



# Development, Implementation and Services of Meter Reading App, Management Dashboard & NRW Monitoring Tool at CWASA Chattogram

Pre-bid conference

16<sup>TH</sup> APRIL 2024

# Opening remarks



**Yushi Nagano**  
Head of JICA DXLab



**Makshud Alam**  
Chief Engineer, CWASA

# Introducing JICA-CWASA team for today

## JICA Team

**Yushi Nagano**

Head of JICA DXLab

**Junko Uno**

Senior Water Specialist,  
JICA Water Resources Group

**Ayane Tsukishima**

Country Officer,  
South Asia Division 4

**Haruka Kasuya**

Officer, Water Resources Group,  
JICA

**Takeshi Oikawa**

Managing Director &  
Partner, BCG

**Saibal Chakraborty**

Managing Director &  
Partner, BCG

**Sudhanshu Gupta**

Partner and Associate  
Director, BCG

**Tausif Ishtiaque**

Partner, BCG

**Dou Gymn**

Associate Director, BCG

**Shyam Garg**

Consultant, BCG

**Amit Ranjan**

Consultant, BCG

## CWASA Team

**Makshud Alam**

Chief Engineer, CWASA

**Nurul Amin**

Superintending Engineer, CWASA

## Agenda for Today

- Introduction to JICA and CWASA
  - Overview of Project
  - Next steps

# Creating a society where everyone can achieve diverse well-being through digital technology and data

デジタルで、一人ひとりが多様な幸せを実現する社会を目指します

A woman in traditional Japanese attire is shown in profile, looking upwards. The image is overlaid with large, glowing blue text that reads "JICA DX".

# JICA DX

## DIGITAL TRANSFORMATION

# JICA DXLab Intro (1/2)

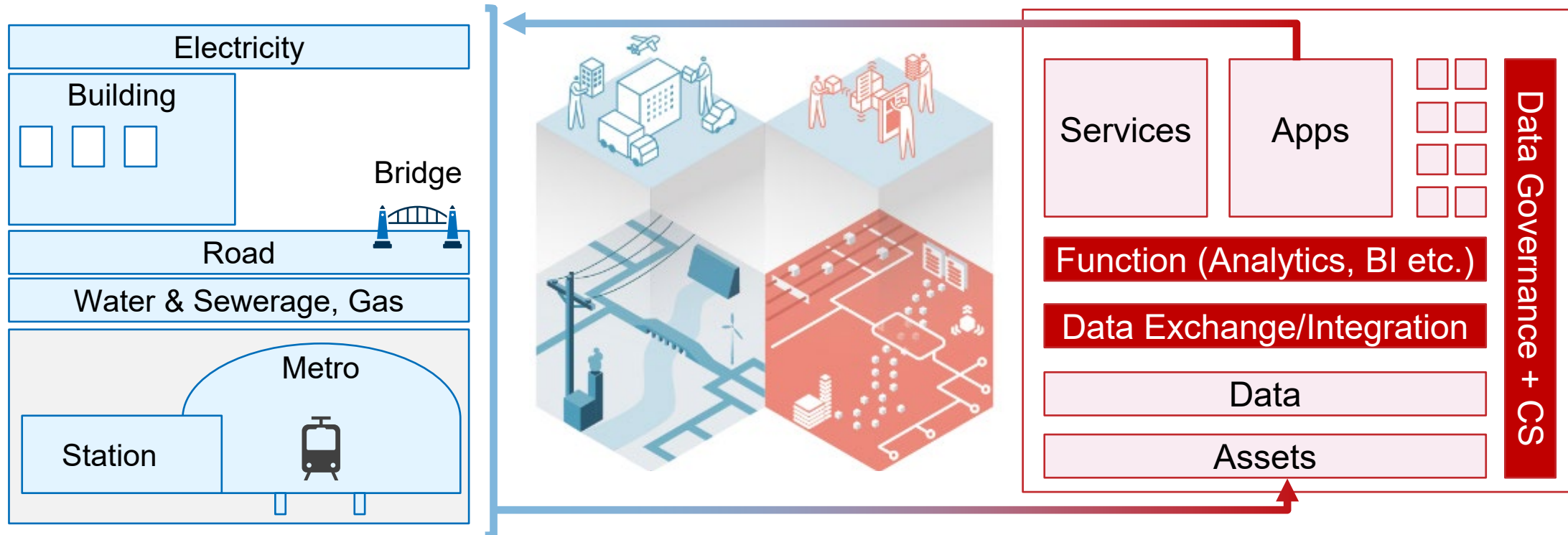
JICA DXLab leads JICA's cooperation into digital space



