8. Water bill calculation within the pilot area based on revenue management system data                      2-3-9. Calculation of NRW ratio                      2-3-10. Leakage detection demonstration in the pilot area                      2-3-11. Formulation of manual and guideline for flow amount and pressure controls and NRW monitoring                      2-3-12. Seminar presenting the results of pilot project                      2-4. Identification of issues around equitable distribution and NRW monitoring                      3. Draft of scenarios for stage wise development of GIS/RMS application in DJB                      3-1. Review on DJB's administration strategy, vision and operation plan                      3-2. Identification of obstacles to achieve above strategy, vision and plan                      3-3. Review on development situation on RMS and GIS                      3-4. Understand the content of system and the example of GIS and RMS usage in Japan                      3-5. Formulation of GIS and RMS utilization application scenario by 2021                      3-6. Formulation of GIS/RMS development scenario by 2021                      3-7. Formulation of asset management introduction guideline                      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</p>		<p>[Japanese Side]                      1. Japanese Experts:                      (1)Chief Advisor                      (2)GIS Application                      (3)Pipe-Network(1)                      (4)Pipe-Network(2)                      (5)GIS Mapping                      (5)SCADA                      (6)NRW Analyst                      (6)DMA                      (8)Leak Detection                      (9)Water Supply Management                      (10)Project Coordinator                      (11)Others (by Mutual consent)                      2. Local Consultants                      3. Equipment                      4. Training of DJB personnel concerned with the Assistance in Japan                      5. Seminars on Japanese water utilities in Delhi</p>	
		<p>[DJB Side]                      (a) Management Personnel                      1. Counterpart personnel                      1) Project Director                      2) Project Manager                      3) Deputy Project Manager                      4) Officer in charge of Pilot Project                      (b) Technical personnel                      1) WTP &amp; Rising Main in Chandrawal Command Area                      2) Distribution network in Chandrawal Command Area                      3) Pipe network in Pilot Project area                      4) Pumping Station in Pilot project area                      5) SCADA                      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. Daily payment to CP, cost of operation                      5. Civil work for chamber construction                      6. Permission for construction from related authorities</p>	
		<p>1. Water is delivered to UGR in the Pitampura pilot project area from the Haiderpur Water Treatment Plant                      2. Pumps and other equipment run without major disruptions</p>	
		<p><b>Precondition:</b>                      1. DSSDI GIS data on utilities other than water pipelines can be used.                      2. The scope of "Delhi Water Supply Improvement Project" is not changed dramatically.</p>	

Note: Unfixed figures (X and Y) in PDM shall be decided after activity 2-3-5, probably 18 months after the start of the Assistance.

Plan of Operations (PO) OF THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT IN THE REPUBLIC OF INDIA

June 2013

Year	2013												2014												2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun						
Number of month	India																																															
Location	India																																															
Output 1: Strengthening capacity to manage data and information on water supply facilities in Chhatarwal command area	<p>1-1 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-1-1 Review of data</p> <p>1-1-2 Review of the results of the study on improvement of water supply system in Delhi in install</p> <p>1-1-3 Obtain data and information on GIS data, and construct pipeline</p> <p>1-2 Survey and GIS mapping of WTP, UTRs, and BPLs, and</p> <p>1-2-1 Review of data</p> <p>1-2-2 Select pipeline to be replaced</p> <p>1-2-3 Draft pipe laying method and</p> <p>1-2-4 Draft pipe laying and existing</p> <p>1-2-5 Copy out topographic survey along pipe</p> <p>1-2-6 Draft pipe alignment and length</p> <p>1-2-7 GIS data collection and verification</p> <p>1-2-8 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-2-9 Review of data of existing</p> <p>1-2-10 Obtain data and information on GIS data, and construct pipeline network</p> <p>1-2-11 Draft pipe laying and existing</p> <p>1-2-12 GIS data collection and verification</p> <p>1-3 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-3-1 Review of data of</p> <p>1-3-2 Select pipeline to be replaced</p> <p>1-3-3 Draft pipe laying method and</p> <p>1-3-4 Draft pipe laying and existing</p> <p>1-3-5 Copy out topographic survey along pipe</p> <p>1-3-6 Draft pipe alignment and length</p> <p>1-3-7 GIS data collection and verification</p> <p>1-3-8 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-3-9 Review of data of</p> <p>1-3-10 Obtain data and information on GIS data, and construct pipeline network</p> <p>1-3-11 Draft pipe laying and existing</p> <p>1-3-12 GIS data collection and verification</p> <p>1-4 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-4-1 Review of data of</p> <p>1-4-2 Select pipeline to be replaced</p> <p>1-4-3 Draft pipe laying method and</p> <p>1-4-4 Draft pipe laying and existing</p> <p>1-4-5 Copy out topographic survey along pipe</p> <p>1-4-6 Draft pipe alignment and length</p> <p>1-4-7 GIS data collection and verification</p> <p>1-4-8 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-4-9 Review of data of</p> <p>1-4-10 Obtain data and information on GIS data, and construct pipeline network</p> <p>1-4-11 Draft pipe laying and existing</p> <p>1-4-12 GIS data collection and verification</p> <p>1-5 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-5-1 Review of data of</p> <p>1-5-2 Select pipeline to be replaced</p> <p>1-5-3 Draft pipe laying method and</p> <p>1-5-4 Draft pipe laying and existing</p> <p>1-5-5 Copy out topographic survey along pipe</p> <p>1-5-6 Draft pipe alignment and length</p> <p>1-5-7 GIS data collection and verification</p> <p>1-5-8 Obtain necessary information for detailed design of Delhi water supply improvement project in DB</p> <p>1-5-9 Review of data of</p> <p>1-5-10 Obtain data and information on GIS data, and construct pipeline network</p> <p>1-5-11 Draft pipe laying and existing</p> <p>1-5-12 GIS data collection and verification</p>																																															
	Output 2: Upgrading Capacity for monitor and control the water distribution	<p>2-1 Review</p> <p>2-2 Introduce Japanese experience and system</p> <p>2-3 Estimate the cost of the equipment and materials</p> <p>2-3-1 Procure equipment necessary for</p> <p>2-3-2 Install the equipment and conduct</p> <p>2-3-3 Monitor flow and pressure</p> <p>2-3-4 Monitor water supply in DMAs and study how to control development to enhance equitable water supply</p> <p>2-3-5 Calculate the total volume of water billed to the customers in the area based on the RMS monitoring</p> <p>2-3-6 Implement the flow-pressure sensor and confirm its effectiveness</p> <p>2-3-7 Calculate NRW</p> <p>2-3-8 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>2-3-9 Prepare manual and guidelines for flow-pressure control and NRW monitoring</p> <p>2-3-10 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p>																																														
Output 3: Formulation of scenarios for stage-wise developments of GIS/RMS application in DB	<p>3-1 Review existing DBTV management tool</p> <p>3-2 Clarify the items to be tackled to achieve</p> <p>3-3 Review GIS development and BMS in</p> <p>3-4 Study Japanese experience and system of GIS and</p> <p>3-5 Draft GIS/RMS development scenario in DB for</p> <p>3-6 Draft the guideline as an action plan for realization of event</p> <p>3-7 Implement the guideline in the area based on the RMS monitoring</p> <p>3-8 Calculate NRW</p> <p>3-9 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>3-10 Prepare manual and guidelines for flow-pressure control and NRW monitoring</p>																																															
	Training in Japan	<p>Seminar</p> <p>Reports</p> <p>Project Evaluation Mission</p>																																														

Work Breakdown Structure (WBS) of THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT IN THE REPUBLIC OF INDIA

30 August 2013

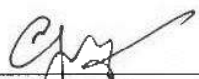
Number of month	2013												2014												2015											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Year	2013												2014												2015											
Annual	1 <sup>st</sup> Year												2 <sup>nd</sup> Year												3 <sup>rd</sup> Year											
Month	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
Preparation in Japan																																				
<b>Output-1: DJB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened.</b>																																				
Activity-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																																				
1-1-1. Review of the existing distribution pipes																																				
a. Procurement of software (AutoCAD, ArcGIS, GPS)																																				
b. Procurement of PCs with UPS and Printer/Plotter																																				
c. Permission to access DSSDI																																				
d. Checking of inputted information on DSSDI																																				
e. Printing of pipe network drawings from DSSDI																																				
f. Comparison of M/P information and DSSDI information																																				
g. Confirmation of doubtful pipes with DJB's engineer																																				
1-1-2. Selection for replacement																																				
a. Preparation of evaluation criteria for renewal pipes																																				
b. Selection of test pit sites																																				
c. Contract with a subcontractor (Test pit)																																				
d. Road digging permission(s) by MCD																																				
e. Implementation of test pits (approx.600)																																				
f. Sample extraction from pipe's bodies (approx.30)																																				
g. Judgment of superannuated pipes based on evaluation criteria																																				
1-1-3. Review on new pipes suggested in Master Plan																																				
a. Network analysis of transmission and distribution pipes																																				
b. Preparation and confirmation of "Report on Replaced Pipe Sections"																																				
1-1-4. Distribution pipe network confirmation with support of local staff and GIS data as same as 1-1-1.																																				
1-1-5. Design proposal of pipes laying location																																				
a. Contract with a subcontractor (Total station survey for pipelines)																																				
1-1-6. Preliminary Design of laying and crossing methods																																				
a. Contract with a subcontractor (Laying construction method for pipes)																																				
b. Contract with a subcontractor (Crossing method for pipes such as river, rail and main road)																																				
1-1-7. Survey for new pipe lines																																				
a. Contract with a subcontractor (L-section survey for pipelines)																																				
1-2. Surveys and GIS data creation on Chandrawal WTP/booster pumping station and examination on pipes information																																				
a. Plane survey on Chandrawal I and II WTPs, underground reservoirs and distribution pumps.																																				
b. Establishment of GIS data from the surveys																																				
c. Examination of GIS data on distribution pipes in Chandrawal WTP system.																																				
<b>Output-2: DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.</b>																																				
Activity-2: Upgrading capacity to monitor and control the water distribution																																				
2-1. Summarizing issues by reviewing the situation of SCADA use in DJB																																				
2-2. Introduction of Japanese experience and its system to DJB																																				
a. Implementation of training in Japan																																				
2-3. Operation of pilot project (equitable distribution and NRW monitoring)																																				
2-3-1. Confirmation on existing distribution pipes network condition in pilot area																																				
2-3-2. Pilot project operation plan																																				
2-3-3. Estimate of demand in each DMA																																				
2-3-4. Procurement of equipment and test operation for pilot project																																				
a. Procurement of pipe locators, Thickness gauges																																				
b. Selection of work sites																																				
c. Preparation of draft specifications																																				
d. Tender for SCADA and Valves/Meters etc by JICA contractor																																				
e. Tender for chambers by DJB																																				
f. Road digging permission(s) by MCD																																				
g. SCADA and Valves/Meters etc installation by JICA contractor and Supervision																																				
h. Construction work of chambers by DJB contractor																																				
i. Contract of the electricity/communication by DJB																																				
j. Test operation																																				
2-3-5. Flow and pressure monitoring within SCADA pilot project area																																				
2-3-6. Identification of issues related to equitable water supply and discussion and determination for its solution																																				
2-3-7. Implementation of control method and examination of its effectiveness																																				
2-3-8. Water bill calculation within the pilot area based on revenue management system data																																				
2-3-9. Calculation of NRW ratio																																				
2-3-10. Leakage detection demonstration in the pilot area																																				
a. Implementation of training in Japan																																				
b. Demonstration of leakage detection in Pitampura area																																				
2-3-11. Formulation of manual and guideline for flow amount and pressure controls and NRW monitoring																																				
2-3-12. Seminar presenting the results of pilot project																																				
2-4. Identification of issues on equitable distribution and NRW monitoring																																				
<b>Output-3: Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared.</b>																																				
Activity-3: Draft of scenarios for stage wise development of GIS/RMS application in DJB																																				
3-1. Review on DJB's administration strategy, vision and operation plan																																				
3-2. Identification of obstacles to achieve above strategy, vision and plan																																				
3-3. Review on development situation on RMS and GIS																																				
3-4. Understand the content of system and the example of GIS and RMS usage in Japan																																				
3-5. Formulation of GIS and RMS utilization application scenario by 2021																																				
3-6. Formulation of GIS/RMS development scenario by 2021																																				
3-7. Formulation of asset management introduction guideline																																				
<b>0. The assistance is managed and coordinated properly.</b>																																				
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) or 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																																				
Training in Japan																																				
Seminar																																				
Business plan																																				
Work plan																																				
Reports																																				
Project brief note																																				
Progress report																																				
Final report																																				
Project Evaluation Mission																																				

Annual Plan of Operation (APO-1<sup>st</sup> Year) of THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT IN THE REPUBLIC OF INDIA

