DIGITAL TRANSFORMATION IN WATER & SANITATION UTILITY SUEZ INDIA

October 07, 2020

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suez

Presentation Outline

1. **Suez Presence (Global & India)**

2. **Commercial Losses**

3. **Digital Transformation in Suez India**

4. **ROPeS – A digital Solution for NRW management**

5. **Examples of Digital Data and Applications which helps in reducing losses**

6. **Case Study – Coimbatore (Water)**

7. **Why data is important?**

SUEZ Group - Presence all over the Globe
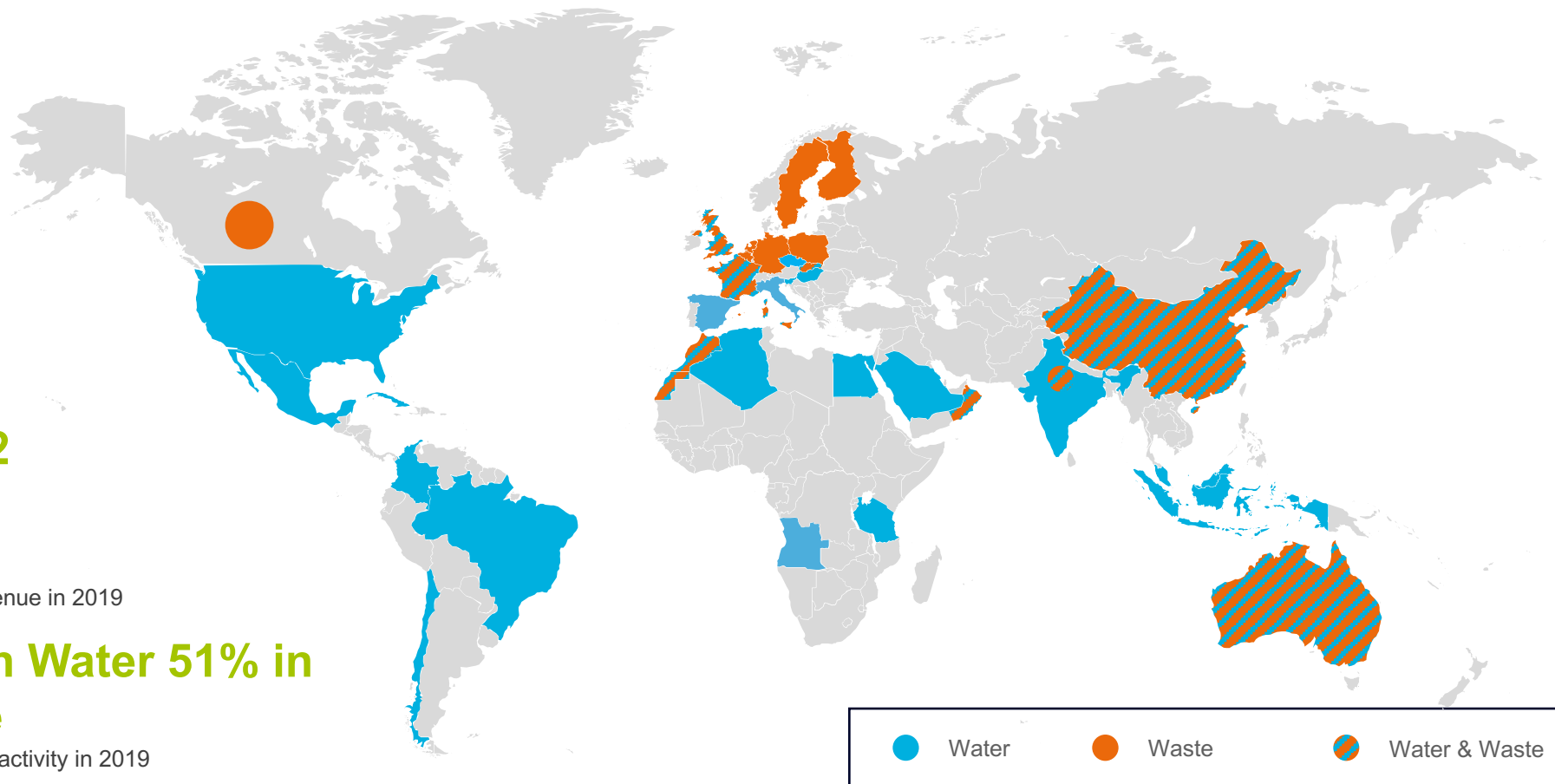