## Physical Space



## Digital Space



## JICA DXLab Intro (2/2)

Additional and closely collaborative support to pilot innovation with a digital partner

### Basics of JICA DXLab

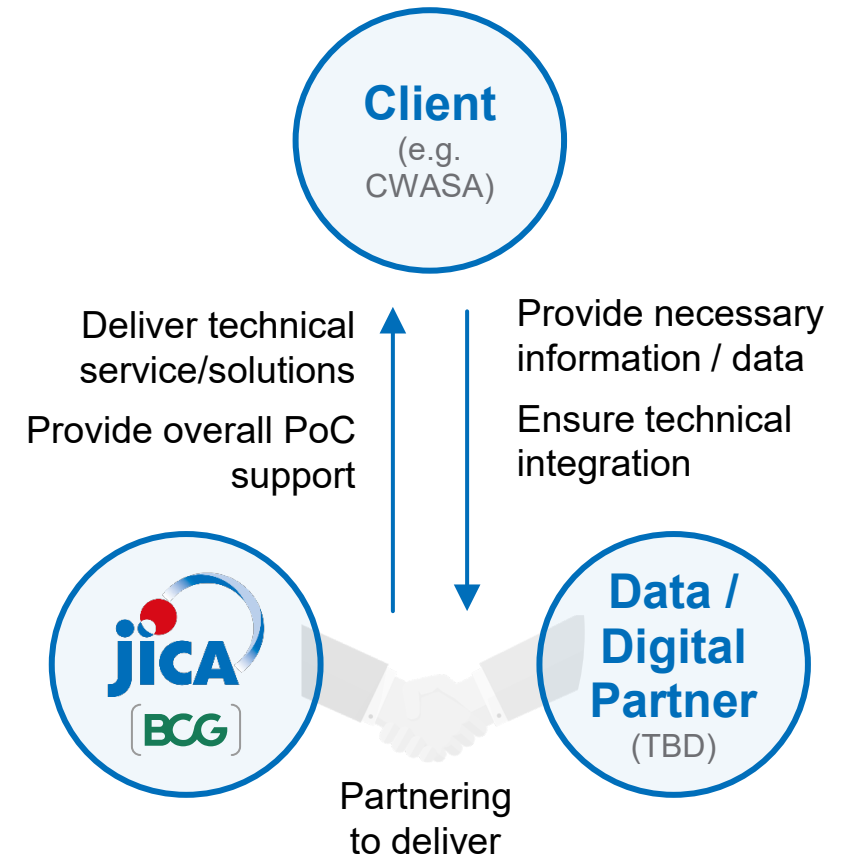
**JICA DXLab is a JICA's flagship program** to support clients like CWASA to leverage the power of data & digital innovations

JICA DXLab works **build on JICA's ongoing/new efforts** for clients to amplify the development impact

Its approach is to quickly/flexibly **engage with an external digital partner** and **run the "Proof of Concept"** to test out innovative solution in the field

If the solution proves effective, it **could be scaled up** utilizing JICA's other supporting mechanism including ODA Loan and Technical Cooperation