Year	2013												2014																									
	1 <sup>st</sup> Year						2 <sup>nd</sup> Year						1 <sup>st</sup> Year						2 <sup>nd</sup> Year																			
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June														
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14																								
Output	<p>1-1 Obtain necessary information for detailed design of Delhi Water Supply Improvement</p> <p>1-1-1 Review of the Existing Distribution Pipes</p> <p>1-1-2 Selection for Replacement</p> <p>1-1-3 Review on New Pipes</p> <p>1-1-4 Distribution Pipe Network Confirmation with Support of DIB staff</p> <p>1-1-5 Design Proposal of Pipes</p> <p>1-1-6 Preliminary Design of Laying and Crossing</p> <p>1-1-7 Survey</p> <p>1-2 Surveys and GIS Data Creation on Chandhawal WTP and</p> <p>2-1 Summarizing Issues by Reviewing the</p> <p>2-2 Introduction of Japanese Expertise</p> <p>2-3 Confirmation on Existing Distribution Pipes</p> <p>2-4 Quantitative Estimate of Consideration</p> <p>2-5 Procurement of Equipment and Test-Operation for Pilot Project</p> <p>2-6 Test-Operation for Pilot Project</p> <p>2-7 Leakage detection demonstration in the pilot area</p> <p>2-8 Contingent training in India and OJT in Pumping</p> <p>2-9 Procurement by JICA side and DIB side</p> <p>2-10 Understand the Content of System and the</p> <p>2-11 Draft GIS/RMS application</p> <p>2-12 Draft GIS/RMS development scenario in DIB</p> <p>3-1 Review on DIB's Administration</p> <p>3-2 Identification of Obstacles to</p> <p>3-3 Review on Development Situation on RMS and GIS</p> <p>3-4 Understand the Content of System and the</p> <p>3-5 Draft GIS/RMS application</p> <p>3-6 Draft GIS/RMS development scenario in DIB</p>																																					
Output 2: Upgrading Capacity for monitor and control the water distribution	<p>SCADA</p> <p>DMA</p> <p>N/W Analyst, Leak Detection</p> <p>SE (AW)</p> <p>EE (R&amp;M)/WCH</p> <p>Director (Revenue)</p> <p>Water Supply Management, GIS Application</p> <p>Water Supply Management, GIS Application + SE (Project) Water III &amp; IT Director (Revenue)</p> <p>Tokyo Metropolitan Waterworks Bureau/ISS+ DIB Engineers</p> <p>Tokyo Metropolitan Waterworks Bureau/ISS+ DIB Engineers</p> <p>All Exports</p> <p>JICA</p>																																					
Output 3: Formulation of scenarios for stage wise development of GIS/RMS application in DIB	<p>3-1: Being Studied</p> <p>3-2: Being Studied</p> <p>3-3: Being Studied</p> <p>3-4: Being Studied</p> <p>3-5: Not yet initiated</p> <p>3-6: Not yet initiated</p>																																					
Training in Japan	<p>1<sup>st</sup> G Pruning is Scheduled in November.</p>																																					
Seminar	<p>1<sup>st</sup> seminar is held on 30 August, 2013.</p>																																					
Reports	<p>...</p>																																					
Project Evaluation Mission	<p>...</p>																																					
Equipment & Materials Subcontracted task	<p>Contents</p> <p>1-1: IG, GIS CAD software, GIS Application etc.</p> <p>1-1-2: Test pit excavation and Pipe internal condition survey</p> <p>1-1-5: Total station and levelling survey along pipe alignment</p> <p>1-1-6: Preliminary design of pipe line to determine pipe location/alignment and depth for preparing DPR</p> <p>1-1-6: Preliminary design of pipe line to select construction methods for crossing main road, railway, drainage canal for preparing DPR</p> <p>1-1-7: Levelling survey along roads/ pipe routes</p> <p>1-2: Topographical survey of Chandhawal &amp; IIWTR, 18 UCR and ISS area</p> <p>JICA Procurement/ Installation of Equipment (SCADA control valves, flow meters, pressure gauges etc)</p> <p>DB Construction of Chambers (civil work), Operation cost (electricity and communication)</p> <p>Nothing</p> <p>Nothing</p> <p>Nothing</p> <p>Nothing</p>																																					
Person in charge	<p>Pipe network (I &amp; II), GIS Mapping + SE (R&amp;M) SE (Central) SE (Project) Water III &amp; IT</p>																																					
Progress as 30th August 2013	<p>1-1: Ongoing</p> <p>1-1-1: Access to ISS I and GS prepared during Master Han has been obtained. Plotter has been purchased. Data of both ISS I and GS is being printed. Both data are being checked and doubtful sections, materials are being checked.</p> <p>All Board Zhe were invited on 27th August 2013 to explain about check of the doubtful sections and items.</p> <p>Cost quotation from the candidate contractors is being collected.</p> <p>1-1-2: Data of pipe rest related with pipe age, soil etc. in Japan has been obtained. Road restoration method and payment procedure are being discussed.</p> <p>1-1-3: Not yet initiated</p> <p>1-1-4: This activity is being and will be conducted together with the activity 1-1-1.</p> <p>1-1-5: Not yet initiated</p> <p>1-1-6: Not yet initiated</p> <p>1-1-7: Not yet initiated</p> <p>2-1: Completed</p> <p>2-2: Not yet initiated</p> <p>2-3: On going</p> <p>2-3-1: Confirmation of pipeliness is completed</p> <p>DMA are confirmed, one DMA out of 3 DMAs has been substituted.</p> <p>2-3-2: Not yet initiated</p> <p>2-3-3: Household are being identified in each DMA</p> <p>2-3-4: Specifications are being prepared. Possible bidders are being sought.</p> <p>2-3-5: Not yet initiated</p> <p>2-3-10: Not yet initiated</p> <p>3-1: Being Studied</p> <p>3-2: Being Studied</p> <p>3-3: Being Studied</p> <p>3-4: Being Studied</p> <p>3-5: Not yet initiated</p> <p>3-6: Not yet initiated</p>																																					

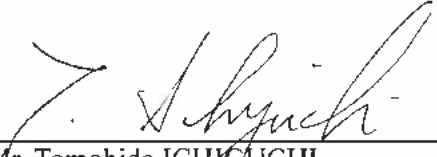
MINUTES OF MEETING  
BETWEEN  
JICA EXPERT TEAM  
AND  
DELHI JAL BOARD  
OF THE REPUBLIC OF INDIA ON  
THE SECOND JOINT COORDINATION COMMITTEE  
ON  
JAPANESE TECHNICAL COOPERATION  
FOR  
THE ASSISTANCE RELATED TO  
WATER SUPPLY IMPROVEMENT PROJECT  
IN DELHI

DELHI, 4<sup>th</sup> SEPTEMBER 2014

  
\_\_\_\_\_  
Mr. Amit Satija  
Additional CEO  
Director of Finance and Administration  
Delhi Jal Board (DJB)

  
\_\_\_\_\_  
Mr. Kazufumi MOMOSE  
Chief Advisor  
JICA Expert Team

Witness:

  
\_\_\_\_\_  
Mr. Tomohide ICHIGUCHI  
Senior Representative  
JICA Indian Office

## Minutes of 2<sup>nd</sup> JCC Meeting

27 August 2014

The 2<sup>nd</sup> JCC meeting started at 15:00.

At the outset in his opening remarks, the Project Director and Additional Chief Executive Officer, Delhi Jal Board, Mr. Amit Satija emphasized the importance of smooth project implementation and identified this 2<sup>nd</sup> JCC meeting as a great opportunity for all participating parties to dissolve impediments.

Mr. T Ichiguchi, Senior Representative, JICA India office, in his opening remarks, stated three important issues; 1) Japan and JICA were committed to supporting DJB with expectation that the project can be a flagship project for JICA, 2) Capacity development of DJB should be more highlighted through implementation of output 2 and output 3, whereas the project activities have so far focused on output 1 aiming to prepare for the loan project, and 3) Plans and manuals to be prepared under output 2 and 3 must be implementable and strong involvement by DJB staff in preparation is critical for that.

Thereafter, Vikram Singh, SE (PROJ) W-III, DJB and Mr. Kazufumi Momose, Chief Advisor, JICA Expert Team (JET) made a presentation on behalf of the project team over agenda, progress and key issues related to 2<sup>nd</sup> year plan of the Assistance project.

JCC had intensive discussions and made following decisions on the key issues.

1. Operation Plan (OP), and 2<sup>nd</sup> year Annual Operation Plan (AOP) were approved at the meeting.

It was agreed that unfixed figures in the indicators for Project Purpose in PDM should be decided within 25 months after the commencement of the Assistance (June 2013), whereas PDM states "probably 18 months after the start of the Assistance".

2. JET raised concern regarding easy access to DJB GIS data. DJB suggested that a dedicated network connectivity can be extended from mapping cell to JET office to facilitate the access to GIS data. All cost towards providing the connectivity and maintenance shall be reimbursed to JET as running cost for the office as per provisions of the TA agreement.

✓ 17



### 3. GIS Server Training

DJB requested JICA to deploy a JICA expert for six months to strengthen DJB's capacity on handling the existing Arc GIS Server. JICA proposed precondition for dispatching additional expert, for example assignment of staffs working for handling Arc GIS Server during the entire project period that is indicated by JICA. JICA side will consider the request from DJB.

### 4. SCADA Operation

DJB stated trainees should be identified and assigned by DJB well before March 2015 when SCADA operation will start.

### 5. Joint verification of created GIS database, criteria, manual and guideline.

Appropriate counterparts will continuously be assigned from DJB as per requirement from time to time.

### 6. Activity 1-1-2

Significant delay of test pits was caused by failure to obtain timely permission from related organization (MCD, etc) despite the numerous applications and actions from JET, DJB and divisional office. It was confirmed that for ensuring timely permission of road cutting, the matter will be taken up at higher level. After discussion, the conclusion was reached that the test pits for the project will not be executed later than January 2015 and JET will carry out test pits as granted permission till that time only.

Increase of pipe cutting number was agreed to further understand the corrosion situation within the above timeframe. Replacement pipes can be determined based on the above results as well as using long-term historical data in Japan about corrosion level/pipe age and pipe renewal plan concept also used in Japan.

### 7. Activity 1-1-7

Topographical road survey in central and some part of west/cast area has already finished, and combination of the road survey with GIS data on pipes in central area will be completed by the end of October 2014. The rest in east and west areas will be completed by February 2015 so as to smooth data transfer to Yen-loan PMSC consultant.

### 8. Chandrawal WTP command area

Due to change of the existing water resources scenario, WTP command area may be modified over the entire Delhi including Chandrawal WTP command area. DJB agreed to inform JICA regarding the final view in this regard as soon as possible.

C/ AF

9. Next JCC Meeting

It was agreed that the JCC should be held more frequently, two times a year.

The 2<sup>nd</sup> JCC meeting closed at 16:30.

Attachments:

1. Agenda
2. Attendance list
3. Project Design Matrix (PDM)
4. Plan of operation (PO)
5. Annual Plan of operation (APO)

## Agenda of 2<sup>nd</sup> JCC Meeting

Time, Date: 15:00-16:30, 27 August, 2014

Place: India Habitat Center

**Schedule:**

Time	Contents
15:00	Opening remarks DJB: Mr. Amit Satija: Addl. C.E.O (Finance & Accounts) (Project Director) JICA: JICA Official
15:10	Agenda -Progress of project -Confirmation of PDM (Project Design Matrix) and PO (Plan of Operation) Especially explain the second year activity and plan of operation -Key issues -Next steps -Others
15:55	Discussion and decisions on key issues
16:25	Conclusion & Closing remarks DJB: Mr. Amit Satija: Addl. C.E.O (Project Director)

Participants:

Indian side

DJB: All JCC Members (listed in R/D)

Japanese side

JICA India Office

JICA Experts

Observers

Embassy of Japan

Waterworks Bureau of Tokyo Metropolitan Government

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## Attachment 2: Attendance List

2<sup>nd</sup> JCC Meeting Attendance

## Delhi Jal Board

1	Amit SATIJA	Additional Chief Executive Officer
2	H. V. TANDON	Director (Rev)
3	R.S. NEGI	C.E. (Water) Project
4	Vikram SINGH	SE (PROJ) W-III
5	Ajay GUPTA	S.E. (Central)
6	Ramesh THAKUR	S.E. (North West)
7	Yash PARKASH	E.E./ E&M (WS-NW)
8	Sanjim CHIMA	Consultant (PR)
9	Mohinder KUMAR	E.E. (Central)-I
10	Bir SINGH	S.E. (E&M) S-II

## JICA India Office

1	Tomohide ICHIGUCHI	Senior Representative, JICA
2	Itaru CHIBA	Representative, JICA
3	Chiaki SATO	JICA
4	Eri FUJITA	JICA
5	Ichikawa KENSAKU	JICA

## JICA Expert Team

1	Kazufumi MOMOSE	Chief Adviser / Water Supply Planning
2	Minoru IKEI	Deputy Chief Adviser / Pipe- Network (2)
3	Phatta THAPA	Pipe- Network (1)
4	Sanjay PRASAD	GIS Mapping
5	Koichiro AZUI	DMA
6	Manabu FUKUSHIMA	SCADA
7	Hiroki HORIE	Leak Detection (1)
9	Tetsuo HAYASHI	Leak Detection (2)
8	Mataru SHIMIZU	NRW Expert
10	Yoichi YAMAMOTO	Water Supply Management
13	Hiroshi KOJIMA	Water Supply Management (2)
11	Hiroshi IZUMOTO	GIS Application
12	Yuhei ITO	Project Coordinator/GIS Mapping (2)