89,352

employees

€18.5

billion in revenue in 2019

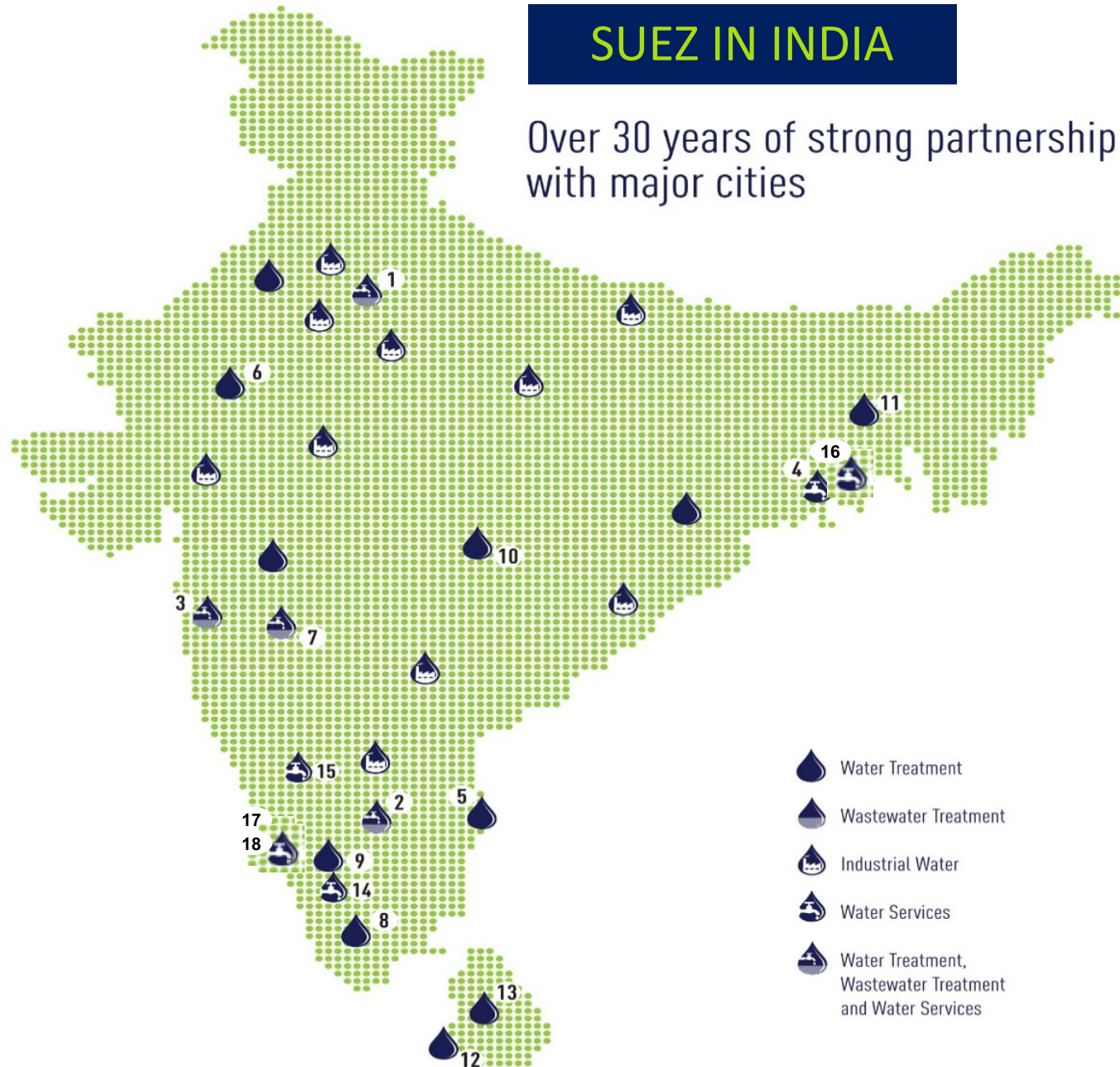**49% in Water 51% in Waste**

revenue per activity in 2019

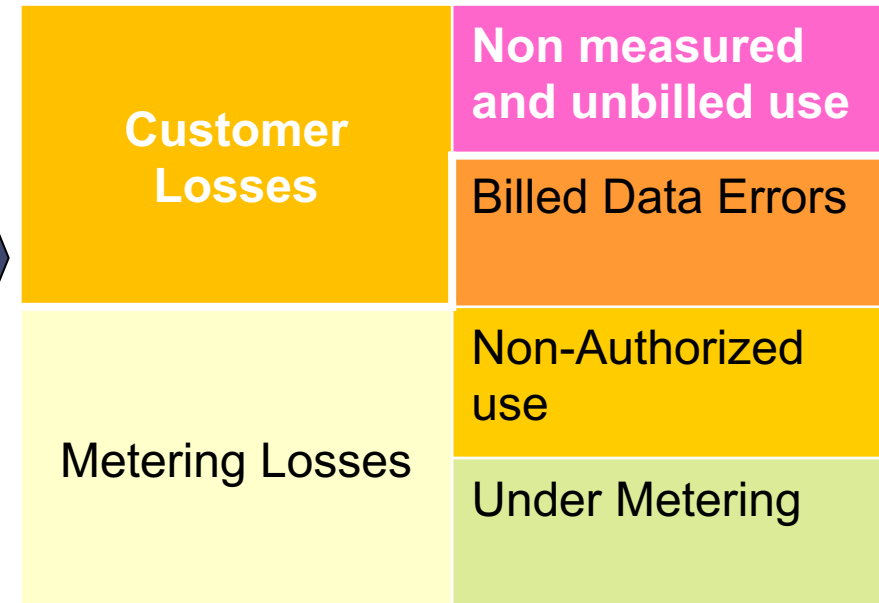**38.6%**

of revenue outside Europe

Legend:
- Water
- Waste
- Water & Waste

SUEZ IN INDIA

Over 30 years of strong partnership with major cities

Legend:
- Water Treatment
- Wastewater Treatment
- Industrial Water
- Water Services
- Water Treatment, Wastewater Treatment and Water Services
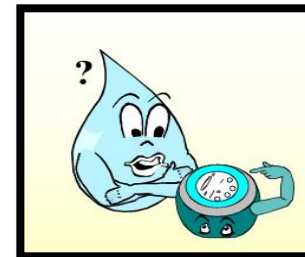
1. **Delhi, New Delhi**
   - 717 MLD WTP
   - 400MLD STP
   - Malviya Nagar Water Services project for 40,000 connections

2. **Bangalore, Karnataka**
   - 1550MLD WTP
   - 175MLD STP
   - Leak Detection for 1,750 km distribution network
   - D1A Project: Water Loss Reduction Contract

3. **Mumbai, Maharashtra**
   - 3355MLD WTP
   - 37MLD STP
   - Water Distribution Improvement Program for 15 million people

4. **Kolkata, West Bengal**
   - Water Loss Management Contract for 25,000 connections

5. **Chennai, Tamil Nadu**
   - 530 MLD WTP

6. **Bisalpur, Rajasthan**
   - 400 MLD WTP

7. **Pune, Maharashtra**
   - 500 MLD WTP
   - 77 MLD STP
   - 24/7 Water Supply Project in Pimpri, Chinchwad

8. **Trivendrum, Kerala**
   - 74 MLD WTP

9. **Kozhikode, Kerala**
   - 174 MLD WTP

10. **Nagpur, Maharashtra**
    - 120 MLD WTP

11. **Saidabad, Bangladesh**
    - 450 MLD WTP

12. **Kelani, Sri Lanka**
    - 180 MLD WTP

13. **Kandy, Sri Lanka**
    - 46 MLD WTP

14. **Coimbatore, Tamil Nadu**
    - 24/7 Water Supply Project for 150,000 consumers

15. **Davanagere, Karnataka**
    - 24/7 Water Supply Project for 92,000 properties

16. **Kolkata, West Bengal**
    - Water Loss Management For 40,000 connections

17. **Udupi, Karnataka**
    - 24/7 Water Supply Project For 35,000 connections

18. **Puttur Karnataka**
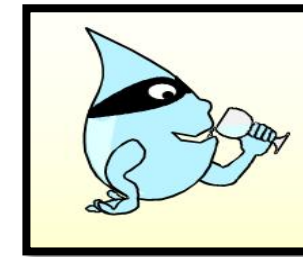   - 24/7 Water Supply Project For 16,000 connections

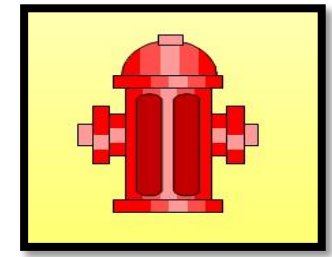# Commercial Losses
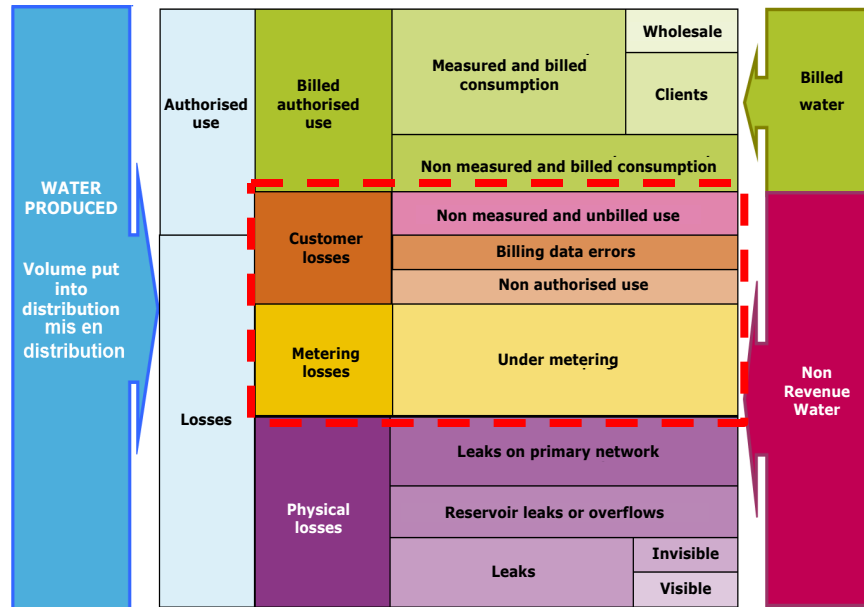
IWA approach…

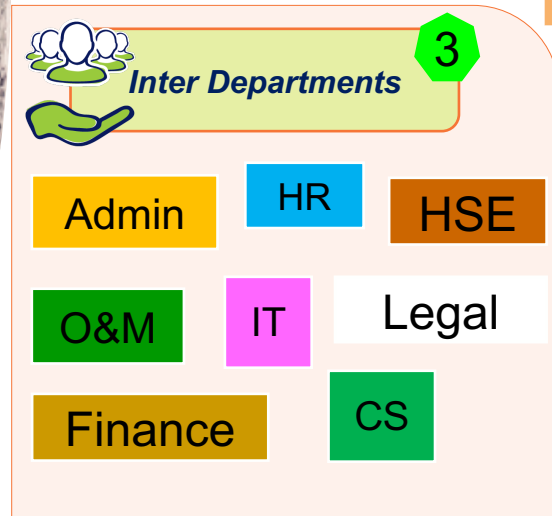…simplified approach SUEZ
THE LOST WATER CIRCLE

Customer Losses
- Non measured and unbilled use
- Billed Data Errors

Metering Losses
- Non-Authorized use
- Under Metering

Water Meter Error

Water Theft

Unknown Consumption

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ROPeS - Real-time Operational Performance System

1 Indigenous – Developed In-house (Since 2013)

ROPeS
Smart end to end solution

1 - Collect   2 - Assess
4 - Action   3 - Publish

2 Centralized Platform

Cloud based Enter. Server

3 Inter Departments

Admin | HR | HSE
O&M | IT | Legal
Finance | CS

4 Tested Solution

- Successful implementation in **12 big projects/cities** of Suez India.
- Delivered **30+ solutions** across various departments of Suez India.
- More then **6 million consumers mapped digitally**
- More then **10 million water meters data recorded** and processed

