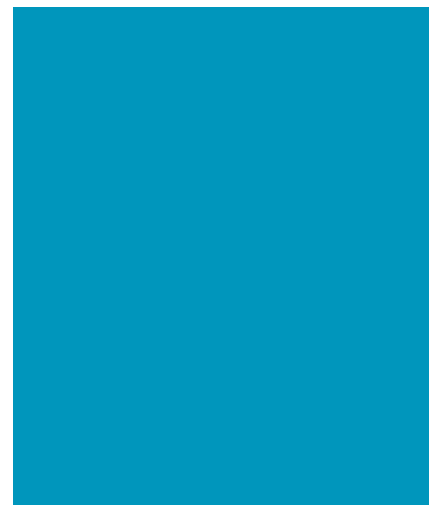
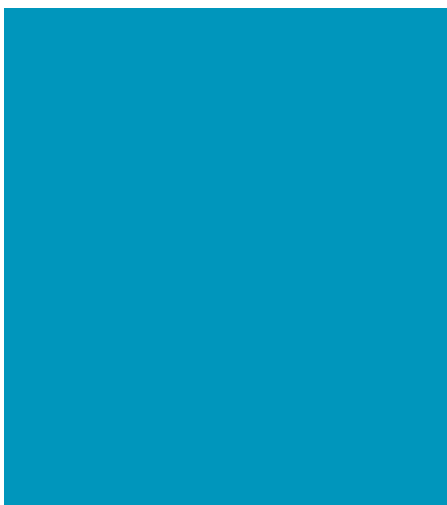


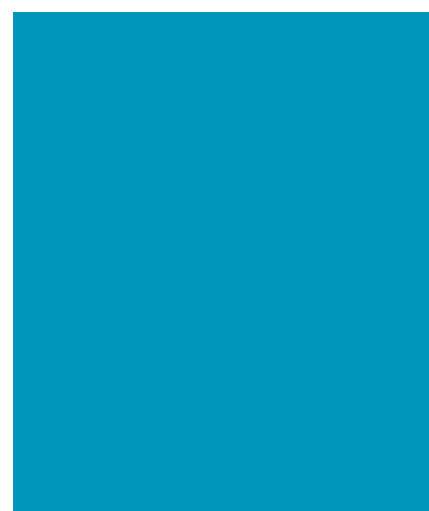
Moving towards water secure and climate resilient cities: A case of Gandhidham

Aasim Mansuri on behalf of CWAS team
Sr. Program Lead



Post Graduate Diploma in
Participatory Groundwater Management in
Krantiguru Shyamji Krishna Verma Kachchh University