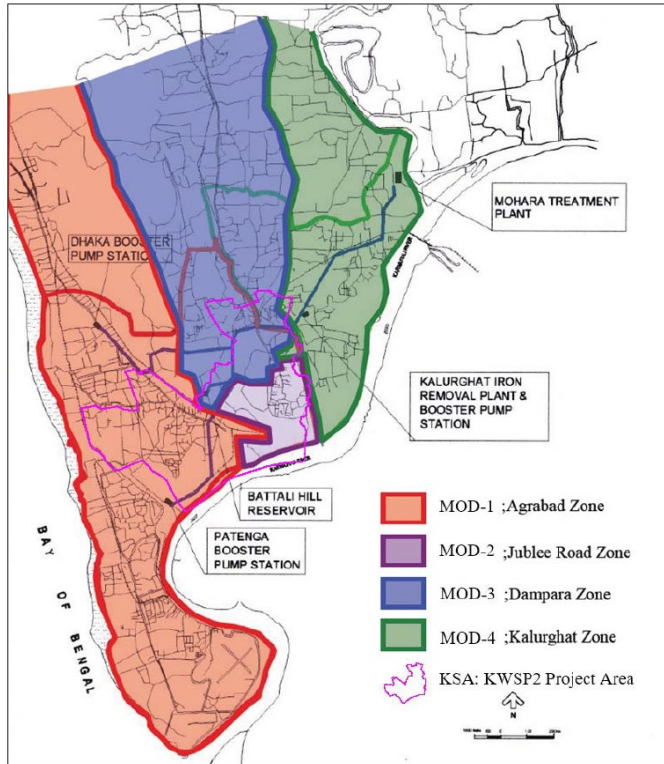
### Stakeholders and how they interact





# Overview of CWASA | Water Utility for second largest city of Bangladesh – Chattogram

## Fact sheet



Year established

1963

Financial performance

Revenue: 2,203 million BDT [~3,018 million JP¥] in 2022

No. of employees

520+ FTEs

Size of Operations

No. of people supplied: ~2.3 million consumers; 93K connections  
 Total length of pipe: 962 km;  
 Daily water production run rate: ~500 MLD  
 Production Assets: 4 Water Treatment Plants; sourced from *Halda* and *Karnaphuli* rivers

Key ongoing projects

- Sewerage and Urban Sanitation project
  - Survey on Sewerage and Urban Sanitation completed in Oct '23
- Smart Meters
  - Pilot ongoing with 3000 Smart Meters; to be scaled up over time



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➤ Overview of Project

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# Overview of Project



## Scope of Work

- Design, develop, test, deploy and stabilize Meter Reading App, Management Dashboard and NRW Monitoring Tool
- Capacity building through user training and communications



## Deliverables & Timeline

- All quick wins to go-live by 30 Sep 2024
- Stabilized / handed over to CWASA by 31 Oct 2024



## Bidder Evaluation

- Two-step evaluation model:
  - Step 1: Eligibility criteria – bidders must pass eligibility criteria for their technical bids to be opened
  - Step 2: Techno-commercial evaluation using QCBS (70% technical + 30% commercial); 70% technical cut-off for commercial bids to be opened

## Objectives | Develop and implement three PoCs for CWASA



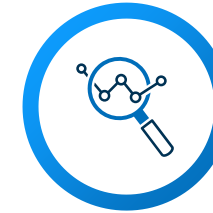
### Meter Reading App

- **Digitize and streamline meter-to-cash process**, replacing the current manual and paper-based system.
- **Facilitate real-time meter reading data capture**, improve billing accuracy, and shorten the billing cycle to enhance revenue collection.



### Management Dashboard

- One-stop platform for CWASA's leadership team to **monitor, analyze, and visualize key performance indicators** in real time.
- Focus of this phase is to develop the overall framework for the management dashboard and **implement the billing / collections module**



### NRW Monitoring Tool

- **Systematically identify, monitor, and manage areas of water loss** throughout CWASA's distribution network.
- Use data from SCADA systems and other sources to potentially **localize leaks, unauthorized consumption,** or inaccuracies in metering and billing.


Achieving CWASA's vision of transforming into a technologically advanced and efficient water utility service provider.