Sr. No.	Project	Total Submission
1	MNWS	22208
2	KEIIP-1	132098
3	KEIIP-2	10768
4	PHED	4761
5	D1A	35660
6	MWDIP	97949
7	Davangere	119871
8	Coimbatore	272579
9	Puttur	13676
10	Udupi	31200
11	Lucknow	50
12	Mangaluru	61877
Total		**802697**

8 Million + Assets Digitalized and Mapped

30 + Digital Solutions in Suez India

6000 + Km Underground Water Network Mapped

6 Million + consumers Mapped in GIS

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6

ROPeS

Real-time Operation Performance System

Step-1: Web form for M-GIS Survey - SUEZ Server

Step-2: Training to surveyor for M-GIS Survey

Post-process, Analysis & GIS linking

Final Data Base

Two-way data / information sharing

Step-3: Web Form uploaded to Cloud Server

Cloud Server

Step-4: Data Collection at field

| Customer Services | Asset Survey | Construction | O & M | Leak Detection |

GPS Signal

A-GPS Signal

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GIS teams at Various Project Sites In India

Total GIS & IoT's Resources: **44**

Davanagere

	Current Key Activities
GIS Team Size: 1	• Parcel Reshaping with Topology Checking Pipeline Alignment (As-built Network) • HSC Data Integration

Delhi, Malviya Nagar

	Key Activities
GIS Team Size: 2	• Data Updation • Support to O&M • Consumer complaint map • Water tanker monitoring map

Lucknow

	Key Activities
GIS Team Size: 8	• Layout Preparation • Survey Data updating • Asset Data Finalization

Mangalore

	Key Activities
GIS Team Size: 8	• Parcel Modification as input to CS activity • Geo-tagging of consumer data • Consumer data delivery to HNM • Manage Asset Data, Create Geodatabase and Layouts Creation

Bangalore (D1a)

	Current Key Activities
GIS Team Size: 1	• GIS data updating

Kolkata 1 & 2

	Key Activities
GIS Team Size: 3	**Kolkata 1** • HSC (Hard Copy Map) Data Integration in GIS • Consolidated network creation (Retained & As-built) for client submission **Kolkata 2** • Topo Data QC • Existing network alignment • CS data integration and parcel update • Network Assets Map

Puttur, Udupi

	Key Activities
GIS Team Size: 2	• Creating a Kmz of parcels for HSC and highways for pipe crossing • Base Map alignment as per topographical data

Coimbatore

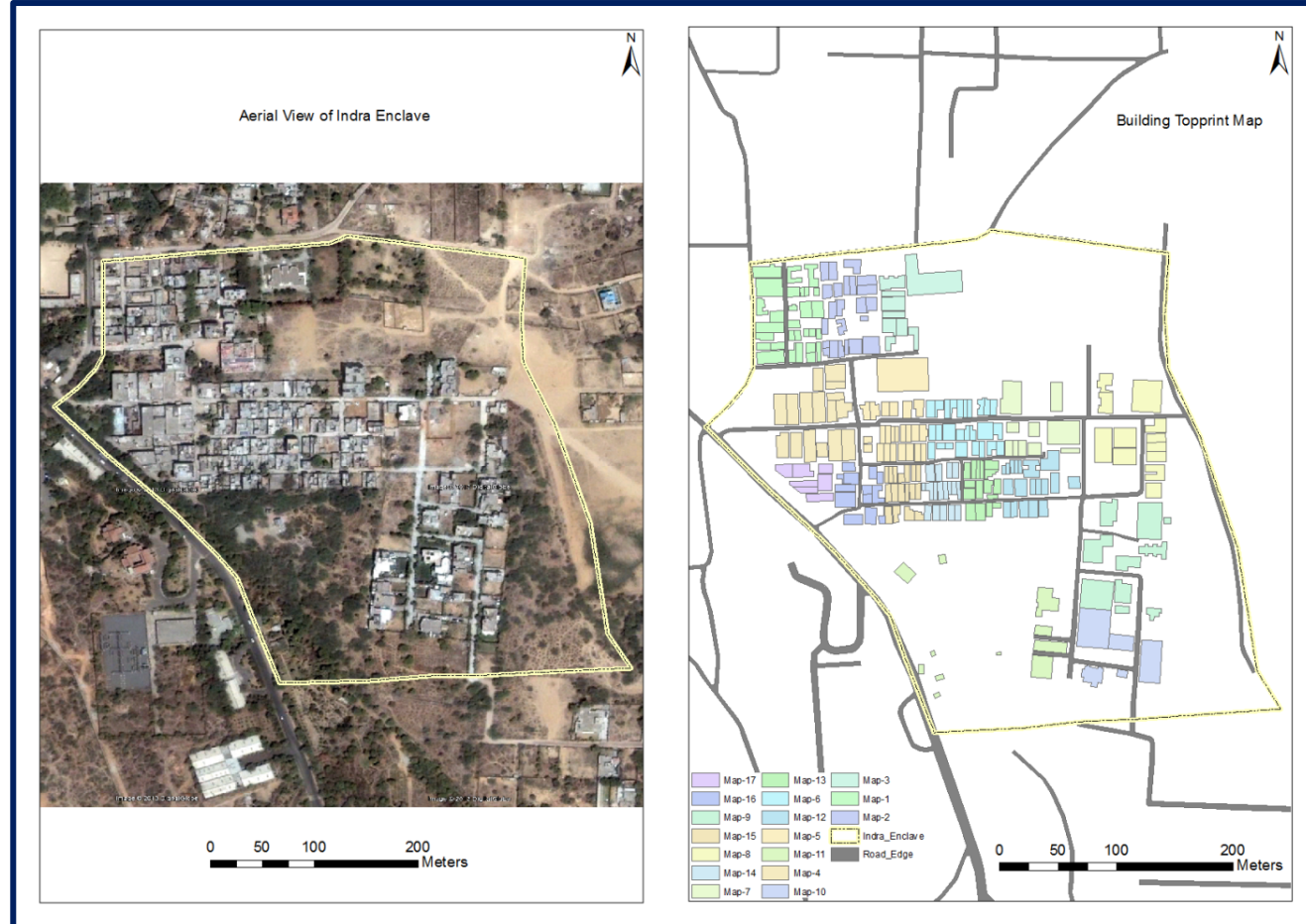|	Key Activities
GIS Team Size: 11	• Continue Support for O&M, HNM and other departments • COVID-19 map with affected areas for client as well as for our future works plan • Basemap Updation
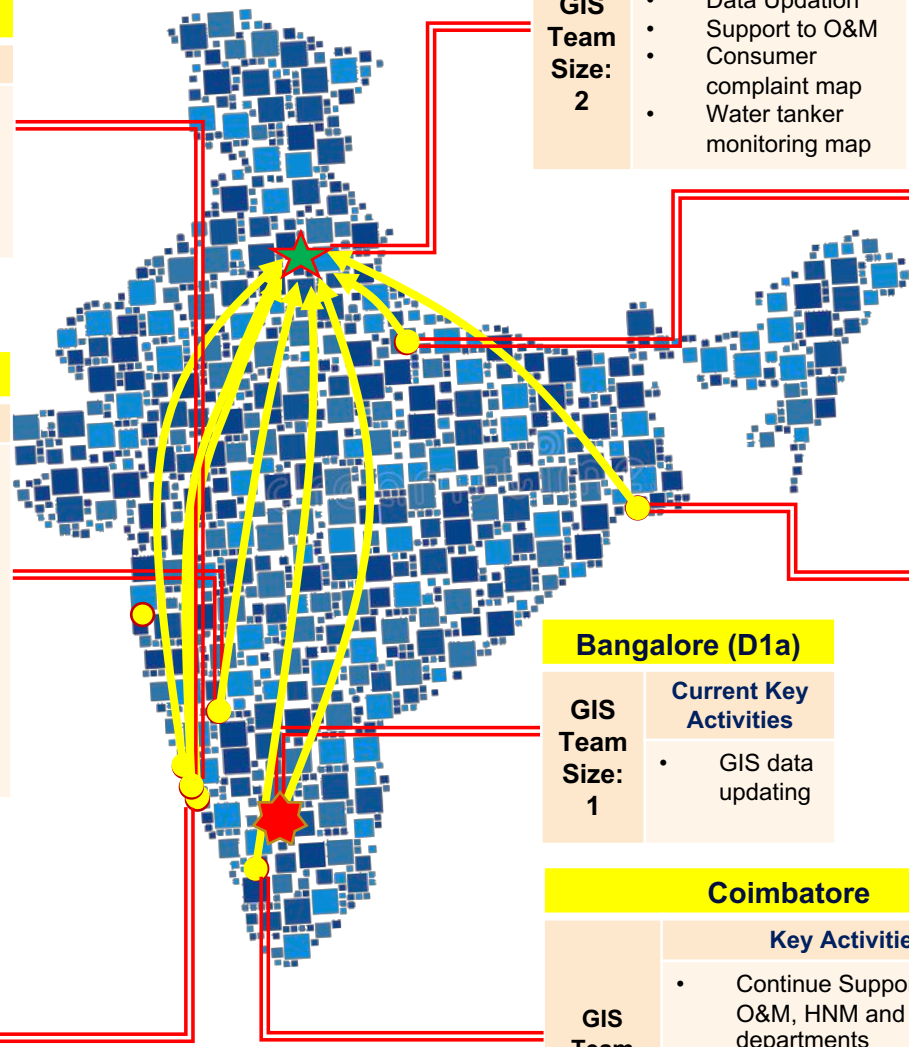
★ Excellence Center
★ Development Center (8)
○ Project Sites