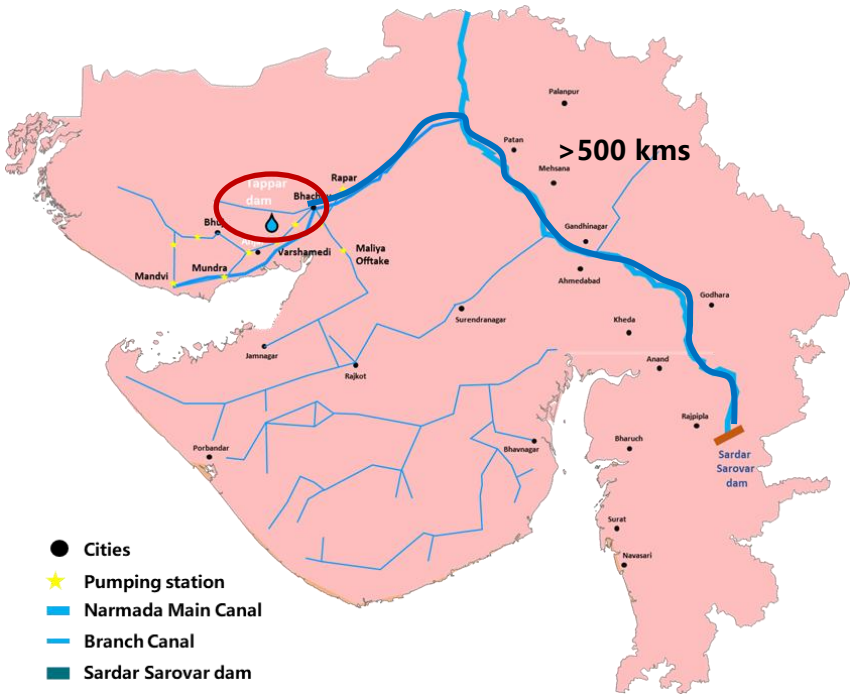
16th May 2025



Need of Water Security in Kachchh



- **Arid region** with 430mm annual rainfall (vs. 1152mm national average)
- **Chronically drought prone** region with a **frequency** of once in **every 2.5 years**