## Tokyo Metropolitan Government (as Observer)

1	Tomoyuki TANIMOTO	Bureau of Water works, Tokyo Metropolitan Government
2	Kenji OZAWA	Bureau of Water works, Tokyo Metropolitan Government
3	Takao HOSINO	Bureau of Water works, Tokyo Metropolitan Government
4	Anupam JOSHI	Interpreter

**Attachment 3: Project Design Matrix (PDM, Latest version)**

Name of project: The Assistance related to Delhi Water Supply Improvement Project		Duration of Period: three years from June 2013	
Project area: Chandrawal treatment system area and Pitampura area		Target group: DJB personnel	
Narrative Summary		Objectively Verifiable Indicator	Means of Verification
<p><b>Overall Goal</b> 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</p> <p><b>Project Purpose</b> DJB's capacity for the implementation of "Delhi water supply improvement project" is strengthened</p>		<p>a. Service hours in Chandrawal WTP command area to customers (hours/day) is 24 hours</p> <p>b. NRW ratio in Chandrawal WTP command area is less than 15%</p> <p>c. Tariff collection ratio in Chandrawal WTP command area is more than 90%</p>	<p>a. Same as evaluation of "Delhi Water Supply Improvement Project"</p>
<p><b>Output</b></p> <p>1. DJB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened.</p> <p>2. DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded</p> <p>3. Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared</p> <p>4. The assistance is managed and coordinated properly</p>		<p>a. Basic information on pipe-networks is reflected in DPR for components 2-4 of "Delhi Water Supply Improvement Project" prepared by DJB</p> <p>b. The gap among DMAs in water pressure and volume based on DMAs' demand is reduced. (Pressure: From 8 meters to 10 meters, Volume: From 8 m<sup>3</sup>/per connection to 10 m<sup>3</sup>/per connection.)</p> <p>c. Guideline for introduction 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</p>	<p>a. Confirmation of contents of DPRs</p> <p>b. Reports on water pressure and volume of DMAs</p> <p>c. Confirmation of contents of DPRs</p>
<p><b>Activities</b></p> <p>1. Strengthening capacity to manage data and information on water supply facilities in Chandrawal command area</p> <p>1-1 Obtain necessary information for detailed design of Delhi water supply improvement project</p> <p>1-1-1. Review of the existing distribution pipes</p> <p>1-1-2. Selection for replacement</p> <p>1-1-3. Review on new pipes suggested in Master Plan</p> <p>1-1-4. Distribution pipe network confirmation with support of local staff and GIS data</p> <p>1-1-5. Design proposal of pipes laying location</p> <p>1-1-6. Preliminary Design of laying and crossing methods</p> <p>1-1-7. Survey for new pipe lines</p> <p>1-2. Surveys and GIS data creation on Chandrawal WTP and booster pumping station and examination on pipes information</p> <p>2. Upgrading capacity to monitor and control the water distribution</p> <p>2-1 Summarizing issues by reviewing the situation of SCADA use in DJB</p> <p>2-2. Introduction of Japanese experience and its system to DJB</p> <p>2-3. Operation of pilot project (equitable distribution and NRW monitoring)</p> <p>2-3-1. Confirmation on existing distribution pipes network condition in pilot area</p> <p>2-3-2. Pilot project operation plan</p> <p>2-3-3. Quantitative estimate of demand in each DMA</p> <p>2-3-4. Procurement of equipment and test operation for pilot project</p> <p>2-3-5. How amount and pressure monitoring within SCADA pilot project area</p> <p>2-3-6. Identification of issues related to equitable water supply and discussion and determination for its solution</p> <p>2-3-7. Implementation of control method and examination of its effectiveness</p> <p>2-3-8. Water bill calculation within the pilot area based on revenue management system data</p> <p>2-3-9. Calculation of NRW ratio</p> <p>2-3-10. Leakage detection demonstration in the pilot area</p> <p>2-3-11. Formulation of manual and guideline for flow amount and pressure control and NRW monitoring</p> <p>2-3-12. Seminar presenting the results of pilot project</p> <p>2-4. Identification of issues around equitable distribution and NRW monitoring</p> <p>3. Draft of scenarios for stage wise development of GIS/RMS application in DJB</p> <p>3-1. Review on DJB's administration strategy, vision and operation plan</p> <p>3-2. Identifying obstacles to achieve above strategy, vision and plan</p> <p>3-3. Review on development situation on RMS and GIS</p> <p>3-4. Understand the content of system and the example of GIS and RMS usage in Japan</p> <p>3-5. Formulation of GIS and RMS utilization application scenario by 2021</p> <p>3-6. Formulation of GIS/RMS development scenario by 2021</p> <p>3-7. Formulation of asset management introduction guideline</p> <p>4-1. Organize Joint Coordinating Committee (JCC) meeting at least once a year</p> <p>4-2. Finalize the indicators of the PDM and the Plan of Operations (PO) for approval of the first JCC meeting</p> <p>4-3. 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</p> <p>4-4. Monitor the progress and achievement of the Assistance based on PO/APO and the indicators of the PDM through JCC</p>		<p><b>Inputs</b></p> <p>[Japanese Side]</p> <p>1. Japanese Experts: (1) Chief Advisor (2) GIS Application (3) Pipe-Network(1) (4) Pipe-Network(2) (5) GIS Mapping (6) SCADA (6) NRW Analyst (6) DMA (8) Leak Detection (9) Water Supply Management (10) Project Coordinator (11) Others (by Mutual consent)</p> <p>2. Local Consultants</p> <p>3. Equipment</p> <p>4. Training of DJB personnel concerned with the Assistance in Japan</p> <p>5. Seminars on Japanese water utilities in Delhi</p>	<p>[DJB Side]</p> <p>(a) Management Personnel</p> <p>1. Counterpart personnel</p> <p>1) Project Director</p> <p>2) Project Manager</p> <p>3) Deputy Project Manager</p> <p>4) Officer in charge of Pilot Project</p> <p>(b) Technical personnel</p> <p>1) WTP &amp; Raising Main in Chandrawal Command Area</p> <p>2) Distribution network in Chandrawal Command Area</p> <p>3) Pipe network in Pilot Project area</p> <p>4) Pumping Station in Pilot project area</p> <p>5) SCADA</p> <p>6) GIS Mapping</p> <p>7) GIS Application</p> <p>8) RMS</p>
<p><b>Important Assumption</b></p> <p>"Delhi Water Supply Improvement Project" is completed as planned.</p> <p>Consultants of "Delhi Water Supply Improvement Project" implement the detailed design work as scheduled.</p>		<p>1a. 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.</p> <p>1b. Locations (alignment and depth) of transmission and distribution pipes for "Delhi Water Supply Improvement Project" are determined by DJB.</p> <p>2a. 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</p> <p>2b. NRW ratio is clarified and continuously observed in the pilot project area</p> <p>3. Draft of guideline for introduction of asset management is prepared</p>	<p>1a. DJB's Authorization on construction method</p> <p>1b. DJB's Authorization of Reports on pipeline route</p> <p>2a. Field Assessment by concerned experts</p> <p>2b. Record on data of NRW ratio</p> <p>3. Minutes of Meeting on submission of draft of guideline on asset management to DJB</p>
<p><b>Precondition:</b></p> <p>1. DSSDI GIS data on utilities other than water pipelines can be used.</p> <p>2. The scope of "Delhi Water Supply Improvement Project" is not changed dramatically.</p>			

Notes: Unfixed figures (X and Y) in PDM shall be decided after activity 2-3-5, probably 18 months after the start of the Assistance. The PDM was approved at the 1<sup>st</sup> JCC.

**Attachment 4**  
**Plan of Operations (PO) of THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT IN THE REPUBLIC OF INDIA**

June 2014

Year	1st Year												2nd Year												3rd Year											
	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June											
Location	Japan												India												India											
Output 1: DIB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened.	<p>1-1-1 Review of the existing distribution pipes</p> <p>1-1-2 Review on new pipes suggested in Master Plan</p> <p>1-1-4 Distribution pipe network confirmation with support of local staff and GIS data</p> <p>1-1-2 Selection for replacement</p> <p>1-1-7 Survey for new pipe lines (Cunral)</p> <p>1-2 Surveys and GIS data creation on Chandrawal WTP and BPS and examination on pipes information</p> <p>1-1-5 Design proposal of pipes lying location</p> <p>1-1-6 Preliminary Design of laying and crossing methods</p> <p>1-1-7 Survey for new pipe lines (West &amp; East)</p> <p>1-1-7 Survey for new pipe lines (Daise Zone)</p> <p>1-2 Surveys and GIS data creation on Chandrawal WTP and BPS and examination on pipes information</p> <p>1-1-5 Design proposal of pipes lying location</p> <p>1-1-6 Preliminary Design of laying and crossing methods</p> <p>1-1-7 Survey for new pipe lines (West &amp; East)</p> <p>1-1-7 Survey for new pipe lines (Daise Zone)</p> <p>Relevant Result to be submitted to the Yen Loan Project</p> <p>Relevant Result to be submitted to the Yen Loan Project</p> <p>Relevant Result to be submitted to the Yen Loan Project</p>												<p>1-1 Obtain necessary information for detailed design of Dabi water supply improvement project</p>												<p>2-1 Implement pilot project for equitable distribution and NRW monitoring by applying SCADA</p> <p>2-3-5 Monitor flows and pressures through SCADA</p> <p>2-3-6 Monitor inoperable water supply in DMAs and study how to control flow pressure to enhance equitable water supply</p> <p>2-3-7 Implement the flow pressure control and confirm its effectiveness</p> <p>2-3-12 Seminar related to the result of pilot project</p> <p>2-3-9 Calculate NRW ratio</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>2-3-8 Calculate the total volume of water billed to the customer in the area based on the RMSB</p> <p>2-3-4 Install the equipment and conduct trial runs for SCADA system</p> <p>2-3-10 Demonstrate leakage detection</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>2-3-8 Calculate the total volume of water billed to the customer in the area based on the RMSB</p> <p>2-3-9 Calculate NRW ratio</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p>											
Output 2: DIB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.	<p>3-1 Review existing DIB's management vision and business plan</p> <p>3-2-1 Clarify the issue to be tackled to achieve the</p> <p>3-2-2 Review GIS development and RMS in DIB</p> <p>3-4 Study Japanese experience and systems of GIS and</p> <p>3-5 Draft GIS RMS application scenario in DIB for 2021</p> <p>3-6 Draft GIS RMS development scenario in DIB for 2021</p> <p>3-7 Draft the guideline as an action plan for realization of scenario</p> <p>3-1 Study Japanese experience and systems of GIS and</p> <p>3-5 Draft GIS RMS application scenario in DIB for 2021</p> <p>3-6 Draft GIS RMS development scenario in DIB for 2021</p> <p>3-7 Draft the guideline as an action plan for realization of scenario</p>												<p>2-3-10 Demonstrate leakage detection</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>2-3-8 Calculate the total volume of water billed to the customer in the area based on the RMSB</p> <p>2-3-9 Calculate NRW ratio</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p>												<p>2-3-10 Demonstrate leakage detection</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>2-3-8 Calculate the total volume of water billed to the customer in the area based on the RMSB</p> <p>2-3-9 Calculate NRW ratio</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p>											
Output 3: Draft of scenarios for stage wise development of GIS/RMS application in DIB is prepared	<p>3-1 Review existing DIB's management vision and business plan</p> <p>3-2-1 Clarify the issue to be tackled to achieve the</p> <p>3-2-2 Review GIS development and RMS in DIB</p> <p>3-4 Study Japanese experience and systems of GIS and</p> <p>3-5 Draft GIS RMS application scenario in DIB for 2021</p> <p>3-6 Draft GIS RMS development scenario in DIB for 2021</p> <p>3-7 Draft the guideline as an action plan for realization of scenario</p>												<p>2-3-10 Demonstrate leakage detection</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>2-3-8 Calculate the total volume of water billed to the customer in the area based on the RMSB</p> <p>2-3-9 Calculate NRW ratio</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p>												<p>2-3-10 Demonstrate leakage detection</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p> <p>2-3-8 Calculate the total volume of water billed to the customer in the area based on the RMSB</p> <p>2-3-9 Calculate NRW ratio</p> <p>2-3-11 Prepare manual and guidelines for flow pressure control and NRW monitoring</p> <p>2-4 Identify issues that need to be addressed for further enhancement of equitable distribution and NRW monitoring</p>											
Training in Japan	1st												2nd												3rd											
Seminar	1st												2nd												3rd											
Reports	★												★												★											
Project Evaluation Mission	★												★												★											







Memorandum on  
The Assistance related to Delhi Water Supply Improvement Project

25<sup>th</sup> November 2014

At the meeting on 18<sup>th</sup> November 2014 in Tokyo between DJB and JICA Expert Team at the presence of JICA headquarters, DJB expressed that its active participation on the captioned project will continue with more fervor. For the mutual understandings, this memorandum is prepared and signed.

