

# NARAYANPUR LEFT BANK CANAL AUTOMATION PROJECT

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## Introduction

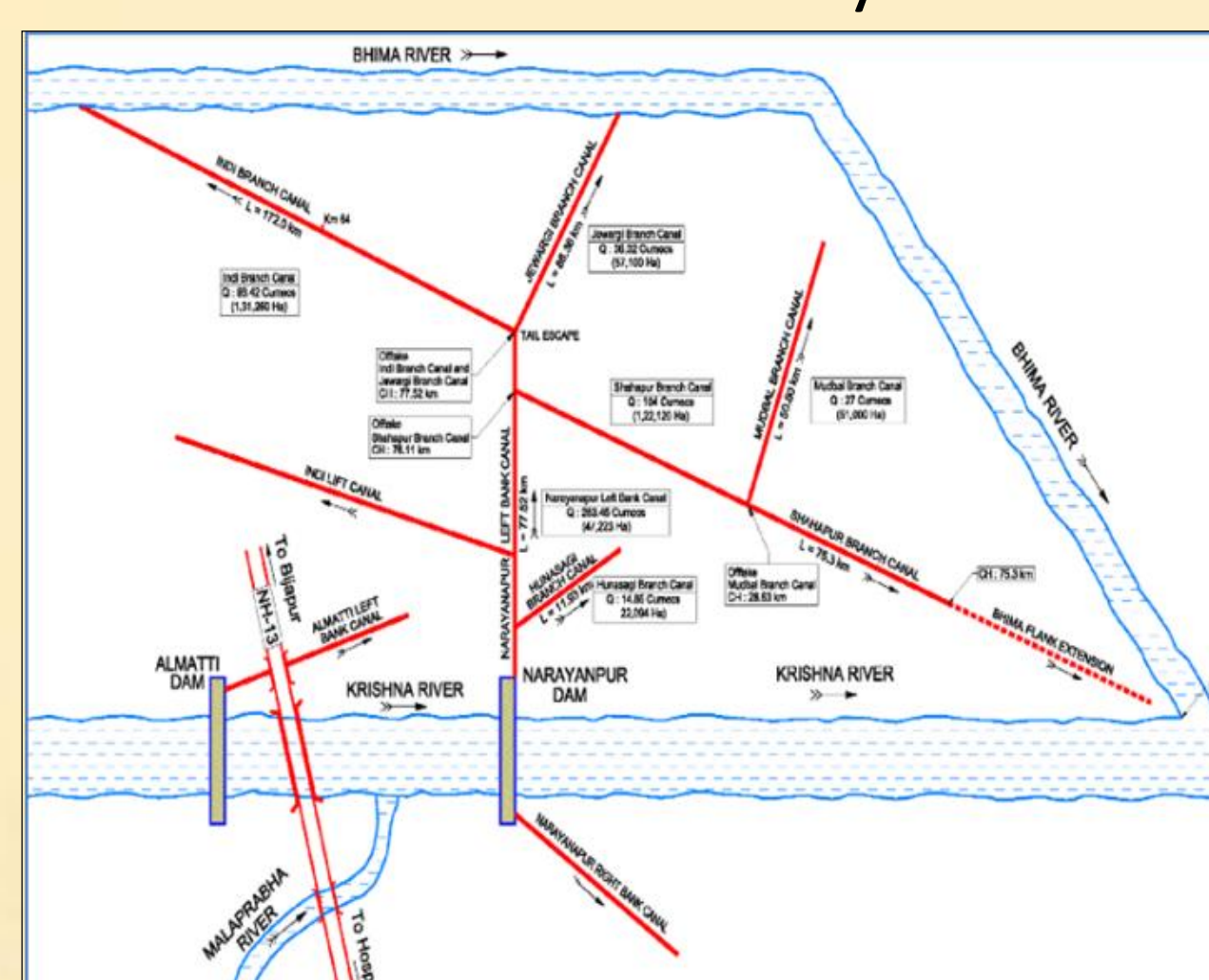
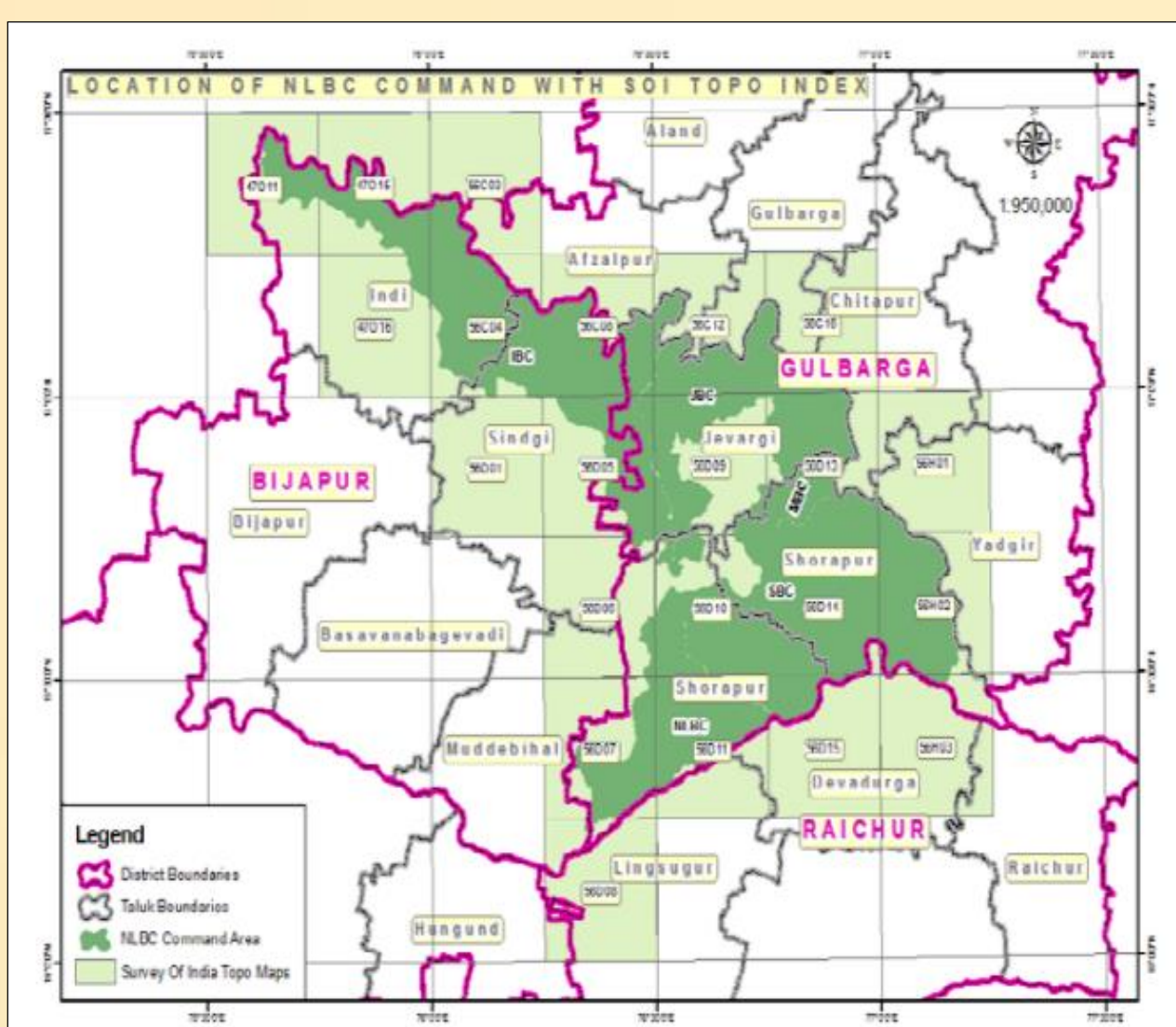
The Government of India (GOI) has launched National Water Mission (NWM) as a part of national action plan for climate change for conserving water, minimizing wastage, ensuring its equitable and judicious distribution across and within the states through integrated water resource development and management.