- **Over exploitation** of ground water
- **Salt water intrusion**
- Dependent on **Narmada Water**

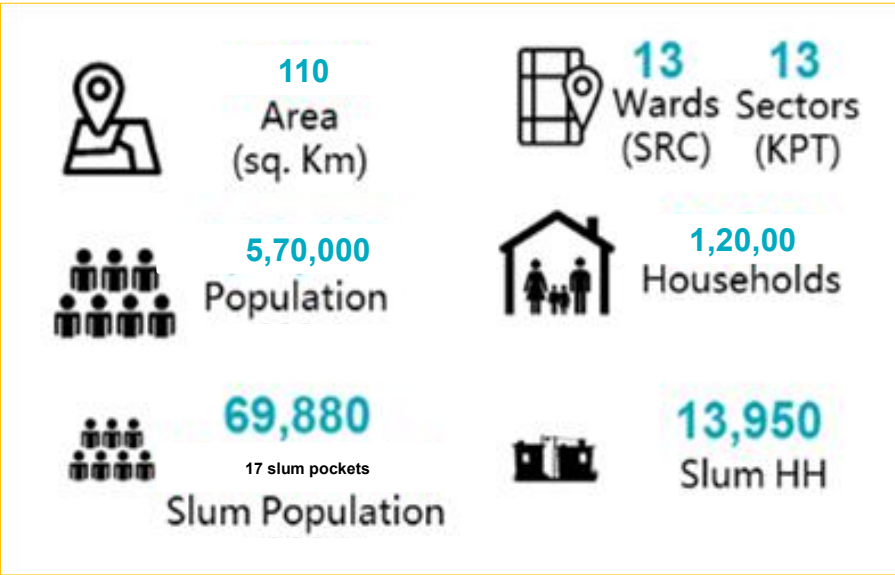
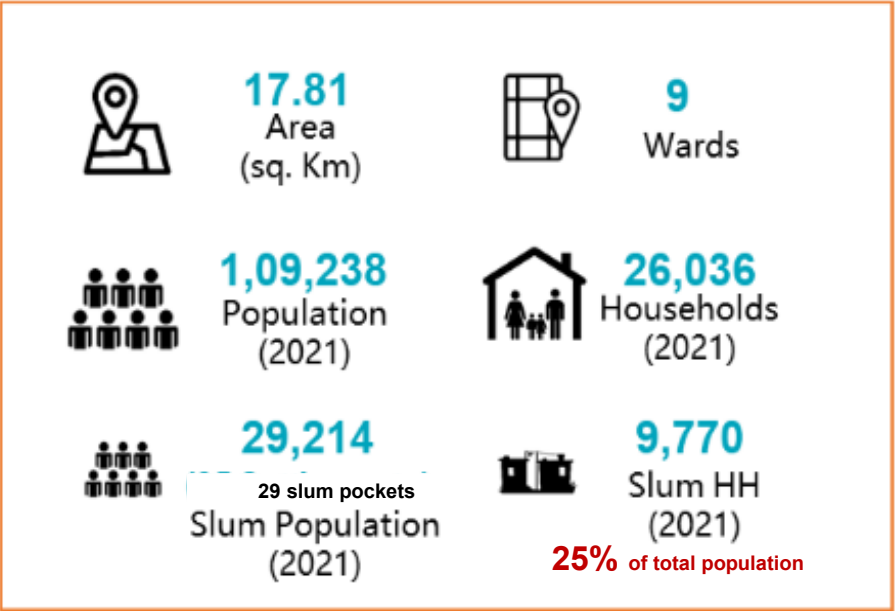
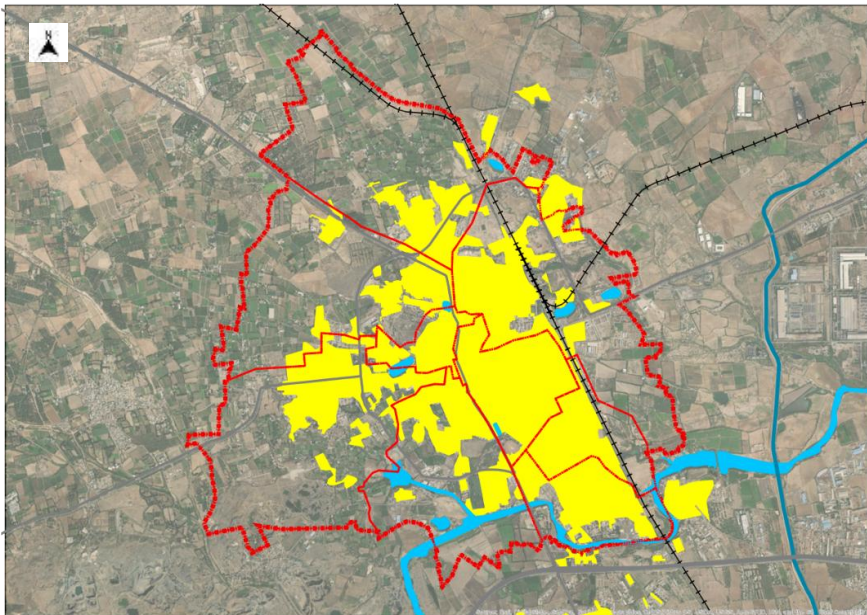