DJB understands that DJB should acquire technical know-how during the project so that DJB will be able to manage the constructed facilities appropriately in the Chandrawal WTP (Water Treatment Plant) command area, even after the project is completed, for equitable distribution and non-revenue water reduction. For this purpose, DJB will continue to actively participate in the project with strong ownership. Examples are as follows:

**1. Overall**

- 1) DJB will lead JCC meeting, e.g. presentations about progress of the project will be made mainly by DJB as done on earlier occasions.
- 2) DJB and JICA Expert Team will discuss the intended goals of DJB's capacity by the time this project is completed. The indicator for Project Purpose described in Project Design Matrix (PDM) will be decided by the both side by June, 2015.

**2. Activities related Output 1 in PDM (DJB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened)**

<Pipe Data Information>

In order to accelerate Yen-loan project, meetings will be held among the 3 parties, DJB, Yen-loan consultant and the JICA Expert Team immediately after necessary pipe information data is available. They are submitted part-by-part.

<Network Server Training >

The additional expert about Arc GIS Server will be dispatched. However DJB will assign counterpart personnel for this activity who will closely work with the expert.



**3. Activities related Output 2 in PDM (DJB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded)**

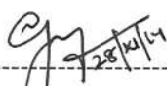
<SCADA operation>

DJB will assign SCADA operators during experimental SCADA operation. Dissemination of the acquired know-hows among relevant DJB officials, particularly decision-makers of water allocation in Delhi will be carried out by the counterpart personnel of Output 2.

**4. Activities related Output 3 in PDM (Draft of scenarios for stage wise development of GIS/RMS application in DJB is prepared)**

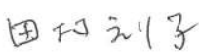
<GIS>

DJB will continue to propose their ideas on data to be incorporated into GIS system and how to develop the system to cope with changing water supply management. Before finalizing the GIS development scenario, relevant DJB officials and JICA Expert Team will have meetings to exchange of views and ideas in December 2014. The activities related to Output 3 are going to progress as attachment.

  
-----  
Mr. Amit Satija  
Additional CEO  
DJB

  
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Mr. Momose Kazufumi  
Chief Advisor  
JICA Expert Team

As a witness

  
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Ms. Eriko Tamura  
Director, Water Management Team 1,  
Water Resources and Disaster Management Group,  
Global Environment Department,  
JICA

**Schedule for Specific Activity of GIS Scenario and Asset Management**

	November	December	January	February	March
General Activity	Activity			<p>Preparation for Seminar</p>	<p>▲ The 4th Delhi Seminar (Theme Plan)</p> <ul style="list-style-type: none"> <li>• GIS Application</li> <li>• Asset Management</li> </ul> <p>▼ The 3rd JCC</p>
	DJB Involvement/Participation	<p>★ Discussion on the theme of the 4th Seminar①</p> <ul style="list-style-type: none"> <li>• The theme will be found through the discussion during counterpart training</li> </ul>		<p>★ Discussion on the content of the 4th Seminar②</p> <ul style="list-style-type: none"> <li>• The most effective content of seminar will be discussed by DJB and JICA Expert.</li> </ul>	<p>★ Presentation at the 4th Seminar</p> <ul style="list-style-type: none"> <li>• DJB will make a presentation about GIS and Asset management</li> </ul>
Scenario for GIS application and development	Activity	<p>▼ Meeting between DJB and JICA Expert</p> <ul style="list-style-type: none"> <li>• Introduce GIS application and development scenario</li> </ul> <p>↔ Discuss and modify scenario</p>	<p>▼ Submit GIS scenario to DJB</p>		<p>▼ The 4th Delhi Seminar</p> <ul style="list-style-type: none"> <li>• Presentation about GIS Scenario</li> </ul>
	DJB Involvement/Participation	<p>★ Final modification of GIS scenario</p> <ul style="list-style-type: none"> <li>• Discuss scenario with DJB</li> <li>• Prepare scenario with DJB</li> </ul>			<p>★ Presentation at the 4th Seminar</p> <ul style="list-style-type: none"> <li>• DJB will make a presentation about GIS</li> </ul>
Guideline for Asset Management	Activity	<p>▼ Meeting between DJB and JICA Expert</p> <ul style="list-style-type: none"> <li>• Introduce concept of asset management</li> </ul> <p>↔ Prepare draft asset management guideline and pre-activity</p> <ul style="list-style-type: none"> <li>• Prepare waterworks facility database</li> <li>• Conduct daily inspection based on the daily maintenance sheet</li> </ul>	<p>↔ Prepare asset management guideline (Internal work)</p>	<p>▼ Introduce asset management guideline to DJB</p> <p>↔ Prepare asset management guideline</p> <p>↔ Modify guideline</p>	<p>▼ The 4th Delhi Seminar</p> <ul style="list-style-type: none"> <li>• Presentation about asset management guideline</li> </ul> <p>↔ Submit asset management guideline</p> <p>↔ Remodify guideline</p>
	DJB Involvement/Participation	<p>★ Discuss the contents of asset management guideline with DJB and Short Term Action</p> <ul style="list-style-type: none"> <li>• Discuss the contents of guideline</li> <li>• Prepare waterworks facility database (confirmation of collecting data)</li> <li>• The trial of daily inspection at WTP (accumulation of facility condition data)</li> </ul>		<p>★ Prepare draft guideline with DJB</p> <ul style="list-style-type: none"> <li>• Discuss and prepare draft guideline</li> </ul>	<p>★ Presentation at the 4th Seminar</p> <ul style="list-style-type: none"> <li>• DJB will make a presentation about asset management</li> </ul> <p>★ Final modification of asset management guideline</p> <ul style="list-style-type: none"> <li>• Discuss guideline with DJB</li> <li>• Prepare guideline with DJB</li> </ul>

*ep* *TA*



**Minutes of 3<sup>rd</sup> JCC Meeting**  
**Assistance Related to Delhi Water Supply Improvement Project**

26<sup>th</sup> March 2015

The 3<sup>rd</sup> JCC meeting started at 10:15 AM

At the outset in his opening remarks, Mr. Amit Satija, the Project Director and Additional Chief Executive Officer, Delhi Jal Board emphasized the importance of DJB's active involvement to make this assistance project a success.

Mr. T Ichiguchi, Deputy Chief, JICA India office, gave his opening remarks, in which he appreciated active involvement to this project by DJB since the last JCC. He also praised DJB's own initiative to expand project activities to entire Delhi, such as daily inspection for WTPs, to which he suggested to make concrete plan to implement it.

Mr. Ichiguchi stated onward focus of this project shall be output 2 and he emphasized that it would be essential to have department-wise coordination within DJB for successful implementation of it. Lastly, Mr. Ichiguchi made emphasis on how to ensure sustainability of this project since the project had entered into the latter half of its duration. Taking it into account, he suggested DJB to start considering measures to keep project sustainability, and details would be discussed in the next JCC.

Thereafter, Mr. Vikram Sing SE (Project (Water III) and Mapping), DJB made the presentation on behalf of this assistance project to present agenda, progress and key issues related to the Assistance.

JCC had discussions and made following decisions on the key issues.

1. <Activity 1-1> Documents

The documents of Central and West areas were approved by DJB and have been passed on to PMSC (Project Monitoring and Supervision Consultants) for JICA Assisted Delhi Water Supply Improvement Project in Chandrawal WTP Command area as a reference for packages 2 and 3.

2. <Activity 1-2> GIS data

1

The GIS data update under activity 1-2 will re-start soon since access to Mapping Cell was made with an ArcGIS server expert, who has been deployed since 1<sup>st</sup> March 2015.

3. <Activity 3-5 and 3-6> The report of GIS and RMS Application and Development Scenario in DJB for 2021

It was informed that the report of GIS and RMS Application and Development Scenario in DJB for 2021 was submitted to DJB in Dec. 2014 and the same has been passed on to PMSC by DJB as a reference for Package-5.

4. <Activity 3-7> The report of Asset Management Guidelines for DJB

The report of Asset Management Guidelines was submitted to DJB in March 2015 and the same will be passed on to PMSC by DJB as a reference for Package-5.

5. <Activity 2> DJB will implement the recommendations like "Daily Inspection" made in Asset Management Guidelines in all WTPs, UGRs & BPS.

6. <Activity 2> It was agreed to involve concerned Joint Director (Revenue) for Activity 2 to facilitate collection of consumer data and billing information.

7. <Activity 2> DJB confirmed that details of DJB officials / team for the SCADA operations will be provided within 15 days.

8. <Activity 2> In parallel to the SCADA-related activities included in the project, DJB informed that they decided to carry out NRW reduction works in the pilot DMA consisting of such measures as baseline survey, repairing of damaged pipes and broken water meters, and 2<sup>nd</sup> measurement. It was decided DJB prepare the comprehensive proposal for such works including staff assignment and budget. The proposal will be prepared within 10 days for approval by Additional CEO. Baseline survey for pilot DMAs will be done by DJB with assistance of Technical Assistance Team, and all replacement of faulty meters will be undertaken by DJB before start of 24x7 supply. The leakage detection will be undertaken by DJB by mobilizing Leak Detection Unit and DJB requested partial assistance by JICA Leak Detection Expert, for which JICA will consider.

9. <Activity 2> JICA recommended DJB to set concrete target for NRW reduction in pilot area, to which DJB agreed.


10. Topics of Seminar

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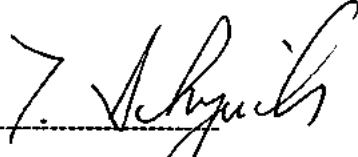
SCADA operation will be main topics in the 5<sup>th</sup> seminar. Other topics will be decided mutually.

In closing, Mr. Amit Satija assured whatever beneficial knowledge and experiences obtained from this project would be replicated in entire Delhi.

The third JCC meeting closed at 11.15 AM.

  
-----  
Mr. Amit Satija  
Project Director  
DJB

  
-----  
Mr. Kazufumi Momose  
Chief Advisor  
JICA Expert Team

  
-----  
Mr. Tomohide Ichiguchi  
Deputy Chief Representative  
JICA India Office

**Attachments:**

1. Agenda
2. Attendance list
3. Presentation material

**Attachment 1:**

**Agenda of 3<sup>rd</sup> JCC Meeting**

**Time, Date:** 10:00-11:00 AM, Thursday, 26 March, 2015

**Place:** DJB Conference Hall

**Schedule:**

<b>Time</b>	<b>Contents</b>
10:00	Opening remarks DJB: Mr. Amit Satija; Addl. C.E.O (Project Director) JICA: Mr. Ichiguchi, Senior Representative, JICA India
10:10	Agenda - Confirmation of Minutes of Meeting on 2 <sup>nd</sup> JCC Meeting - Achievement - Issues (SCADA operation for Equitable Distribution and Non-Revenue Water Reduction) - Others
10:45	Discussion and decisions on key issues
10:55	Conclusion & Closing remarks DJB: Mr. Amit Satija; Addl. C.E.O (Project Director)

**Participants:**

**Indian side**

DJB: All JCC Members (listed in R/D)

**Japanese side**

JICA India Office

JICA Experts

**Observers**

Embassy of Japan



**Attachment 2:  
Attendance List**

**3<sup>rd</sup> JCC Meeting Attendance**

**JICA India Office**

1	Tomohide ICHIGUCHI	Deputy Chief, JICA
2	M.P. SINGH	Additional Chief Development Specialist, JICA
3	Itaru CHIBA	Representative, JICA

**JICA Expert Team**

1	Kazufumi MOMOSE	Chief Adviser
2	Phatta THAPA	Pipe- Network (1)
3	Koichiro AZUI	DMA
4	Sanjay PRASAD	GIS Mapping
5	Absar KHAN	Construction Supervisor

**Delhi Jal Board**

1	Amit SATIJA	Additional Chief Executive Officer
2	R. S. NEGI	Chief Engineer (Water) Project
3	Vikram SINGH	S.E. (Project) W-III
4	Ajay GUPTA	S.E. (Central)
5	Bir SINGH	S.E. (E&M) WS-II
6	B. S. RAWAT	EE (Project) W-II
7	V.K. SINGH	EE NW-III
8	Yash PRAKASH	EE (E&M) WS- NW

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Attachment 3





Japan International Cooperation Agency

**3<sup>rd</sup> JCC FOR "THE ASSISTANCE RELATED TO DELHI WATER SUPPLY IMPROVEMENT PROJECT"**  
**26<sup>th</sup> March 2015**

**Venue:- Conference Hall, OJB Headquarters**

S.No.	Name	Designation	Signature
1.	V. K. Singh	EE (WWS) II	
2.	Yash Kantwal	EE (M) WWS-NW	
3.	Bijay Singh	SE (WWS) WWS-II	
4.	Ajay Singh	SE (Central)	
5.	Vikram Singh	SE (Central)	
6.	R. S. Meena	SE (WWS) Deptt	
7.	Amit Singh	Asst. Secy, DWS	
8.	Toruhide Ichijoshi	Deputy Chief, JICA	
9.	Tam Chiba	Representative, JICA	
10.	M. P. Singh	Asst. Chief Dev. Specialist, JICA	
11.	Kabirji Meena	JICA Expert Team	
12.	Vishal Arora	JICA Expert Team	
13.	Phatka Thapa	JICA Expert Team	
14.	Sanjay Prasad	JICA Grant Team	
15.	Ahsan Khan	JICA Team	
16.	B. S. Pansat	DWS, EE (WWS-II)	

## The Assistance Related to Delhi Water Supply Improvement Project

**3rd JCC Meeting**  
 26 March 2015  
 DJB Conference Hall

Delhi Jal Board  
 JICA Expert Team

## Agenda

Time: 10:00-11:00 AM      Date: Thursday, 26 March, 2015  
 Place: DJB Conference Hall

Time	Contents	Participants:
10:00	Opening remarks DJB: Mr. Amit Sarin; Addl. C.E.O. (Project Director) JICA: Mr. Ichirohichi Sanjo; Representative, JICA India	Indian side DJB: All JCC Members (listed in N/D)
10:10	Agenda • Confirmation of Minutes of Meeting on 2 <sup>nd</sup> JCC Meeting • Achievement • Issues (SCADA operation for Equitable Distribution and Non-Revenue Water Reduction) • Others	Japanese side JICA India Office JICA Expert
10:45	Discussion and decision on key issues	Observers
10:55	Conclusion & Closing remarks DJB: Mr. Amit Sarin; Addl. C.E.O. (Project Director)	Embassy of Japan

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.