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8 |

Asset Digitalization & GIS Mapping

Starting from scratch digitalization of information in GIS

Building Parcel Mapping & Consumer tagging

Road Input from Client

Road Surveyed/Identified by Suez
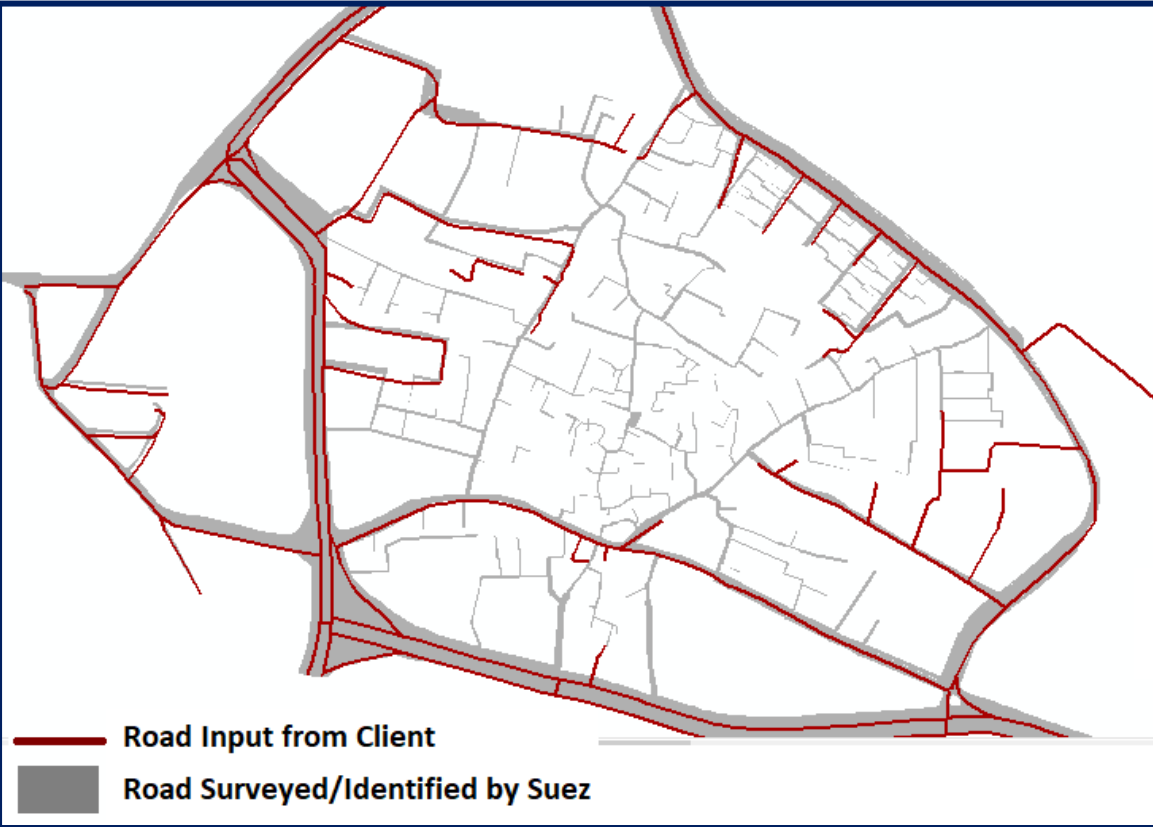
Huge difference in available GIS data / information from client and in ground reality

Street Level GIS Mapping

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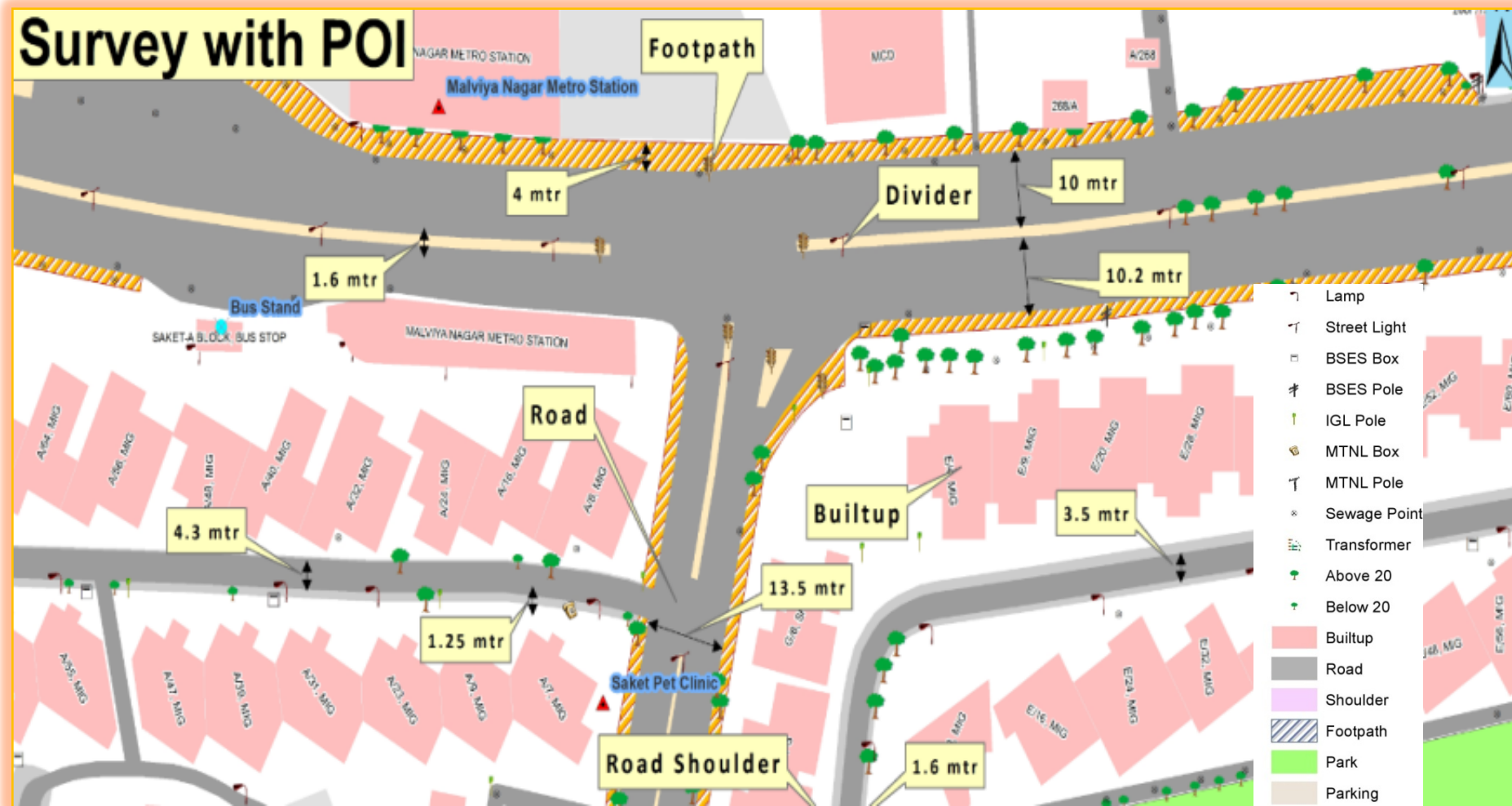
Consumer GIS Tagging