# Scope of Work | Overview of key functional features




## Quick Win/PoC – Features in Scope






Meter Reading App



Management Dashboard



NRW Monitoring Tool

Login/ Authentication	Promise to Pay recording	Apps Whitelisting	Approval for Bills
Meter Reading Input	Issue Raise & Tracking	Location validation	User Management
Spot Printing & Bill Generation	Photo Upload	Online Bill Posting	Issue Resolution
Language Selection	QR Code Payment	Route Sequencing	Notification Mgmt.
Offline Functionality	Average Billing	Roster Management	Customer Mgmt.
Input data Verification	Arrear Alerts	Billing Monitoring	Reporting
Login & Authentication	Alerts & Triggers	KPI Tracking	Triggers Management
Report generation	Anomaly tracking	User Management	Notification Mgmt.
Billing & collections	Language Selection	Audit Trails & Monitoring	
Water Accounting	Consumption Analytics	Geospatial Analytics	User Management
Pressure Analytics	Water Production Analytics	KPI Tracking	Notification Mgmt.
Faulty Meter Detection	Supply Monitoring	Reporting	

Front-End

Back-End

Admin

# Scope of Work | Overview of key technology components

## 11 Technology Components...

- User Apps & Portals**
  - ① Meter Reading App
  - ② Meter Reading Admin Portal
  - ③ Management Dashboard
  - ④ NRW Tool
- App Backend Services**
  - ⑤ Meter Reading App Services
  - ⑥ Mgmt. Dashboard App Services<sup>1</sup>
  - ⑦ NRW Application Server<sup>1</sup>
- Data & Analytics**
  - ⑧ Meter Reading Database
  - ⑨ Common Data Platform
    - Mgmt. Dashboard Datamart
    - NRW Datamart
- Integration Layer**
  - ⑩ Integration API
  - ⑪ Integration SFTP

## ...and 8 Hardware / Software Components to be set-up...

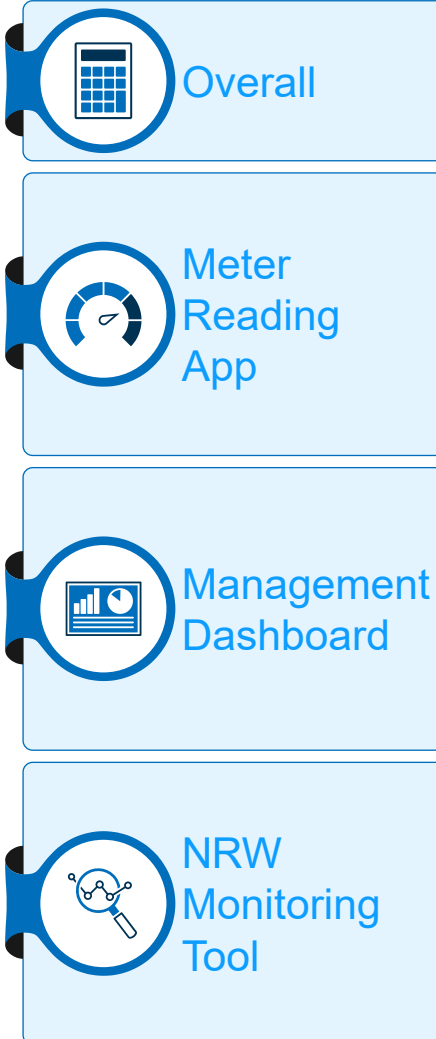
- Servers**
  - ① 2 Rack servers<sup>2</sup>
- Mobile Devices**
  - ② 120 Mobile Phones & Printers
- Tablets**
  - ③ 15 Tablets
- Software**
  - ④ Operating System (Windows Server 2022)
  - ⑤ Database (SQL Server 2022)
  - ⑥ API Management Software<sup>3</sup>
  - ⑦ File Transfer Software
  - ⑧ Mobile Device Management Software

## ...architecture to follow 7 Guiding Principles

- ① Customers experience same across all touch points
- ② Data is a reusable asset
- ③ User friendly front-ends
- ④ Automated by default
- ⑤ Scalable and performant
- ⑥ Modular & flexible, integrates easily
- ⑦ Reliable & Resilient