3

## Relationship of the Assistance Project and the Loan Project

**Assistance Project (2014-2016)**

- L.A. agreement
- Selection of Consultants
- Detailed Design

**Loan Project (2014-2016)**

- Detailed Design
- Bidding Evaluation (Pre-bid)
- Construction Management

**Key Milestones:**

- 2014-2015: L.A. agreement, Selection of Consultants
- 2015-2016: Detailed Design, Bidding Evaluation (Pre-bid)
- 2016-2017: Construction Management

**Notes:**

- The assistance related to pre-bid stage will be completed by the end of 2015.
- Construction Management will be completed by the end of 2016.
- The assistance related to pre-bid stage will be completed by the end of 2015.
- Construction Management will be completed by the end of 2016.

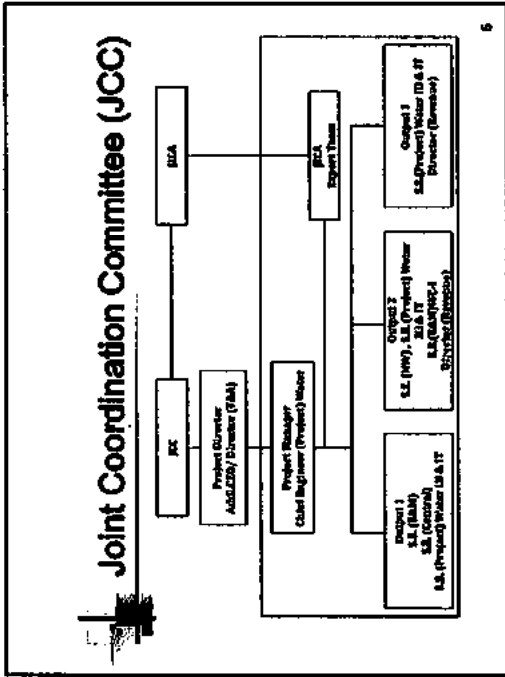
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B

### Outputs of the Project

- 1) DJB's capacity to manage data and information on water supply facilities in Chandrawal WTP 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.
- Target Group is DJB's Personnel

5



6

### Project Members

Project Director	Mr. Anil Singh, Additional Chief Executive Officer
Project Manager	Mr. R. E. High, Chief Engineer (Water) Project
Deputy Project Manager	Mr. Vikram Singh, Superintending Engineer (Project Water-I)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-I)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-II)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-III)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-IV)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-V)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-VI)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-VII)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-VIII)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-IX)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-X)

### Project Design Matrix (PDM)

Project Director	Mr. Anil Singh, Additional Chief Executive Officer
Project Manager	Mr. R. E. High, Chief Engineer (Water) Project
Deputy Project Manager	Mr. Vikram Singh, Superintending Engineer (Project Water-I)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-I)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-II)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-III)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-IV)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-V)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-VI)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-VII)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-VIII)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-IX)
Chief Engineer	Mr. Vikram Singh, Superintending Engineer (Water-X)

10

**Plan of Operation (PO, Latest Version) Here**

10

**Annual Plan of Operation (APO) 2<sup>nd</sup> Year**

10

**Achievement (Activity-1)**

- GIS data
- Component 3 (Central Area) submitted in November 2014
- Component 2 (West Area) submitted in December 2014
- Component 4 (East Area) will be submitted by the end of April 2015, with assistance of ArcGIS server Expert who started working from this month
- Conversion of WTP & UGR CAD data to GIS by May 2015

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**"Activity-1" Implemented during the 1<sup>st</sup> term in the second year**

- 1-1 Obtain necessary information for detailed design
- 1-1-2. Selection for replacement
  - Test digging & Pipe-External survey;
  - 221 nos completed (No additional digging required)
- Pipe cutting & Pipe-Internal investigation;
- 41 nos completed (To be Stopped by March end, target 50)
- 1-1-5. Design proposal of pipes laying location
  - Pipe route survey;
  - 1,360/1,660 km completed

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Contd.

10

### “Activity-1” Implemented during the 1<sup>st</sup> term in the second year

- 1-1 Obtain necessary information for detailed design
- 1-1-6. Preliminary Design of laying and crossing methods
  - Survey for crossing railways and rivers; 11/25 nos completed.
- 1-1-7. Survey for new pipe lines
  - Topographical road survey in Central, West, East; 1,735km. Completed
- 1-2. Surveys and GIS data creation on Chandrawal WTP, booster pumping station and pipes information
  - Topographical survey for WTP, UGR/BPSs; 135 Acre. Completed

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### “Activity-2” Implemented during the 1<sup>st</sup> term in the second year

- 2-3-4 Procurement of equipment and test operation for pilot project (on going)
  - Installed already PLC Panels inside Pitampura UGR.
  - Valves, fittings and panels are on the sites for installation.



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### “Activity-2” Implemented during the 1<sup>st</sup> term in the second year

- 2-3-10 Demonstrate leakage detection activities



- Leak detection demonstration was conducted on 23<sup>rd</sup> August at Pitampura pilot project area.
- Based on the filed survey, execution plan was submitted to DJB

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### 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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## Achievement Target of DJB staffs in Activity 2

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

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## Planned Schedule "Activity-2"

Activity	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
SCADA	No activity	This activity includes monitoring (Flow and Pressure)	This operation of equitable distribution to each DMA is case of transmission supply	This operation of equitable distribution to each DMA is case of NRW losses supply								
NRW	1st measurement (Baseline survey, before improvement)		2nd measurement (After improvement work by DJB (Repair damaged pipes, Replace broken water meter, etc))	3rd measurement (After improvement)								

## Planned Activity-2

1. SCADA equipment installation by the end of April 2015, and SCADA operation will start in May 2015.
2. Then, baseline survey to collect current water pressure at each DMA will be conducted.
3. After baseline survey, adjustment of valve opening to control water pressure will be operated by using SCADA system.
4. And then, Results of season wise gap among DMAs will be reported in May 2016.
5. After the project completion, SCADA will be utilized by DJB for Chandrawal area staffs for equitable distribution and NRW reduction.

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## Step 1: Preparatory Work Commercial Loss Reduction

Work Item	When	DJB Director	DJB Distribution	DJB E&M	DJB Planning
1. Trial Operation	To May				
2. Pressure & Flow Monitoring at 14 locations and BPS	June		✓	✓	✓
3. Integration of customer data (location & consume) with GIS	To June	✓	✓	✓	✓
4. Estimate Household Consumption	June				✓
5. Estimate Commercial Loss and Physical Loss	June		✓	✓	✓
6. Reduction of Commercial Loss	From June		✓	✓	✓

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100

### Step 2 : Estimation of Physical Loss and Commercial Loss

Work Item	When	Project Manager	DJB Distribution	IDJ's E.M.	DJB E.M.	DJB Revenue
7. SCADA Operation starts for equidating pressures and (flow)	June			✓		
8. Monitoring of pressure and flow	From June onward		✓			
9. Estimation of NRW (commercial and physical losses)	July	✓	✓			✓
10. Analysis of SCADA operation	August	✓		✓		✓

Contd. 21

### Step 3 : 24x7 Supply for NRW Reduction including Leak Detection and Repair

Work Item	When	Project Manager	DJB Distribution	IDJ's E.M.	DJB Revenue
11. Estimation of Increased Flow to Pressure Area and Decreased Flow in Haldenpur WTP area	August		✓		✓
12. Decision of 24x7 Supply by DJB	August		✓		✓
13. Public Announcement for increased water volume, increased water bill if leakage is unattended	August	✓	✓		✓
14. SCADA Operation for Equidating pressures	Sept.	✓		✓	✓

Contd. 22

### Achievement (Activity-3)

Work Item	When	Project Manager	DJB Distribution	IDJ's E.M.	DJB Revenue
15. Monitoring (Pressure and Flow)	Sept onward		✓		✓
16. Monitoring (Household Consumption)	October		✓		✓
17. Estimate NRW (Physical Loss and Commercial loss)	October onward	✓	✓		✓
18. Visible Leakage Detection & Repair	Nov. onward		✓		✓
19. Invisible Leakage Detection and Repair	Nov. onward		✓		✓
20. Monitoring (Household Consumption)	Nov. onward		✓		✓
21. Estimate NRW (Physical loss and Commercial loss)	Nov. onward	✓	✓		✓
22. Analysis of the SCADA Operation	Nov. onward	✓		✓	✓

Contd. 23

- Development scenario of GIS/RMS was submitted in December 2014.
  - Asset management introduction guideline was submitted in March 2015.
- 24

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## Role of DJB (1)

- a) Taking over SCADA system before pilot project completion and, using it as a future SCADA training center of DJB.
- a) Assignment of Persons in charge of SCADA operation and NRW analysis during and after project.
- c) Provision of Office spaces and Facilities  
→ Invoice of running cost for JICA Expert Team Office has been placed on 3<sup>rd</sup> November 2014 for reimbursement. Communication from JICA on Tax Exemption issue awaited.

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## Role of DJB (2)

- d) Provision of Permissions to Access DSSDI and Existing DJB's GIS data, RMS and Necessary information  
→ ArcServer expert has started working since March 1<sup>st</sup> for 3 months assignment to assist TA team & Train DJB for sharing GIS data.
- e) Civil works and Running expenses for Pilot project  
→ Being Prepared
- f) Obtaining Permission from Related authorities for Test pits excavation  
→ Ceased at end of January

26

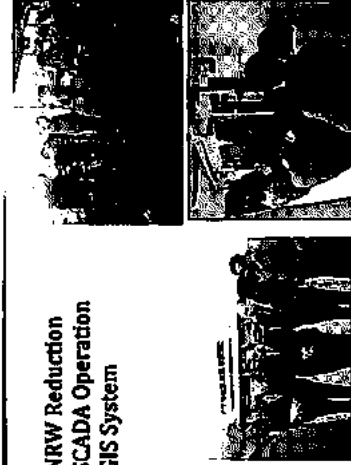
## Seminar by Waterworks Bureau of Tokyo Metropolitan Government

No.	Year	Date	Topic / Content
1 <sup>st</sup>		Aug 2013	TRWB's Business Administration, Finance and General Information
2 <sup>nd</sup>	1 <sup>st</sup>	Feb. 2014	Efficient Maintenance Management for Facilities
3 <sup>rd</sup>	2 <sup>nd</sup>	Aug. 2014	NRW Reduction
4 <sup>th</sup>		March 2015	Asset Management Plan
5 <sup>th</sup>	3 <sup>rd</sup>	7 August 2015	SCADA Operation and Others
6 <sup>th</sup>		7 Feb. 2016	To be decided

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## Counterpart Training in Japan (from 9<sup>th</sup> to 19<sup>th</sup> Nov. 2014)

- NRW Reduction
- SCADA Operation
- GIS System



The End!

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**Minutes on 4<sup>th</sup> JCC Meeting**  
**Assistance Related to Delhi Water Supply Improvement Project**

9<sup>th</sup> December 2015

Following to a preliminary meeting on 3<sup>rd</sup> September 2015, the 4<sup>th</sup> JCC meeting was held on 24<sup>th</sup> September. The JCC meeting was chaired by newly-appointed Additional CEO. As a result, the minutes of the meeting was prepared and signed. The contents are almost the same as the preliminary meeting, and if there are differences between the 2 minutes, the minutes on the 4<sup>th</sup> JCC meeting override the minutes on the preliminary meeting.

The meeting started at 10:45 AM in DJB Meeting Hall No. 1 with opening remarks from the Mr. Neeraj Semwal, Additional CEO (Project Director) and Mr. Tomohide Ichiguchi, Deputy Chief Representative, JICA India Office. A presentation was then made by DJB/JICA Expert Team covering the topics listed in Agenda. The meeting had discussions and made the following decisions on the key issues.