Residential

Commercial

Consumer Property Parcel Mapping

- Plot area Mapping and Estimation
- Unique Consumer ID assignment
- Property Type Classification

Commercial 3 Plots

Industrial 2 Plots

Residential 17 Plots
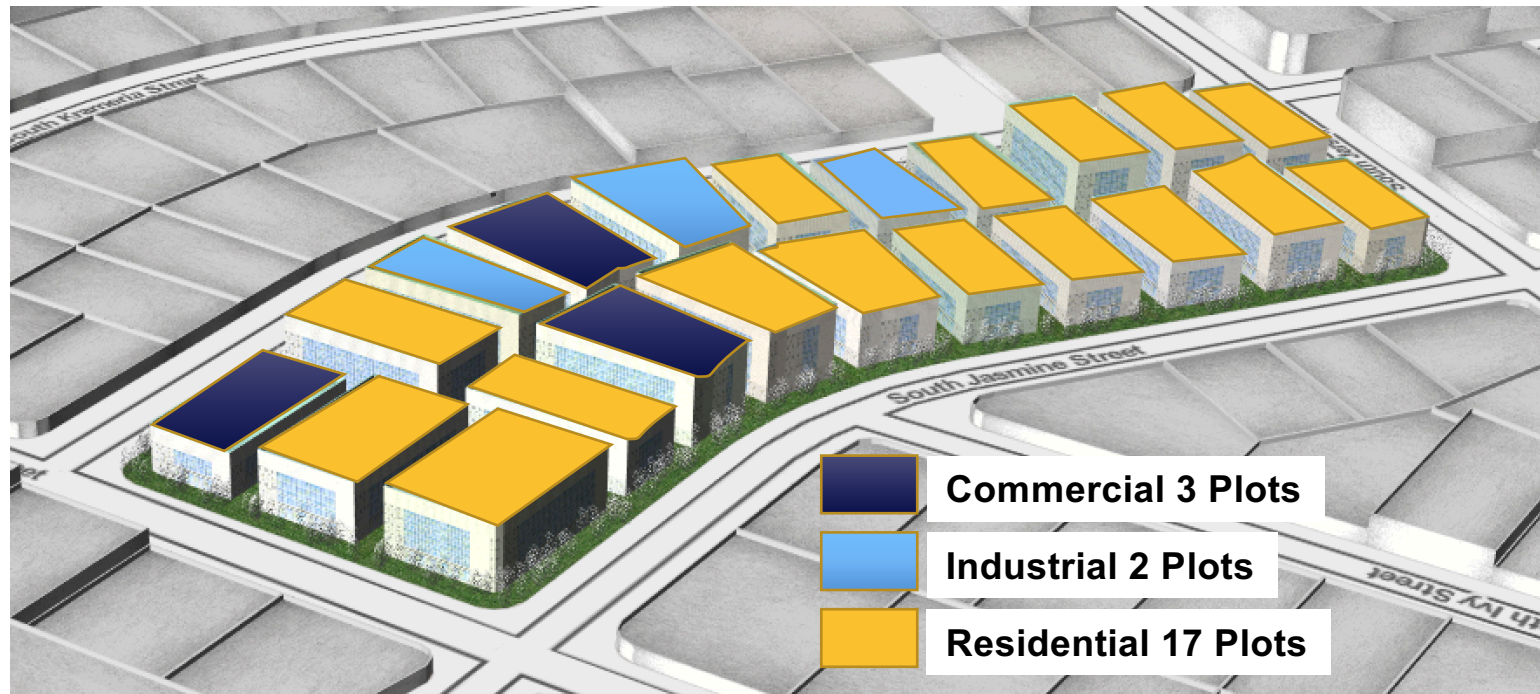
Consumer Survey with Geo-coding

○ Survey form designing as per the project requirement

○ Consumer information capturing in digital forms

○ Allocation of Unique GIS ID to consumer

○ Survey using Android app

○ Integrating Consumer data with Web-GIS

○ Population Estimation in an area for demand calculation
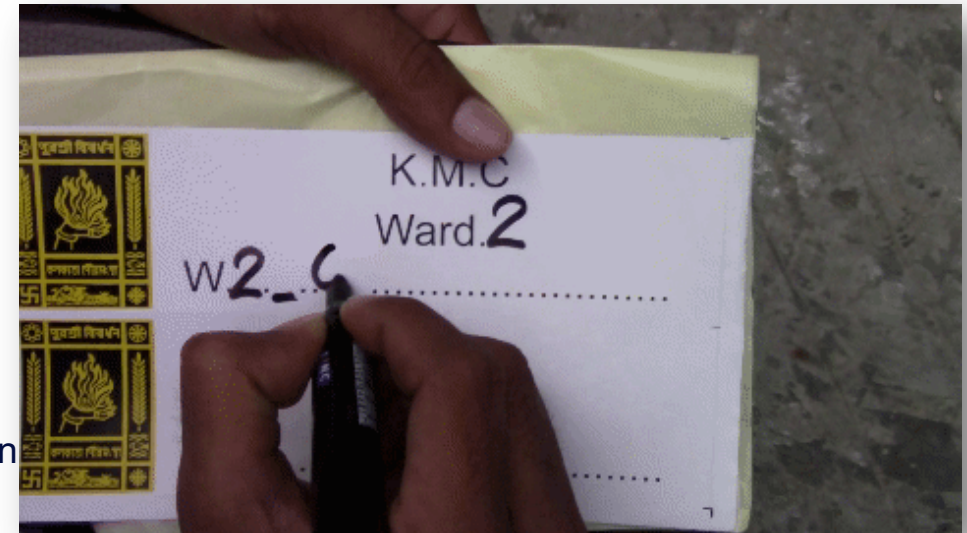
10+7+9+12+15+9+7+5+4+8+6+5+7+9+8+6+13+16+11+3+10 = 180

Total Population 180

LPCD (Litres per Capita per Day)

150 LPCD (Contractual Requirement)
Water Demand of the area is
So, the total Population x LPCD
180x150 = 27000 letter / Day

Comparison in Contract estimation and Ground reality

Population And Property Analysis

According to Client

❑Total Consumers- 98
    ❑Total Population 998

❑Property Classification
    ❑Nil

❑Total Building in Khumar Basti is Nil

After Digital Integration
(Through - GIS & IoT)

❑Total Consumers- 234
    ❑Total Rent pop- 1188
    ❑Total Owner Population -1223
❑Total population of Khumar Basti is 2411

❑Property Classification
    ❑Both On rent and self use 75
    ❑On Rent Only 35
    ❑Public Building 5
    ❑Self use Only 87

❑Total Building in Khumar Basti is 202
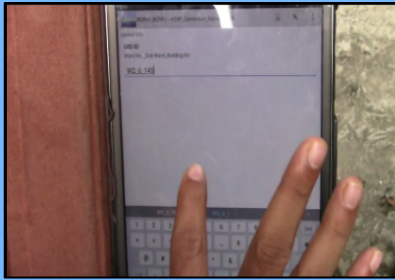
Asset Digitalization & Base Mapping – Example 1