1. Mgmt. Dashboard & NRW App Service may not be needed pending solution from Bidder; 2. Initial estimate is 2 servers with specs to be provided by bidder; 3. API Management Software needed unless custom built;

# Scope of Work | Training and capacity building



- **On-the-job training:** Follow agile principles to incubate agile methodology in CWASA
- **Engagement sessions during development:** Feature update and user feedback sessions at end of each sprint from select group of MIs and revenue officers
- **Full Day Training Before Go-live:**
  - CRO, revenue officers, MI focusing on app navigation, data entry, and troubleshooting
  - App admin team on admin portal functionalities, user management, and data analysis
  - ICT Circle Team on technical infrastructure, system architecture, security protocols, data flow, app maintenance/ upgrades
- **On-the-ground support** from the bidder during the 1-month stabilization phase to handhold the users
- **Engagement sessions during development:** Feature update and user feedback sessions at end of each sprint from CRO and revenue officers
- **Full Day Training Before Go-live:**
  - CWASA full management team regarding the dashboard structure, features, use cases
  - ICT Circle Team on technical infrastructure, system architecture, security protocols, data flow, data entry, data analysis, dashboard maintenance / upgrades
- **On-the-ground support** from the bidder during the 1-month stabilization phase to handhold the users
- **Engagement sessions during development:** Feature update and user feedback sessions at end of each sprint from CWASA nominated members
- **Full Day Training Before Go-live:**
  - CWASA full management team regarding the tool structure, features, use cases
  - ICT Circle Team on technical infrastructure, system architecture, security protocols, data flow, data entry, data analysis, dashboard maintenance / upgrades
- **On-the-ground support** from the bidder during the 1-month stabilization phase to handhold the users

# Timeline

- T0: Issue of Letter of Intent (tentatively 3<sup>rd</sup> May 2024)
- Team Mobilization on ground: T0 + 1 week

S No	Category	Sub-category	Type	Tentative timeline
1		<b>Management dashboard</b>	CUG launch	T0 + 12 Weeks
			All users Go live	T0 + 14 Weeks
			No P1 Issues pending	T0 + 18 Weeks
2	<b>Software</b>	<b>NRW Tool</b>	CUG launch	T0 + 14 Weeks
			All users Go live	T0 + 16 Weeks
			No P1 Issues pending	T0 + 20 Weeks
3		<b>Meter reading app</b>	CUG launch	T0 + 18 Weeks
			All users Go live	T0 + 20 Weeks
			No P1 Issues pending	T0 + 24 Weeks
4	<b>Hardware</b>	Handheld devices – Android Mobiles and tablets		T0 + 6 Weeks
		Servers – Installation and operationalization		T0 + 10 Weeks
		Handheld Devices – Portable Printers		T0 + 12 Weeks
5	<b>Trainings and capacity building</b>	Management dashboard, NRW monitoring tool, Meter reading app, Technology architecture		T0 + 11 Weeks to T0 + 20 Weeks



# Bidder Evaluation | Two-step process

## Step 1: Eligibility criteria

**Bidders should meet eligibility criteria for their technical bids to be opened**

- Financial stability
- Experience and track record
- Local presence
- Legal entity in Bangladesh
- Background verification

## Step 2: 70:30 techno-commercial evaluation (QCBS)

### Step 2a: Technical Evaluation

**Technical bids of shortlisted candidates to be scored against:**

- Financial Strength (5)
- Prior experience in software development (35)
- Quality of proposed solution (25)
- Quality of proposed team (35)

### Step 2b: Commercial Evaluation

Commercial bids to be opened for bidders with **minimum 70% technical score**

**Commercial Score** = (Minimum Total Cost of Ownership quoted / Total Cost of Ownership by the Bidder) \*100



**Final composite score for each bidder =**

**70% \* Technical score + 30% \* Commercial score**

Bidder with highest score declared HC1 and invited for contracting

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# Open Questions?

**JICA DX Lab**

# Unused Slides