1. **Progress of the Project until June 2015.**  
 Based on the completed and transferred outputs of the activities 1 and 3, DJB and PMSC (Yen-loan consultants) are preparing detail design of all packages 1 to 5.
2. **Planned Annual Plan of Operation (APO) 3<sup>rd</sup> Year**
  - 2.1 The activity 2 continue in the 3<sup>rd</sup> year (which starts from July 2015) and was planned to be completed in June 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.
  - 2.2 DJB and JICA have in principal agreed to extend the schedule on the activity 2 and the entire project period, on the basis of reasons mentioned in point 2.1, subject to the approval of competent authorities at both sides. The extension period will be further examined based on the time required for installation of SCADA systems and rehabilitation work / improvement of chambers.
3. **Improvement works of chambers and others**
  - DJB, JICA Expert Team, and JICA shared serious concern about water ingress to the chambers that may result in severe human injuries, including fatal injuries.

- As the chambers which were constructed by DJB aren't adequately provisioned to block the water ingress, DJB is responsible for taking appropriate counter measures immediately. DJB and JICA Expert Team had the same views that the proposed 4 measures could be used to avoid accidents.

measure1	Improvement of chambers
measure2	Installation of alarm device and electric circuit breaker
measure3	Ensuring safety of person when actuator is submerged
measure4	Regular inspection, cleaning and dewatering of chambers

- Regarding the counter measure 1, it was agreed by DJB that they would take up the works of plugging leakages in the chambers from side walls. However, for stopping ingress of rain water from top manhole / opening covers, DJB requested JICA to take up this work as it involves specialized technical input for which DJB has no experience.
- DJB also requested JICA to take up the counter measures 2 and 3 for the same reasons as sited for counter measure 1.
- DJB committed to take the responsibility for the counter measure 4, even after handing over of SCADA system from JICA and secure the budget to this end.
- ~~It was discussed and realized that the Agency (RDS) installing the SCADA system is generally responsible for maintaining the equipment and system it supplied only until it receives "Substantial Completion Certificate" and transfer the ownership of the SCADA system to DJB through JICA. In this regard, JICA strongly recommended DJB that it should enter into a separate annual maintenance contract of SCADA system with an appropriate company immediately after the ownership is transferred to DJB, and that it should secure necessary budgets for this purpose.~~

**4. Proposed organization for the Activity 2, particularly the tasks of consumer survey, linking of RMS & GIS data and identification of commercial losses**

The proposed structure headed by Project Director (Addl. CEO) and nomination of SE (Project) W III & Mapping as anodal officer for the above tasks was accepted. If DJB feels the need of any modification in the structure, it will do so and inform JICA and JICA Expert Team.

**5. Preparatory work for Commercial Loss reduction**

- DJB has received the RMS record of all about 2500 consumers in DMA 1, 2 and 3 as per requirement of JICA Expert Team.

- DJB under the direction of Mr. Ramesh Thakur (CE West) has prepared teams that will undertake the consumer data verification in DMA 1, 2 and 3.
- JICA Expert Team will carry out knowledge transfer to the DJB teams as to how to capture the required data.
- Mr. Vikram Singh (SE Mapping) will get the data incorporated in GIS after the data verification is done.
- A meeting between Mr. Thakur and JICA Expert Team was organized on 7th of September to decide on the verification procedure and related issues.
- The survey work is to be finished by end of October 2015 by mobilizing multiple teams together.

**6. Budgetary provision of NRW reduction works**

DJB informed that estimate for NRW reduction works such as defective meter replacement, house connection replacement etc. in all three DMAs has been prepared and submitted to competent authority. It was assured by DJB that the approval of required budget will be expedited and the field work will start in 45 days from now.

**7. 24 x7 supply for 3 pilot DMAs**

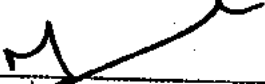
DJB agreed to consider continuous supply to 3 pilot DMAs on experimental basis. In order to achieve one of the targets of the Yen-loan project, 24x7 continuous and equitable water supply, this experiment will be conducted to know issues, if any and solutions. Once this is succeeded, it can be replicated into the entire Chandrawal WTP command area.

**8. Revision of PDM**

In one of the "Objectively Verifiable Indicators", 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<sup>3</sup> per connection to Ym<sup>3</sup> per connection.) This was to be decided in 25 months after the project start when SCADA operation was expected to start. However, it is revised as "within 2 months after the SCADA operation starts" due to delay of SCADA installation work.


In closing, the Project Director thanked all the participants for their time and contribution and assured that whatever beneficial knowledge and experience has been gained from this project, it would be attempted to be replicated in entire Delhi.

The meeting closed at 12:00 noon.



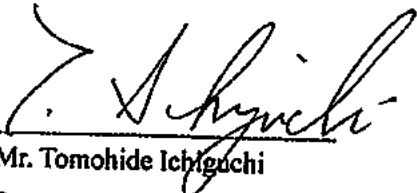
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Mr. Neeraj Semwal  
Project Director  
Addl. CEO, DIB



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Mr. Kazufumi Momose  
Chief Advisor  
JICA Expert Team



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Mr. Tomohide Ichiguchi  
Deputy Chief Representative  
JICA India Office

**Attachments:**

1. Agenda
2. Attendance list
3. Presentation material

### Agenda of 4<sup>th</sup> JCC Meeting

**Time, Date:** 10:00 AM, Thursday, 24 September 2015

**Place:** DJB Conference Hall

**Schedule:**

Time	Contents
10:00	Opening remarks DJB: Mr. Neeraj Semwal, Addl. C.E.O. (Project Director) JICA: Mr. Tomohide Ichiguchi, Deputy Chief Representative, JICA India Office
10:20	Agenda <ul style="list-style-type: none"> <li>● Confirmation of Minutes of Meeting on 3<sup>rd</sup> JCC Meeting</li> <li>● Achievement (Jan. to June 2015)</li> <li>● Work Plan (July to December 2015)</li> <li>● Issues               <ul style="list-style-type: none"> <li>● Schedule of SCADA equipment installation,</li> <li>● Safety measures in chambers,</li> <li>● Identification of illegal connections,</li> <li>● Modification of PDM,</li> </ul> </li> <li>● Others</li> </ul>
11:00	Discussion and decisions on key issues
11:20	Conclusion & closing remarks DJB: Mr. Neeraj Semwal; Addl. C.E.O. (Project Director)

**Participants:**

**Indian side**

DJB: All JCC Members (listed in R/D)

**Japanese side**

JICA India Office  
 JICA Experts

**Observers**

Embassy of Japan



Japan International Cooperation Agency

4<sup>th</sup> JCC MEETINGTHE ASSISTANCE RELATED TO  
DELHI WATER SUPPLY IMPROVEMENT PROJECTDate: 24<sup>th</sup> September 2015


Venue: DJB Conference Hall		Location: Delhi, India	
Name	Title	Signature	
Mr. Neeeraj Samwal	Adolt CEO		
Mr. T. Ichijuchi	Pr. Chief Rep. JICA.		
VIKRAM SINGH	SAC (W) W II - DJB		
Ajay Gupta	SE (Central)		
Yash Pathak	EE (W)		
V. K. Singh	EE (NW) II		
B. S. Rawat	EE (Proj) W-II		
Mr. P. SINGH	Adolt. Chief Development Specialist, JICA		
I. CHIBA	Representative, JICA		
A. Saito	TSS Tokyo water.		



Japan International Cooperation Agency

Name	Title	Signature
W. IHIMIZU	JICA expert team	
M. TOKUSHIMA	JICA expert team	
P. B. Thapa	JICA expert	
Kozafumi Mowise	JICA expert team	
Nidhi Srinastany	Div. Revenue, DJB	
Pulhraj Singh	AE (Project) water-II	
Sanjay Prasad	Jica expert team	





## The Assistance Related to Delhi Water Supply Improvement Project

**4th JCC Meeting**

24-September 2015  
DJB Conference Hall

Delhi Jal Board  
JICA Expert Team

### Agenda

Time	Contents	Participants:
10:00	Opening remarks DJB: Addl. C.E.O. (Project Director) JICA: Mr. Tomohide Ichiguchi, Deputy Chief Representative, JICA India Office	Indian side DJB: All JCC Members (listed in N/D)
10:20	Agenda ● Confirmation of Minutes of Meeting on 3 <sup>rd</sup> JCC Meeting ● Achievement (Jan. to June 2015) ● Work Plan (July to December 2015) ● Issues ● Schedule of SCADA equipment installation, ● Safety Measures in Chambers, ● Identification of illegal connection, ● Modification of PDM, ● Others	Japanese side JICA India Office JICA Experts
11:00	Discussion and decisions on key issues	Observers Embassy of Japan
11:20	Conclusion & Closing remarks DJB: Addl. C.E.O. (Project Director)	

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.

3

### Purpose of the 3 Activities in the Project

- 1) DJB's capacity to manage data and information on water supply facilities in Chandrawal WTP 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.

\* Target Group is DJB's Personnel

4

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

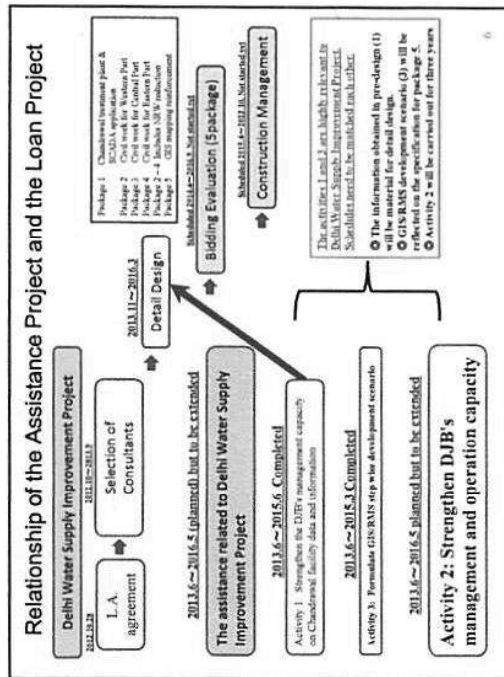
- Activity 1
  - Completed and transferred to DJB.
  - DJB/PMSC have prepared DPR of Pkg 1 and 3 and are preparing the DPR for Packages 2 & 4.
- Activity 2
  - On-going and need to be extended.
- Activity 3
  - Completed and transferred to DJB.
  - DJB/PMSC are preparing TOR of package 5 (GIS & Asset Management).
  - DJB/PMSC are to develop asset management plan.

5

### 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.

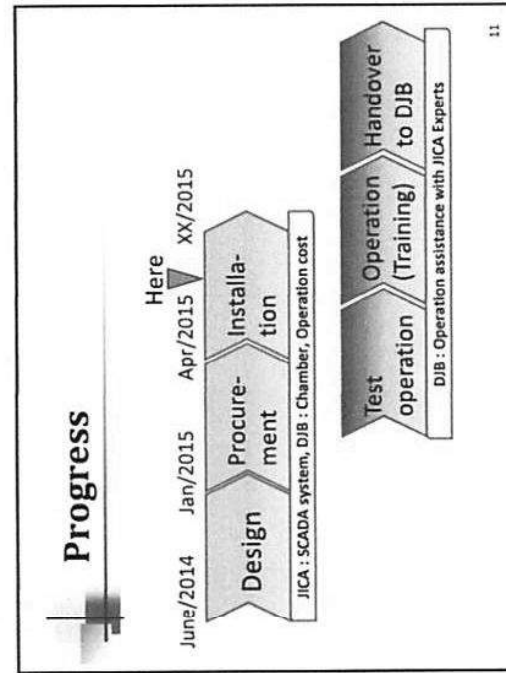
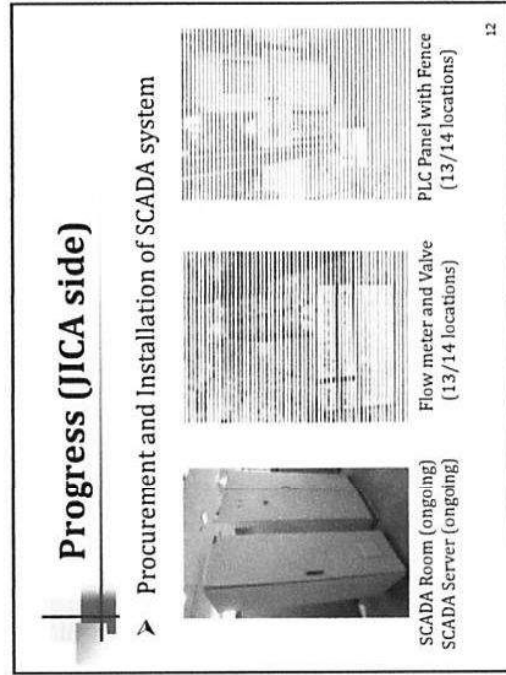
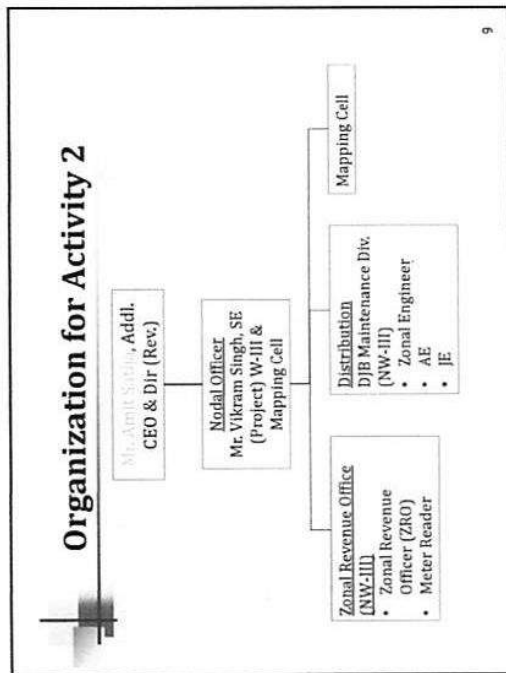
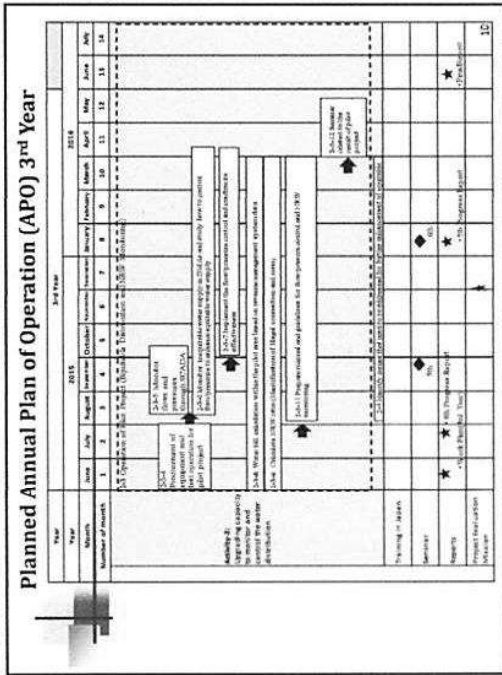
7