As a sequel to the policy of the GOI, a strategic plan was worked out by Krishna Bhagya Jala Nigam Ltd. (KBJNL) in Narayanpur Left Bank Canal (NLBC) network using GIS based SCADA integrated INMIS automation system, benefitted as improving water use efficiency by 25%; increase crop productivity; water delivered at tail end user; reduce water loss in command area.

## Study Area

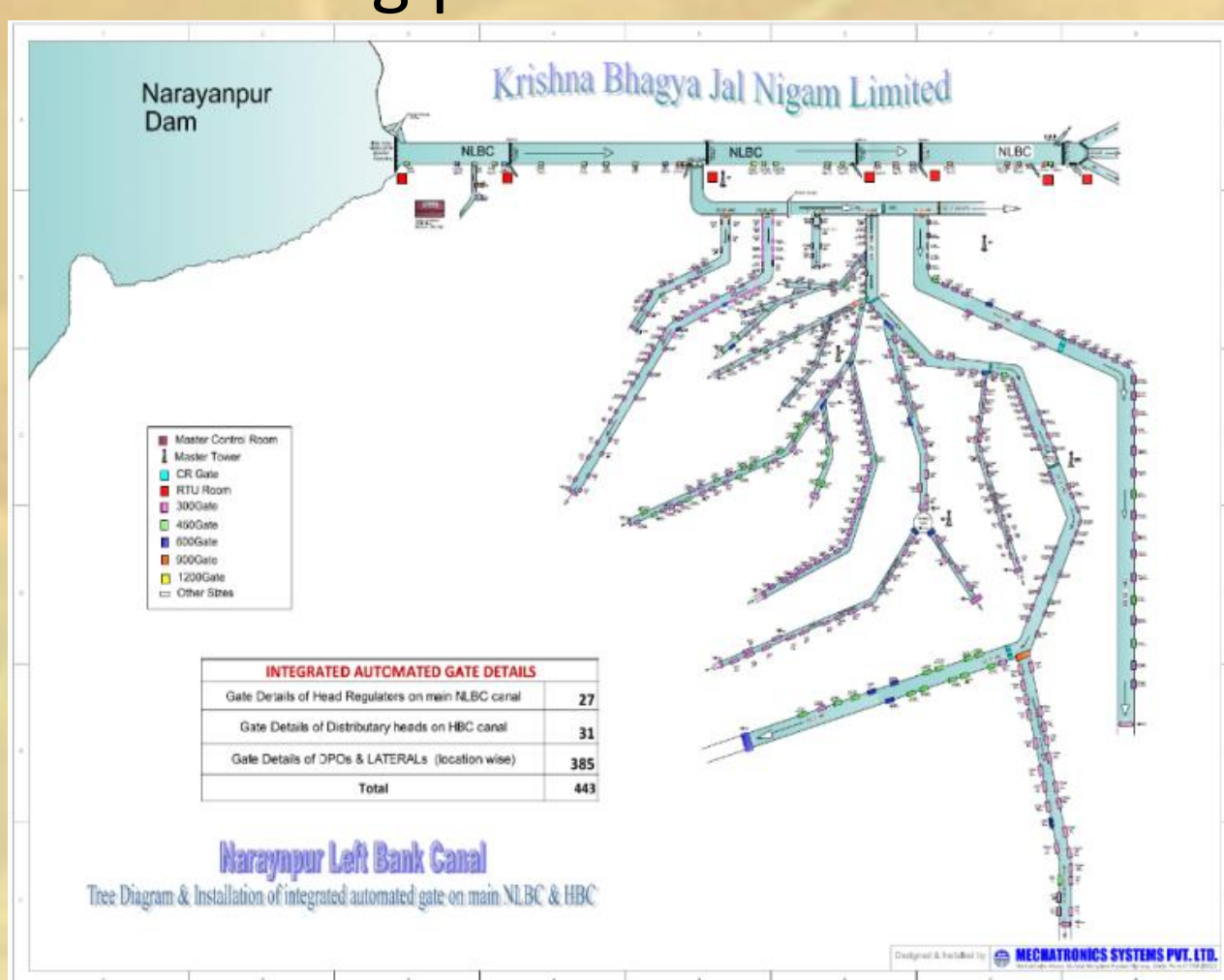
The Narayanpur dam with NLBC command area, located on Krishna river near Bachihal and Siddapur village of Bijapur District of Karnataka state in India. This reservoir caters to the irrigation needs of a very vast area of about 0.45 million hectares.

The reservoir supplies water to Narayanpur Left Bank canal (NLBC) is the biggest and the main artery of canal network about 77 km have designed to discharge of 10,000 cusecs. The length of entire canal network including sub-systems is 6000 km within the project. There are six branch canals in systems.



## Automation of existing HR/ CR gates (41 Nos.)

- These radial gates are updated as SCADA based electrical and mechanical retro fitment in the project.
- Also, the CR control rooms were constructed near to these gates by installing panel instrumentations.