Delhi

MNWS - DELHI PROJECT AREA

Legend
Project Area

Malviya Nagar Water Services Basemap
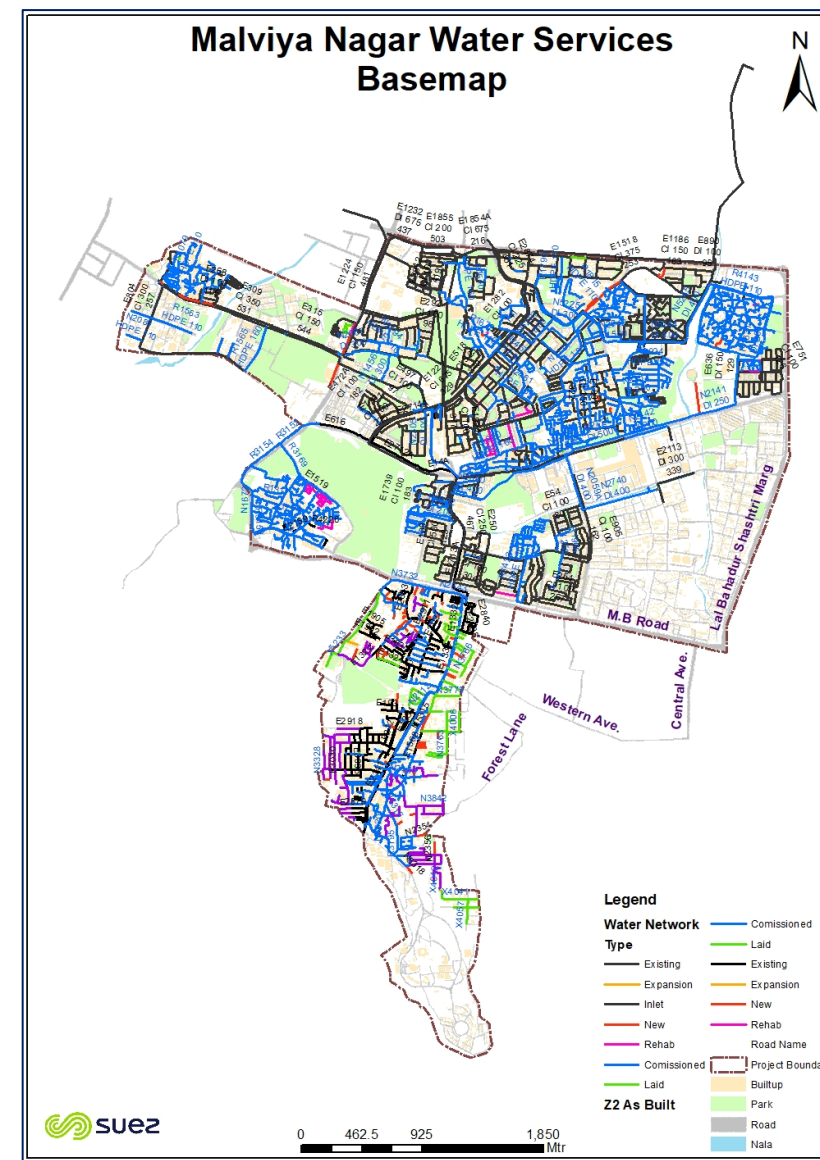
Asset Digitalization & Base Mapping – Example 2

Kolkata

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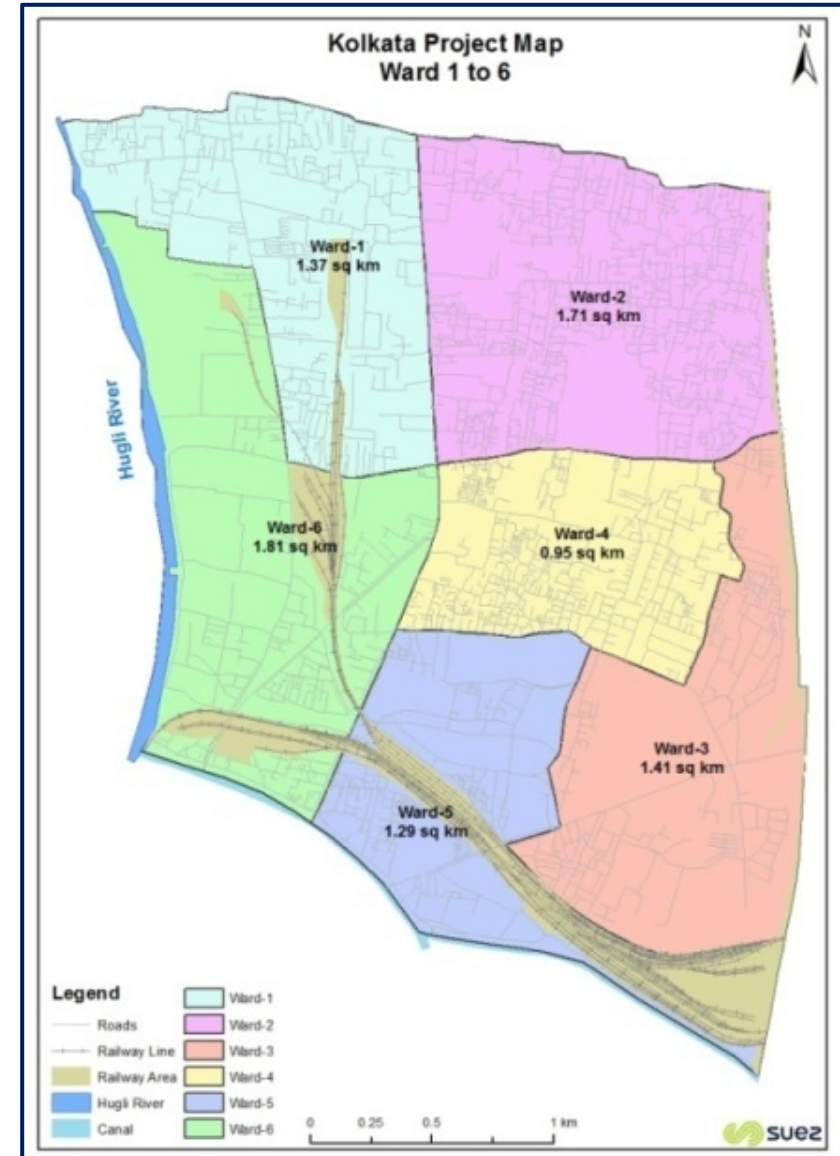
Consumer Survey and Mapping App.

Customer Survey Application is being used to collect the consumer information / consumer particulars (address, connection type, population, etc). Data collection through mobile applications also offers the ability to get GPS coordinates, images, videos, and time stamp, which can be transfer digitally on the real-time basis.

Consumer Survey

ROPeS (PHED) > Main Menu

ROPeS (PHED) 2.1 (2)
Asset Data Collection Tool...

Start Survey

Edit Survey

Send Finalized Survey

Get Blank Survey Form

Delete Saved Form
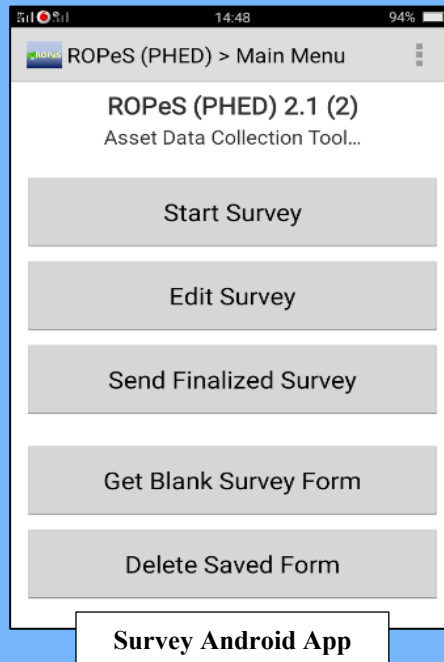
Survey Android App

CUSTOMER SERVICE MANAGEMENT SYSTEM (CSMS) App.

The CSMS is a customer complaint /request /query handling desktop and web based application
This system is capable to automate the workflow of complaints /requests and their actions
CSMS application can also be linked with existing GIS database for knowing the Geo-location of consumers to serve them better
CSMS can be accessed through web enabled computer system and on mobile devices

MNWS

Kolkata

CSMS

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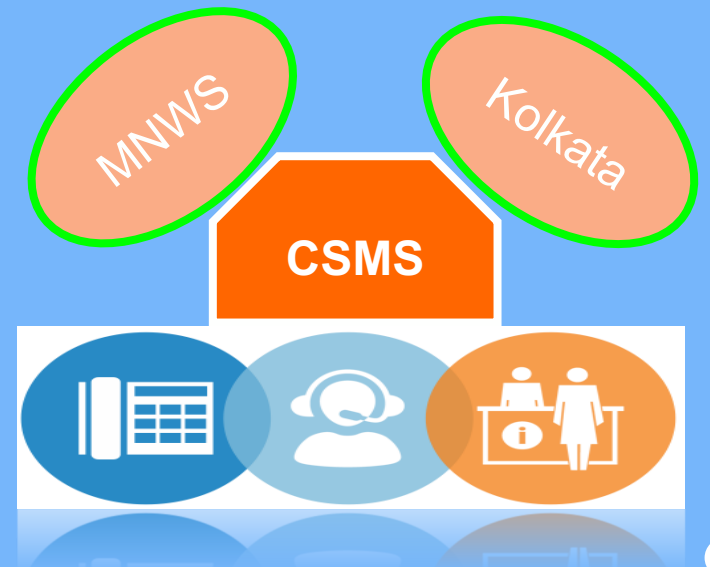
Meter Reading Digital Solution (Delhi)

This Application is mainly for recording meter readings, storing data and sending this to the server on Real time basis. This system is also capable to show connection number consumption details and to check customer's history.