### Achievement Target of DJB staffs in Activity 2

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

8



### Progress (DJB side)

- Construction of Chamber and supply of Electricity & GPRS
- ✓ Chamber construction: 13 locations completed out of 14
- ✓ Electricity connection: 5 locations connected out of 14
- ✓ GPRS connection: SIM and Landline (static IP address) are ready



Chamber (Top Slab)



Chamber (Inside)

13

### Revision of Planned Activity-2

1. SCADA equipment installation by the end of April 2015, and SCADA operation to start in **May 2015** [--->6 months ?? delay].
2. Then, baseline survey to collect current water pressure at each DMA will be conducted.
3. After baseline survey, adjustment of valve opening to control water pressure will be done by using SCADA system.
4. And then, Results of season wise gap among DMAs will be reported in **May 2016** [--->6 months ?? delay].
5. After the project completion, SCADA will be utilized by DJB for Chandrawal area staffs for equitable distribution and NRW reduction.

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### Revised Annual Plan of Operation (APO) 3<sup>rd</sup> Year

Year	3rd Year												4th Year											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Number of month	2-3 Operation of Pilot Project (Legislable Distribution and NRW Monitoring)												2-3-1 Procurement, Installation of equipment and test operation for pilot project (and) Safety Measures											
Activity-2: Upgrading capacity to monitor and control the water distribution	2-3-2 Water bill calculation within the pilot area based on revenue management system data												2-3-3 SCADA equipment installation and SCADA operation											
	2-3-4 SCADA equipment installation and SCADA operation												2-3-5 SCADA equipment installation and SCADA operation											
Seminar	4th Progress Report												5th Progress Report											
Reports	4th Progress Report												5th Progress Report											
Project Evaluation Meeting	4th Progress Report												5th Progress Report											

Note: The schedule is tentative.

15

### Assignment of DJB Staff in Activity 2

- DJB Director
- From DJB Distribution
  - (Identification of illegal connection on DSSDI and fields)
- From DJB E & M
  - (SCADA operation)
- From DJB Revenue
  - (Identification of customers/connection on RMS records)

15

### Step 1: Preparatory Work Commercial Loss Reduction

Work Item	When	DJB Director	DJB Distribution	DJB E & M	DJB Revenue
1. Trial Operation	To May				
2. Pressure & Flow Monitoring at 14 locations and BPS	June	✓	✓	✓	
3. Integration of customer data (location & consum.) with GIS	To June	✓	✓	Mapping Cell	✓
4. Estimate Household Consumption	June				✓
5. Estimate Commercial Loss and Physical Loss	June		✓		✓
6. Reduction of Commercial Loss	From June		✓		✓

17

### Step 3 : 24x7 Supply for NRW Reduction including Leak Detection and Repair

Work Item	When	Project Manager	DJB Distribution	DJB E & M	DJB Revenue
11. Estimation of Increased Flow to Pitampura Area and Decreased Flow in Halderpur WTP area	August			✓	
12. Decision of 24x7 Supply by DJB	August		✓	✓	
13. Public Announcement for Increased water volume, increased water bill if leakage is unattended	August	✓	✓		✓
14. SCADA Operation for Equalizing pressures	Sept.	✓		✓	✓

Contd. 19

### Step 2 : Estimation of Physical and Commercial Losses

Work Item	When	Project Manager	DJB Distribution	DJB E & M	DJB Revenue
7. SCADA Operation starts for equalizing pressures and (flow)	June			✓	
8. Monitoring of pressure and flow	From June onward		✓	✓	
9. Estimation of NRW (commercial and physical losses)	July	✓	✓		✓
10. Analysis of SCADA operation	August	✓		✓	✓

18


### Contd.

Work Item	When	Project Manager	DJB Distribution	DJB E & M	DJB Revenue
15. Monitoring (Pressure and Flow)	Sept. onward		✓	✓	
16. Monitoring (Household Consumption)	October		✓		✓
17. Estimate NRW (Physical loss and Commercial loss)	October onward	✓	✓		✓
18. Visible Leakage Detection & Repair	Nov. onward		✓		
19. Invisible Leakage Detection and Repair	Nov. onward		✓		
20. Monitoring (Household Consumption)	Nov. onward		✓		✓
21. Estimate NRW (Physical loss and Commercial loss)	Nov. onward	✓	✓		✓
22. Analysis of the SCADA Operation	Nov. onward	✓		✓	


20

### Problems


- Chambers constructed on the roads were filled with water in case of heavy rain.
- Chambers (No.8 and 10) suffered from ingress of water even if the weather is fine.
- Repair work is on going?
- Some of the cables laid inside of chamber were stolen.



No.6 (After heavy rain)



No.8 (in fine condition)



No.10 (exfoliated)

21

### Concerns

- ❑ **Valve actuator (400V) inside chamber under submerged condition**
- There is a chance of electricity leakage and potential accident or physical injury.
- If the chambers are freely accessed, there is also a chance of equipment theft.
- ❑ **Countermeasures must be taken before commissioning of SCADA system**

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### Countermeasures


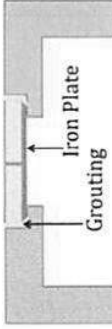
1. Improvement of chambers (by DJB)  
(To reduce causes of electricity leakage and physical injuries)
2. Installation of alarm device and electric circuit breaker (by ICA)  
(To cut off electricity supply before equipment is submerged)
3. Ensuring safety of person when actuator is submerged (by ICA)  
(To ensure the safety of person if electrical leakage happens)
4. Maintenance of SCADA and Chamber (by DJB)  
(To ensure the proper condition)

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### Countermeasures

Contd.,

1. Improvement of chambers (by DJB)  
➤ Iron plate is placed under opening cover and gaps between cover, iron plate and top slab are to be sealed.

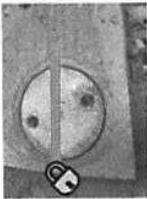
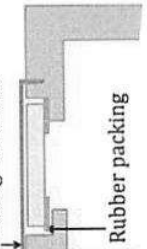



24

Contd..

### Countermeasures

1. Improvement of chambers (by DIB)
  - Installing locking hardware on manhole cover, and inserting rubber packing under the cover.

25

Contd..

### Countermeasures

1. Improvement of chambers (by DIB)
  - Improvement of water tightness (fixing of exfoliated mortar plastering on wall, and grouting in gaps on wall penetrated by other utilities, etc.)
  - Sump pit is to be constructed on the basement for speeding up water infiltrating underground

Or

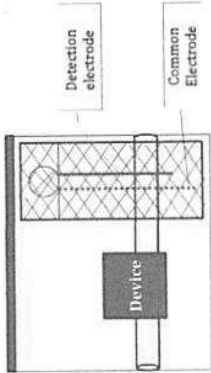
- Chambers to be replaced into RC structures for preventing ingress of water as much as possible.

26

Contd..

### Countermeasures

2. Installation of Alarm device and electric circuit breaker (by IICA)



Inside of Chamber:

When accumulated water touches detection electrode that is set lower than the devices, electricity current runs between a detection electrode and a common electrode.

Local Panel: Alarm lamp flashes.

SCADA: Alarm message together with a site name is displayed on the SCADA screen.

- When the device detects water at given water level, power supply is shut down by electric circuit breaking device

27

Contd..

### Countermeasures

3. Ensuring of the safety of person when actuator is submerged (by JICA)
  - Main equipment installed on the chamber have protection level of IP 68 (hermetically sealed)
  - Earthing rod is installed.
  - Short circuit protection devices are installed.
4. Operation and Maintenance of SCADA Equipment (by DIB)
  - Periodical maintenance of SCADA equipment and chambers by Expert

28

## Training Center for SCADA

Taking over SCADA system before pilot project completion and, using it as a future SCADA training center of DJB.

29

## Revision of PDM

- One of the "Objectively Verifiable Indicator", 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<sup>3</sup> per connection to Y m<sup>3</sup> per connection.)
- This was to be decided in 25 months after the project start when SCADA operation was expected to start. However, it is to be revised as "within 2 months after the SCADA operation starts" due to delay of SCADA installation work.

30

## Seminar by Waterworks Bureau of Tokyo Metropolitan Government

No.	Year	Date	Topic / Content
1 <sup>st</sup>		Aug. 2013	TMWB's Business Administration, Finance and General Information
2 <sup>nd</sup>		Feb. 2014	Efficient Maintenance Management for Facilities
3 <sup>rd</sup>		Aug. 2014	NRW Reduction
4 <sup>th</sup>		March 2015	Asset Management Plan
5 <sup>th</sup>		Jan. or Feb. 2016	SCADA Operation and Others
6 <sup>th</sup>		July or Aug. 2016	To be decided

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**Thank You!**

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**MINUTES OF MEETINGS**  
**BETWEEN**  
**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**AND**  
**DELHI JAL BOARD**  
**FOR**  
**THE ASSISTANCE RELATED TO**  
**DELHI WATER SUPPLY IMPROVEMENT PROJECT**

The Japan International Cooperation Agency (hereinafter referred to as "JICA") has dispatched a mission (hereinafter referred to as "the Mission") headed by Mr. SAWARA Sadanobu, Senior Advisor to JICA, to India from 7th to 10th December 2015 for the purpose of consultation on the Assistance Related to Delhi Water Supply Improvement Project (hereinafter referred to as "the Project").

During its stay in India, the Mission exchanged their views and had a series of discussions with Delhi Jal Board (hereinafter referred to as "DJB"). As a result of discussions, JICA and DJB came to an agreement on the matters referred to in the document attached hereto.

Delhi, 10 December 2015

信 貞 良 讀

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SAWARA Sadanobu  
Leader of the mission  
Senior Advisor  
Japan International Cooperation Agency



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Neeraj Semwal  
Project Director  
Additional CEO  
Delhi Jal Board

## THE ATTACHED DOCUMENT

### **1. Demarcation of responsibilities for undertaking countermeasures for prevention of electricity leakage in valve chambers**

Both sides agreed that the demarcation of responsibilities for undertaking countermeasures for the prevention of electricity leakage in valve chambers should be as shown in Attachment 1.

### **2. Assignment of DJB counterparts for technology transfer during implementation of countermeasures against electricity leakage in valve chambers**

Both sides agreed that DJB would assign, for the purpose of technology transfer, an Executive Engineer NWII (Civil) and an Executive Engineer NW (E&M) who are expected to receive technology transfer during the implementation of the countermeasures stated in Item No.1 above by working closely with JICA Expert Team (JET) in preparing construction/installation checklists, supervising actual construction/installation works, attending progress meetings, and so on.

### **3. Implementation schedule of the Project**

Both sides agreed that the Project, including execution of the countermeasures stated in Item No.1 above, should be implemented in accordance with the new time schedule shown in Attachment 2. The original Plan of Operation is shown in Attachment 3. Both sides also agreed to make their best efforts to bring forward as much as possible the timing for commissioning of SCADA system and to shorten the Project period from that shown in Attachment 2.