## Solar powered integrated automated gate

The integrated gate has inbuilt, (a) accurate gate control and measurement system, (c) flow measurement device, (d) u/s and d/s water level measurement system, (e) wireless communication system, (f) self sufficient solar based power supply system, and (g) CCTV cameras.



## Hybrid Wireless Data Communication Network

### 1) Main SCADA center

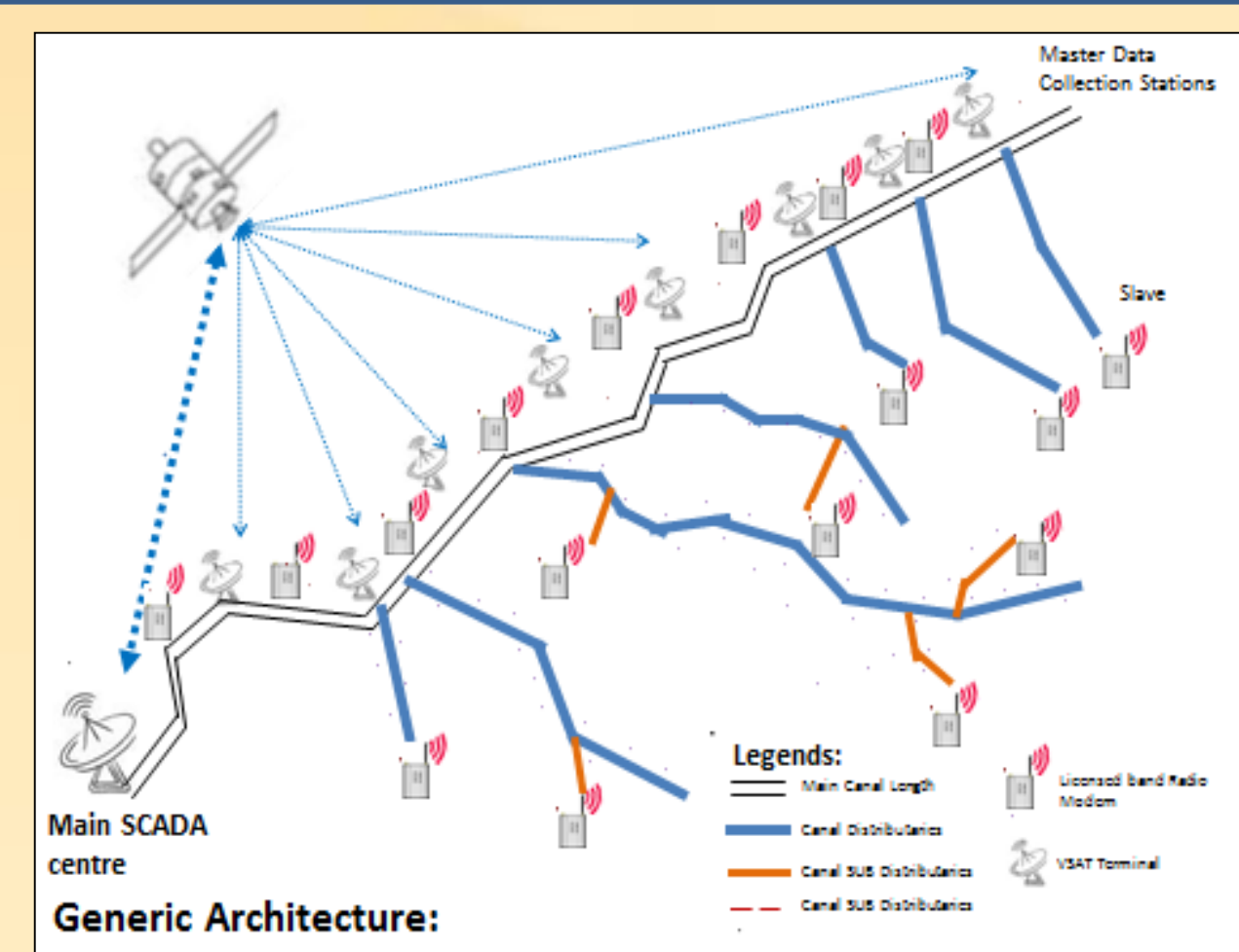
A master VSAT transmitter and receiver equipments

### 2) Data concentrator station

Polling the slave radios through UHF radios

### 3) Slave stations

Polling by master station and data are collected



## Soil Health Card (0.278 millions soil samples)

As a part of National Mission for Sustainable Agriculture (NMSA), GOI, soil samples collected, tested; and those details prepared and distributed in the form of Soil Health Card within the command area.