Mobile Application is used by field staff who collect and record meter reading data and it is also used to give remarks on connection status.

Web Application is used by admin to add, edit, search and fetch the database about the customer's and meter connection.

Web interface
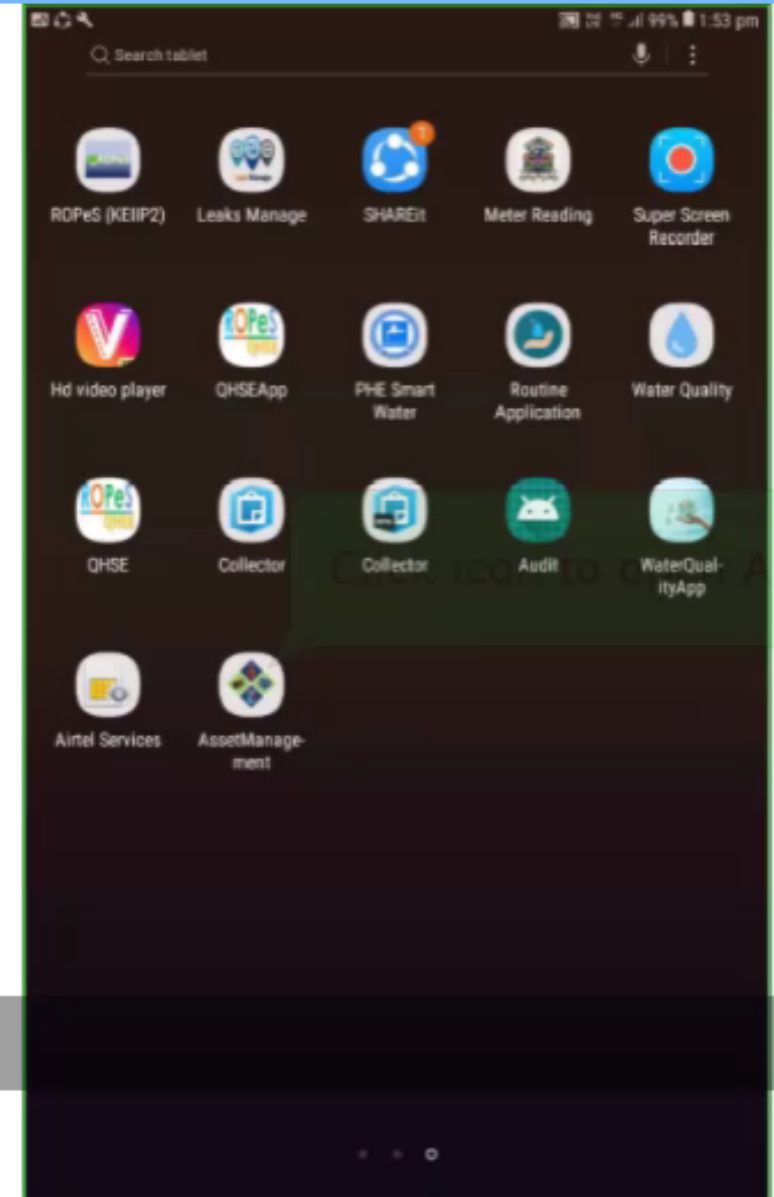
- Asset digitalization is very crucial in having information for the better management and its future upgrade

Web interface

Asset Digitalization & Base Mapping

MALVIYA NAGAR WATER SERVICES

TEST PIT REPORT

LOCATION

DATE	24/04/2015	TEST PIT No	TP-495
LOCALITY	shekh_sarai_phase-i	TEST PIT TYPE	confirmatory
SUBLOCALITY	pkt-c, ss ph-1	OTHER SUBLOCALITY	
ADDRESS	On lane at front lefthand corner of house no.C/305, Seikh Sarai Phase -1.		
NO OF UTLITIES	1	UTILITY TYPES	Waterline
GIS PIPE LABEL			

INVESTIGATION

DEPTH (mtrs)	0.5	LAT/LON	28.5373765603,77.2233599704
PIPE DIAMETER IN ARCHIVE (mm)		PIPE MATERIAL IN ARCHIVE (mm)	
PIPE DIAMETER FOUND (mm)	100	PIPE MATERIAL FOUND (mm)	DI
ROAD SIDE ALIGNEMENT	Rightside		
DISTANCE FROM CLOSEST LANDMARK		0.3	
REMARKS FROM GIS TEAM		Existing pipeline found.	
EXTERNAL CONDITION OF PIPE	Average	SAMPLE OF PIPE TAKEN (Y/N)	no
INTERNAL CONDITION OF PIPE	Average	PIPE THICKNESS (mm)	Thickness-7.9 mm

PHOTOS

PHOTO 1 of PIT   PHOTO 2 of PIT   PHOTO 3 (Backfilling)

RECOMMENDATIONS

Underground ASSETS

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Asset Digitalization & Base Mapping

Over-ground Visible asset digitalization & QR codding

Manage Manhole

LMC ASSET ID	MH NAME	ACTION
LKD_BHW_MH_8	Manhole	
LKD_BHW_MH_7	Manhole	
LKD_BHW_MH_6	Manhole	
LKD_BHW_MH_5	Manhole	
LKD_BHW_MH_4	Manhole	
LKD_BHW_MH_3	Manhole	
LKD_BHW_MH_2	Manhole	
LKD_BHW_MH_1	Manhole	

Digital Report

Data Submitted to server can be edit, view and update through mobile application.

SUEZ

STP,SPS & MPS ASSETS REPORT
Lucknow
ASSET MANAGEMENT

GENERAL INFORMATION

DATE OF SURVEY	24-02-2020	TIME	13:34 pm
CITY	Lucknow	ZONE	Zone-6
WARD	Mahanagar	STP/SPS/MPS	
LAT/LONG(DD)	26.864360954823375,80.92604734003544	INLET SOURCE	
SURVEYOR NAME	Ramnarayan		

ASSETS INFORMATION

ASSETS NAME	DG set -B	STP/SPS/MPS	0
CODE	LKO_WGZ_9	ASSETS TYPE	Electronics & Instrumentation
ASSETS CONDITION	Good	ASSETS STATUS	Working
ASSETS RENEWAL	NO	ASSETS CORROSION	Low
ASSETS OWNER	Suez India pvt ltd	ASSETS CAPACITY	125 KVA
ASSETS CARETAKER		ASSETS BRAND	Kirloskar
JE CONTACT INFO		INST. DATE	2001-06-18
ACTUAL AGE (MO)	224	ESTIMATED AGE (MO)	240
ASSETS FUNCTION	DG set -B		
ASSETS REMARK	DG set -B		

ASSETS PHOTO

ASSET CORROSION PHOTO	ASSET CORROSION PHOTO	PLATE PHOTO	PREMISES SKETCH PHOTO

RECOMMENDATIONS

FINAL REMARK

Supervisor representatives	Suez India pvt ltd representatives
Name(S) _____	Name(S) _____
Signature _____	Signature _____
Date : _____	Date : _____

DESIGN MANAGED BY GIS CELL- HO(SSPL)

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Asset Inventory, Survey, Mapping and Management

Asset Inventory, Survey & GIS Mapping Report

- Asset Inventory
- Asset Survey
- GIS Mapping

CLIENT:

CITY MUNICIPAL CORPORATION UDUPI

PROJECT:

Construction of Distribution system for 24*7 Water Supply including Services for Operation and Management for Udupi City