### **4. Reasons and justifications for extension of the Project duration**

Both sides confirmed that reasons and justification for extension of the Project duration are as follows:

(i) Selection of SCADA agency: caused delay about 9 months

Mainly because of field confirmation of exact alignment and sizes of existing pipelines

(ii) Water ingress into valve chambers is causing delay of about 1 year 1 month

Mainly because of the requirements of construction of a modal chamber and improvement works required for the 14 constructed chambers including final testing of modal chamber during the monsoon period of 2016.

(iii) SCADA system is proposed to be fully commissioned by Feb 2017. The monitoring of SCADA system and preparation of documentation and manuals including NRW calculations, etc. are planned for duration of about one year i.e. from March 2017 to March 2018 (which is an originally planned activity as per the original Plan of Operation).



#### **5. Amendments to the Record of Discussions (R/D) on the Project**

Both sides agreed that "Duration of Assistance" shown in Appendix 1 "ASSISTANCE DESCRIPTION" of the Record of Discussions signed on 25 March 2013 (R/D) should be changed from "3 years from June 2013" to "4 years 10 months from June 2013". In this regard, JICA informed DJB that the amendment should be made by the minutes of meetings between JICA and DJB, which would be signed by authorized persons of each side.

#### **6. Ownership and demarcation of responsibilities between stakeholders for construction/installation, operation and maintenance of chambers and SCADA system**

Both sides agreed that the ownership and demarcation of responsibilities between stakeholders for construction/installation, operation and maintenance of chambers and SCADA system should be as shown in Attachment 4.

#### **7. Maintenance of SCADA system after it is handed over from JICA to DJB**

Both sides agreed that the ownership of SCADA system, once it is transferred from Recktronic Devices and Systems (RDS) to JICA, would be immediately handed over to DJB for its use in the SCADA pilot project under Activity 2 of PDM. In this regard, JICA strongly recommended DJB that it should enter into a separate annual maintenance contract of SCADA system with an appropriate company immediately after the ownership is transferred from JICA to DJB, and that it should secure necessary budget for this purpose.

#### **8. Revision of PDM and PO**

Both sides agreed that the current PDM and PO should be revised to reflect the new implementation schedule of the Project stated in Item No.3 above. In this regard, JICA reminded DJB that one of the required revisions is the timing to decide baseline and target values for one of the "Objectively Verifiable Indicators" for assessing the achievement of the Project Purpose shown on PDM, which has been thus far set as "Indicators will be finalized within 18 months after commencement of the Project", but will have to be revised to reflect the delay in the implementation of the SCADA pilot project.

#### **List of Attachments:**

1. Demarcation of responsibilities for undertaking countermeasures for prevention of electricity leakage in valve chambers
2. Implementation schedule of the Project
3. Original Plan of Operation
4. Ownership and demarcation of responsibilities between stakeholders for construction/installation, operation and maintenance of chambers and SCADA system

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2

**Attachment 1: Demarcation of responsibilities for undertaking counter measures for the prevention of electricity leakage in valve chambers**

Countermeasure	Responsible Party	Implementing Agency	Monitoring & Quality Control	
			DJB	JET
1-1. Stopping ingress of rain water from top manhole / opening covers of chambers	JICA	JET	EE(civil)	Civil works
1-2. Plugging leakages through the side walls of chambers	DJB	DJB or Contractor assigned by DJB	EE(civil)	Civil works
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 or Contractor assigned by DJB	EE(civil)	Civil works *

\*Only during the implementation of the Project

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✓

# Implementation schedule of the Project

As of 30 Dec 2015

Activity	Number of month																																																								Responsible Person	Notes	
	Year 2013														Year 2014														Year 2015														Year 2016								Year 2017								
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8			9
<b>Preparation in Japan</b> <b>Output-1: DIB's capacity to manage data and information on water supply facilities in Chandrawal command area is strengthened.</b>																																																											
<b>Activity-1: Strengthening capacity to manage data and information on water supply facilities in Chandrawal command area</b>																																																											
<b>1-1. Obtain necessary information for detailed design of bulk water supply improvement project</b>																																																											
<b>1-1-1. Review of the existing distribution pipes</b>																																																											
a. Procurement of software (AutoCAD, ArcGIS, GIS)																																																											
b. Procurement of PCs with VPN and Printer/Plotter																																																											
c. Procurement of access device																																																											
d. Checking of equipment information on GIS																																																											
e. Printing of plan network drawings from GIS																																																											
f. Comparison of MIP information and GIS information																																																											
g. Confirmation of doubtful pipes with DIB's engineer																																																											
<b>1-1-2. Selection for replacement</b>																																																											
a. Preparation of evaluation criteria for renewal pipes																																																											
b. Selection of test pit sites																																																											
c. Contract with a subcontractor (Test pit)																																																											
d. Road digging permission(s) by MCI, PWD etc.																																																											
e. Implementation of test pits (approx.30)																																																											
f. Sample extraction from pipe's bottom (approx.30)																																																											
g. Assessment or replacement pipes based on evaluation criteria																																																											
h. Preparation and confirmation of "Report on Pipe Replacement Criteria"																																																											
<b>1-1-3. Review on new pipes suggested in Master Plan</b>																																																											
a. Confirmation of UGIs and RPIs																																																											
b. Network analysis of transmission and distribution pipes																																																											
<b>1-1-4. Construction pipe network construction with support of local staff and technical staff in 1-1-1.</b>																																																											
<b>1-1-5. Data collection for design of pipeline laying location</b>																																																											
a. Printing of revised drawings from GIS																																																											
b. Contract with a subcontractor (Data collection for routes and construction method)																																																											
c. Implementation of data collection																																																											
d. Preparation and confirmation of "Report on Pipe Alignment and Crossing"																																																											
<b>1-1-6. Data collection for design of pipeline crossing methods</b>																																																											
a. Contract with a subcontractor (Data collection for crossing method for pipes such as above, road and canal)																																																											
b. Implementation of data collection																																																											
<b>1-1-7. Survey for new pipes from</b>																																																											
a. Contract with a subcontractor (Total station survey for pipelines)																																																											
b. Implementation of Total station survey																																																											
c. Drawing for location																																																											
<b>1-2. Survey and GIS data creation on Chandrawal WTP/booster pumping station and reproduction of data information</b>																																																											
a. Pipe survey on Chandrawal I and II WTPs, underground reservoirs and distribution pipes																																																											
b. Contract with a subcontractor (Plane survey)																																																											
c. Approach clearance for plane survey																																																											
d. Implementation of plane survey																																																											
e. Establishment of GIS data from the survey data																																																											
f. Implementation of GIS data on distribution pipes in Chandrawal WTP system																																																											
<b>Output-2: DIB's capacity to monitor and control the water distribution for equitable distribution and non-revenue water management is upgraded.</b>																																																											
<b>Activity-2: Upgrading capacity to monitor and control the water distribution</b>																																																											
<b>2-1. Summarizing issues by reviewing the situation of SCADA use in DIB</b>																																																											
<b>2-2. Introduction of business requirements and the system to DIB</b>																																																											
<b>2-3. Operation of pilot project (equitable distribution and NRW monitoring)</b>																																																											
2-3-1. Confirmation on existing distribution pipe network condition in pilot area																																																											
2-3-2. Pilot project operation plan																																																											
2-3-3. Quantitative estimate of demand in each DMA																																																											
2-3-4. Procurement of equipment and test operation for pilot project																																																											
a. Procurement of pipe meters, pressure gauges																																																											
b. Selection of work sites																																																											
c. Preparation of draft specifications																																																											
d. Tender for SCADA and Valve/Water etc by ICA contractor and Supervision																																																											
e. Tender for chambers by DIB																																																											
f. Road digging permission(s) by MCI																																																											
g. SCADA and Valve/Water etc. installation by ICA contractor and Supervision																																																											
h. Meter trials and flow data transfer coordination by ICA contractor and Supervision																																																											
i. Construction work of chambers by DIB contractor																																																											
j. Construction of demo chamber and improvement of chambers by ICA contractor and Supervision																																																											
k. Contract of the electricity/communication by DIB																																																											
l. Test operation																																																											
<b>2-3-5. Flow amount and pressure monitoring within SCADA pilot project area</b>																																																											
<b>2-3-6. Identification of issues related to equitable water supply and allocation and determination for its solution</b>																																																											
<b>2-3-7. Implementation of control method and examination of its effectiveness</b>																																																											
<b>2-3-8. Water bill calculation within the pilot area based on reverse management system data</b>																																																											
<b>2-3-9. Calculation of NRW ratio</b>																																																											
<b>2-3-10. Leakage detection demonstration in the pilot area</b>																																																											
<b>2-4. Implementation of training in Japan</b>																																																											
a. Demonstration of leakage detection in Pimpri area																																																											
<b>2-4-1. Formulation of manual and guideline for flow amount and pressure controls and NRW monitoring</b>																																																											
<b>2-4-1-1. Formulation of manual and guideline for flow amount and pressure controls and NRW monitoring</b>																																																											
<b>2-4-1-2. Seminar presenting the results of pilot project</b>																																																											
<b>2-4. Identification of issues on equitable distribution and NRW monitoring</b>																																																											
<b>Output-3: Draft of scenarios for stage wise development of GIS/WMS application in DIB is prepared.</b>																																																											
<b>Activity-3: Draft of scenarios for stage wise development of GIS/WMS application in DIB</b>																																																											
<b>3-1. Review on DIB's administrative strategy, vision and operation plan</b>																																																											
<b>3-2. Identification of obstacle to achieve above strategy, vision and plan</b>																																																											
<b>3-3. Review on development situation on GIS and GIS</b>																																																											
<b>3-4. Understand the context of system and the example of GIS and WMS stage in Japan</b>																																																											
<b>3-5. Formulation of GIS and WMS utilization applications scenario by 2017</b>																																																											
<b>3-6. Formulation of GIS/WMS development scenario by 2017</b>																																																											
a. Formulation of GIS Scenario																																																											
<b>3-7. Formulation of asset management introduction guideline</b>																																																											
a. Discuss the contents of asset management guideline and Short Term Action with DIB																																																											
b. Prepare draft guideline																																																											
c. Presentation of Draft Guideline																																																											
d. Final modification of asset management guideline																																																											
<b>3-8. The assistance is managed and coordinated properly.</b>																																																											
<b>3-9. Organize Joint Coordinating Committee (JCC) meeting at least once a year</b>																																																											
<b>3-10. Establish the indicators of the PMA and the Plan of Operation (PO) or approval of the JCC meeting</b>																																																											
<b>3-11. Prepare a draft Annual Plan of Operations (APO) based on the PO and an annual operations report for review by JCC for approval of the JCC</b>																																																											
<b>3-12. Review for progress achievement of the assistance under PMP/PO and the evaluation of the PMA through JCC</b>																																																											
<b>Summary</b>																																																											
Work plan																																																											
Progress report																																																											
Final report																																																											
<b>Project Evaluation Method</b>																																																											
Legend: <span style="color:blue">■</span> Original Task, <span style="color:red">■</span> Revised Task, <span style="color:green">■</span> Progress, <span style="color:yellow">■</span> Completion																																																											

Attachment 2

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ANNEX II TENTATIVE PLAN OF OPERATION (PO)

Activities as per PDM	Expected results	Person in Charge												Implementors	Other major inputs		Remarks	
		JFY 2013			JFY 2014			JFY 2015			Overall: Project Manager (PM)	JICA side	DJB side					
		Jan-Mar	Apr-Jun	Jul-Sep	Jan-Mar	Apr-Jun	Jul-Sep	Jan-Mar	Apr-Jun	Jul-Sep								
Output 1: Strengthening capacity to manage data and information on water supply facilities in Chandrawal command area															Chief Adviser(CA)			
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 the 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																		
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, UGRs and BPSs, and verification of the data(location and size, etc) of pipes in Chandrawal WTP command area																		
Output 2: Upgrading Capacity to monitor and control the water distribution																		
2.1 Review SCADA application in DJB																		
2.2 Introduce Japanese experience and system to DJB																		

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ANNEX II TENTATIVE PLAN OF OPERATION (PO)

Activities as per PDM	Expected results	Person in Charge												Implementors		Other major inputs		Remarks	
		JFY 2013			JFY 2014			JFY 2015			JFY 2016			JICA side	DJB side				
		Jan	Apr	Jul	Jan	Apr	Jul	Jan	Apr	Jul	Jan	Apr	Jul						
2.3 Implement pilot project for equitable distribution and non-revenue water (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 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																			
2.3.7 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																			
2.3.10 Demonstrate leakage detection activities in the area																			
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																			
Output 2: Formulation of scenarios for stage wise development of GIS/RMS application in DJB																			

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ANNEX II TENTATIVE PLAN OF OPERATION (PO)

Activities as per PDM	Expected results												Remarks	
	JFY 2013			JFY 2014			JFY 2015			Implementors				
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun		JICA side
3.1													GIS application	
3.2													ditto	
3.3													ditto	
3.4													ditto	
3.5													ditto	
3.6													GIS application: CA	
3.7													ditto	
Output 0: Assistance Management and Coordination														
0.1													CA	
0.2													CA	
0.3													ditto	
0.4													ditto	
0.5													ditto	

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