## Soil Health Card Details

### Soil Health Card Details (2014-2015)

Design, Manufacturing, Supply, Installation, Operation and Maintenance of Phase I of SCADA based automation and GIS system for NLBC Network

Organization  
Krishna Bhagya Jala Nigam Limited

Sample UID  
111

District  
Yadgir

Taluk  
Shenpur

Name of the Farmer  
Somappa Chavhan

Category  
GEN

Sample Details Soil and Water

Area Under Cultivation  
Water Resource

Proposed Crops and Variety  
Kharif

Soil  
Bt-Seasonal

Lab Testing Model  
No. Date

Village  
Kumbhar

Caste  
Kumbhar

Land Survey No.  
112

GPS Coordinates  
Lat: 15.20.45

Long: 75.22.35

Soil Type  
Black

Soil Depth  
Deep

Current Crops and Variety  
Kharif

Soil  
Bt-Seasonal

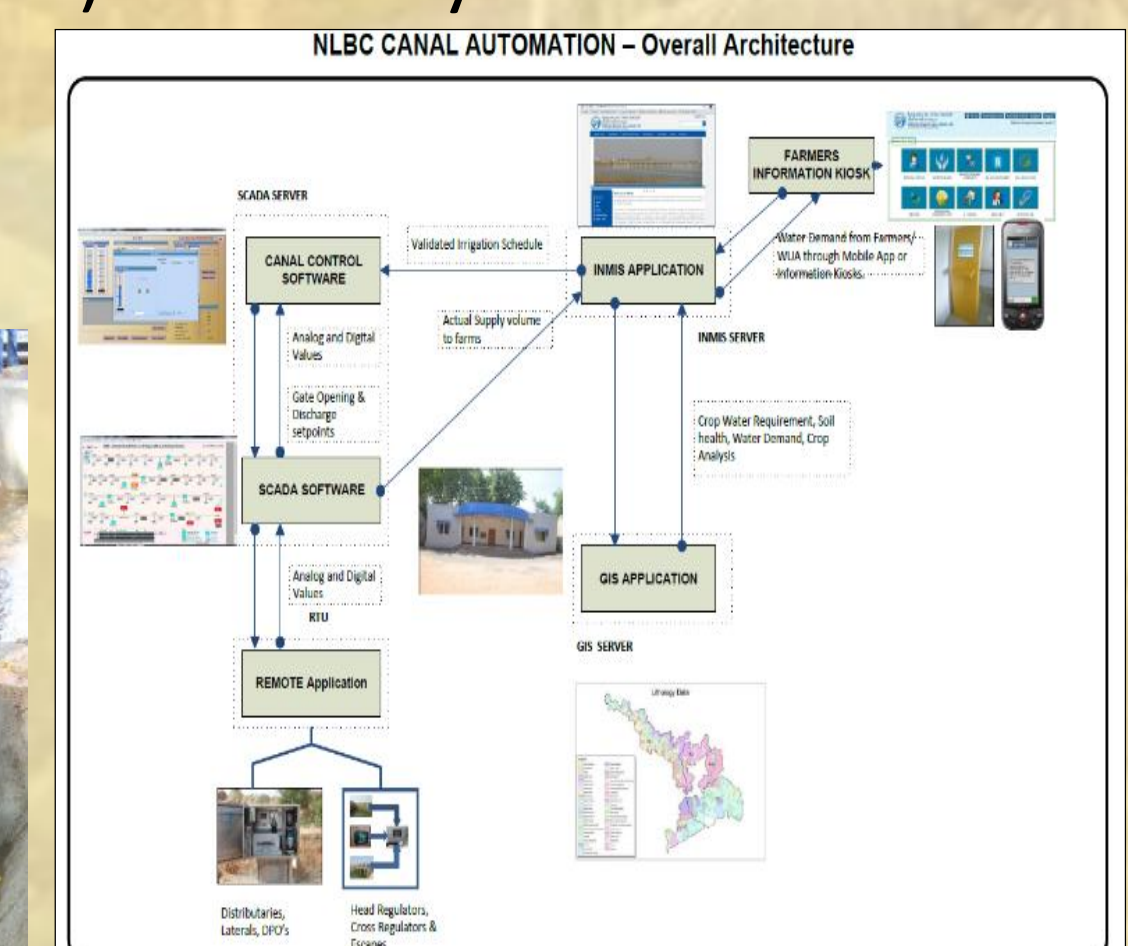
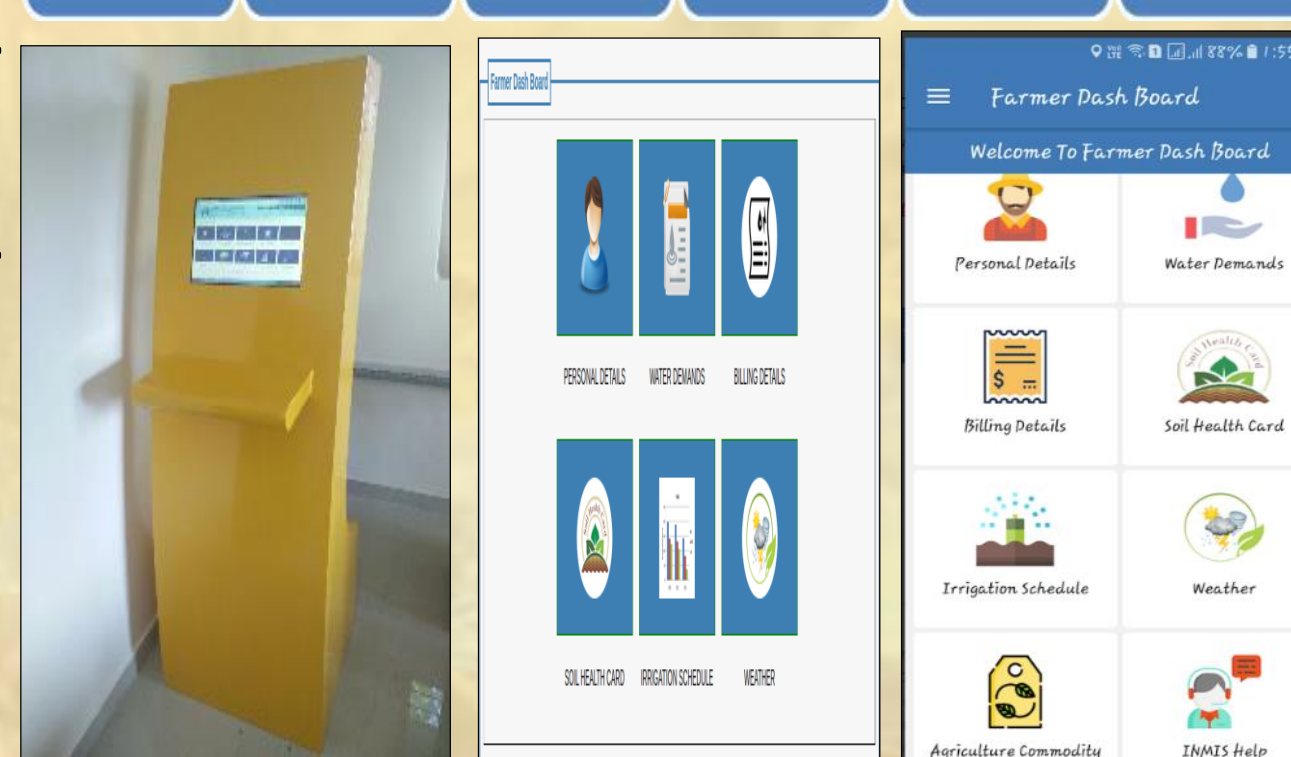
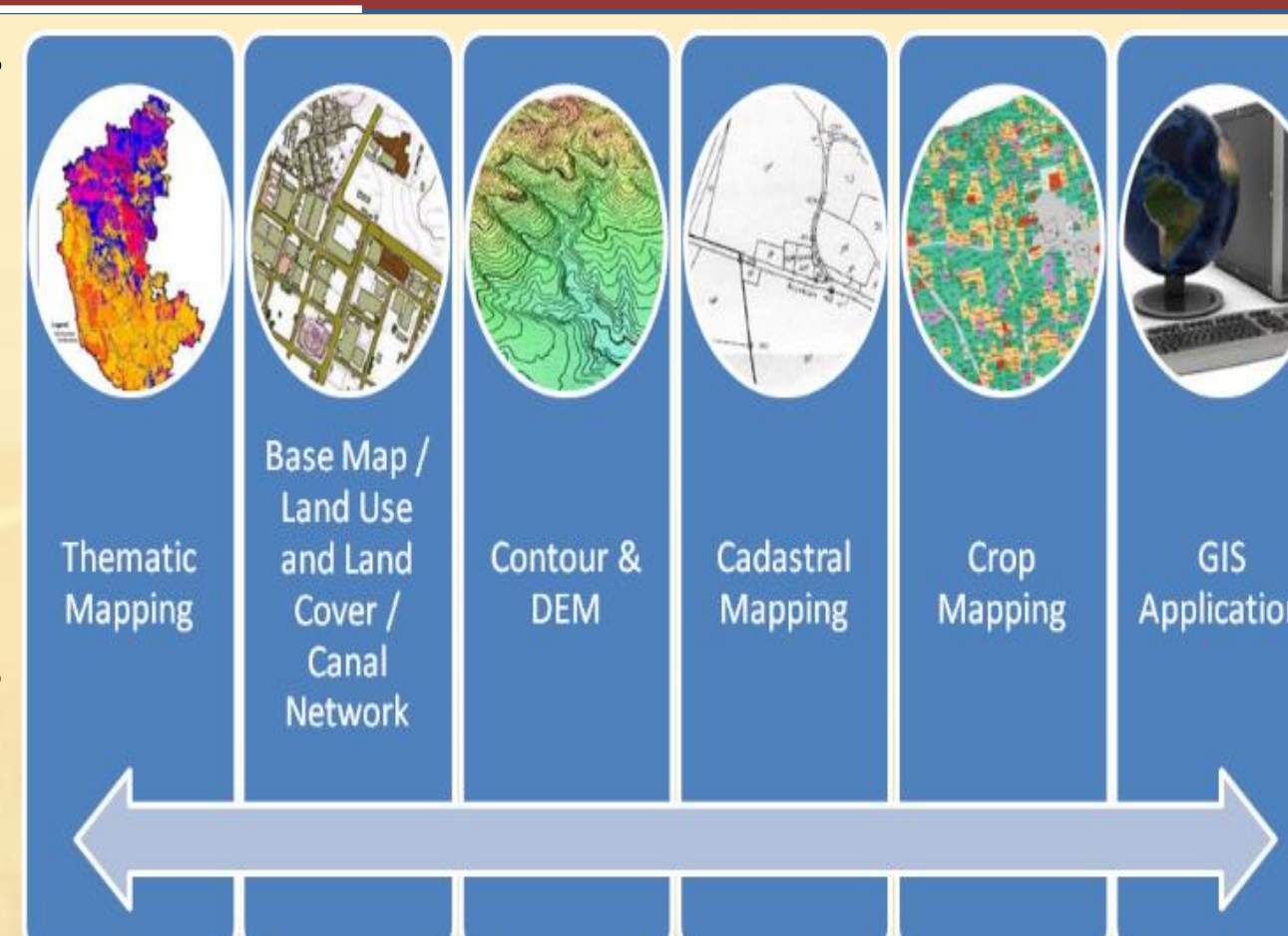
Soil Test Report	Normal Range	Value	Micro Nutrients	Value
pH Content	6.5-8.5	8.15	Copper (Cu) (ppm)	54.4
Soil Content (EC) (dS/m)	1.0-5.0	0.135	Iron (Fe) (ppm)	12840
Available Nitrogen (ppm) (ppm)	200-500	80.39	Sulphur (S) (ppm)	13.29
Organic Carbon (TOC) (%)	0.5-1.0	0.64	Manganese (Mn) (ppm)	2955.49
Available Phosphorus (ppm) (ppm)	22.8-65.3	23.22	Zinc (Zn) (ppm)	305.86
Available Potash (ppm) (ppm)	140-330	176.57	Boron (B) (ppm)	41.58
			Molybdenum (Mo) (ppm)	0

Back

## GIS based Irrigation Network Management Information System (INMIS) for entire command area (0.54 million ha) of NLBC

GIS based INMIS developed for managing the entire canal network spread among three zones and several other sub juridical systems. The components were included as,

- 1) Information Kiosk & Farmer dashboard;
- 2) Development of smart phone application for farmer;
- 3) SCADA system software for controlling and monitoring;
- 4) Master control station with Remote monitoring station;
- 5) Overall system architecture.



Entire system is successfully working since established in 2017