CONTRACTOR: SUEZ PROJECTS PVT. LTD, SUEZ INDIA PVT LTD, DRS INFRATECH PVT. LTD, JOINT VENTURE

All Rights Reserved For All Countries

| A | 25-03-2019 | NH | RM | SM | — | SUBMISSION PURPOSE |
| REV | Date | Prepared By | Checked By | Validated By | CR | For QA & QC |

HUDCO Colony OHT 5 LL

Asset Report / Map Name:- SUEZJVDRS/ASSET2019/CMCU/HDCO/OHT/V01

| | Company | Zone | Line | Doc Type | Discipline | Sequence | Rev | Version | Doc Status | Comment Status |
| Doc No | SUEZ | — | — | — | GIS | 01 | — | 01 | — | NA |

ROPeS
GIS Dept. HO

Page no : 2

CMC UDUPI OHT / GLSR MANAGEMENT ASSET SURVEY REPORT — KUIDFC — SUEZ

GENERAL INFORMATION

DATE OF SURVEY	22-02-2019	TIME	09:00 - 17:00
CITY	Udupi_City	ZONE	Zone8
WARD	Ward 27	OHT/GLSR Name	Hudco Colony
LAT/LON (DD)	13.35887999/74.76161941	INLET SOURCE	Manipal GLSR
SURVEYOR NAME	Syed_Zeeshan		

ASSET INFORMATION

ASSET NAME	Chamber	OHT/GLSR ID	CMBR1
CMCU ASSET ID	UDP_HDCO_CMBR1	ASSET TYPE	Civil_Structures
ASSET CONDITION	Average	ASSET STATUS	Working
ASSET RENEWAL	No	ASSET CORROSION	Medium
ASSET OWNER	CMC Udupi	ASSET CAPACITY	NA
ASSET CARETAKER	Sukesh 8970326140	ASSET BRAND	NA
JE CONTACT INFO	Raghavendra	INSTALLATION DATE	17-01-1999
ACTUAL AGE (MO)	241	ESTIMATED AGE (MO)	240
ASSET FUNCTION	Distribution		
REMARK			

Photos

ASSET CORROSION PHOTO1 — ASSET CORROSION PHOTO2 — PLATE PHOTO

PREMISES SKETCH/PHOTO — ASSET PHOTO 1 — ASSET PHOTO 2

RECOMMENDATIONS

FINAL REMARK

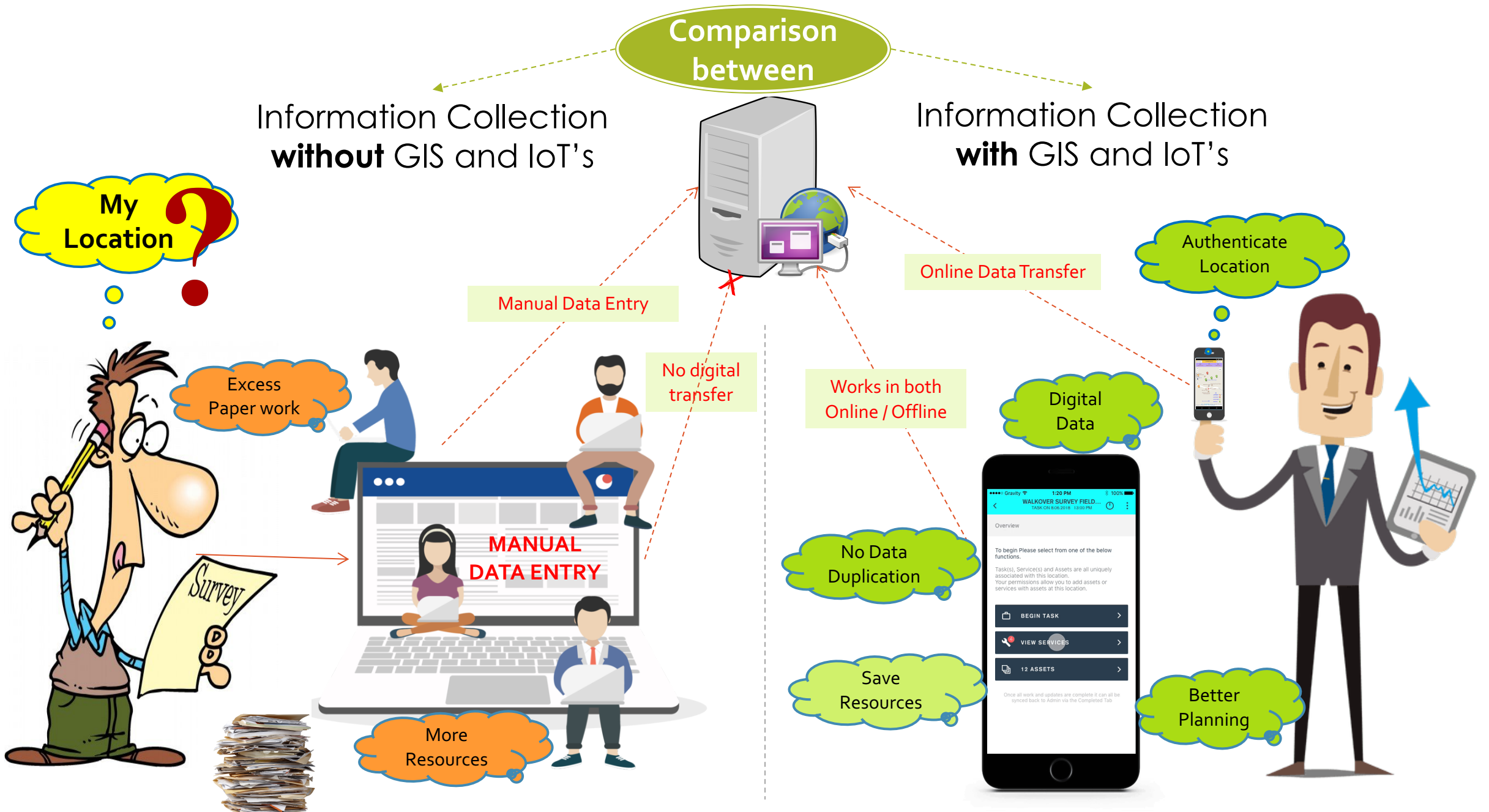| Supervisor representatives | CMCU representatives |
Name (s)	Name (S)
Date	Date
Signature	Signature

Designed and Managed by GIS Cell - HO (SPPL)

Page no : 1

CMC UDUPI OHT / GLSR MANAGEMENT ASSET SURVEY REPORT — KUIDFC — SUEZ

GENERAL INFORMATION

DATE OF SURVEY	22-02-2019	TIME	09:00 - 17:00
CITY	Udupi_City	ZONE	Zone8
WARD	Ward 27	OHT/GLSR Name	Hudco Colony
LAT/LON (DD)	13.35905473/74.76179537	INLET SOURCE	Manipal GLSR
SURVEYOR NAME	Syed_Zeeshan		

ASSET INFORMATION

ASSET NAME	Over Head Tank	OHT/GLSR ID	OHT1
CMCU ASSET ID	UDP_HDCO_OHT1	ASSET TYPE	Civil_Structures
ASSET CONDITION	Average	ASSET STATUS	Working
ASSET RENEWAL	No	ASSET CORROSION	Medium
ASSET OWNER	CMC Udupi	ASSET CAPACITY	5LL
ASSET CARETAKER	Sukesh 8970326140	ASSET BRAND	NA
JE CONTACT INFO	Raghavendra	INSTALLATION DATE	16-01-1999
ACTUAL AGE (MO)	241	ESTIMATED AGE (MO)	240
ASSET FUNCTION	Storage and Distribution		
REMARK	Ground to OHT Bottom Height is 12.82 Meter. (GL 33.20 m)		

Photos

ASSET CORROSION PHOTO1 — ASSET CORROSION PHOTO2 — PLATE PHOTO

PREMISES SKETCH/PHOTO — ASSET PHOTO 1 — ASSET PHOTO 2

RECOMMENDATIONS

FINAL REMARK

Supervisor representatives	CMCU representatives
Name (s)	Name (S)
Date	Date
Signature	Signature

Designed and Managed by GIS Cell - HO (SPPL)

WATER SUPPLY MANAGEMENT & MONITORING

SUEZ

ROPeS

THANK YOU

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