Gujarat Braces for a Wet Weekend; Heavy Rain Alerts Issued over Kachchh, Jamnagar, Sabar Kantha, Surendranagar, Mahesana



- Climate change effects- **Frequent Urban flooding scenario** in major parts of the cities

Study Area - Anjar and Gandhidham...



- Kachchh is the largest district of Gujarat State;
- Spread over **45,674 km2**
- Kachchh region falls under **arid-semi arid zone**

Study Objective- Anjar and Gandhidham...



Assessment of Existing water Situation in both the cities



To develop water security action plan



Implementation of Pilot Demonstrations



Documentation and Dissemination

CWAS's Unique Approach for sustainable outcomes...

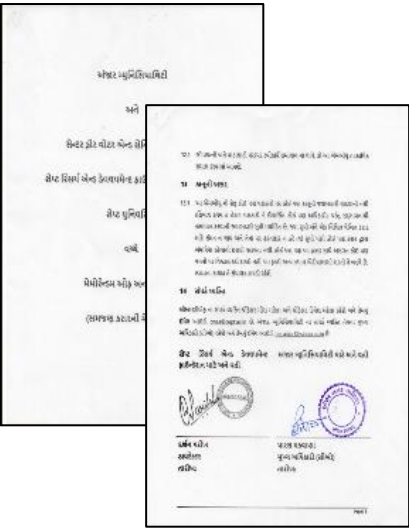


For ownership and sustainability of project

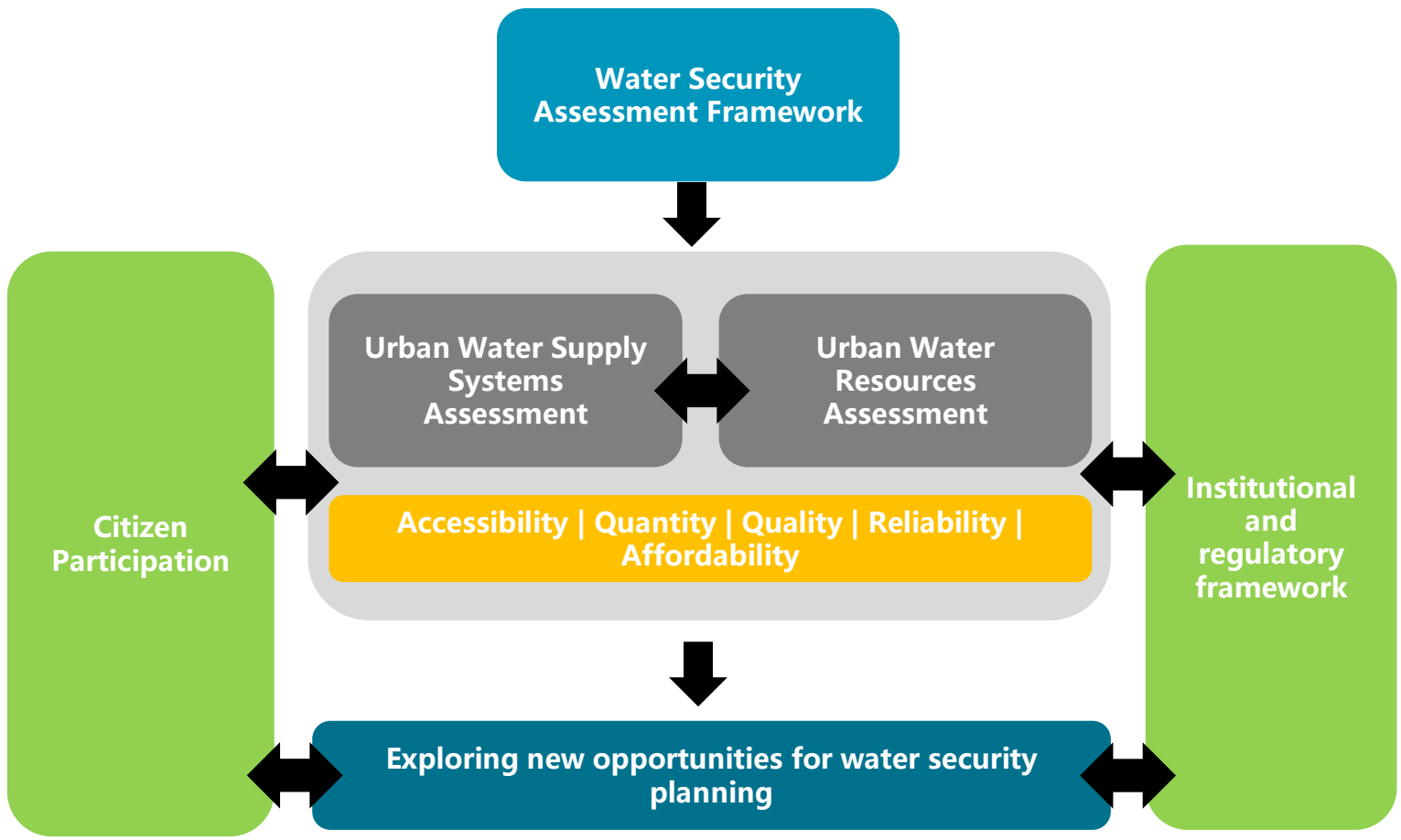
For showcasing success and impacts on ground

For awareness, capacity building and system strengthening

For scaling up- working at all levels of government and knowledge sharing



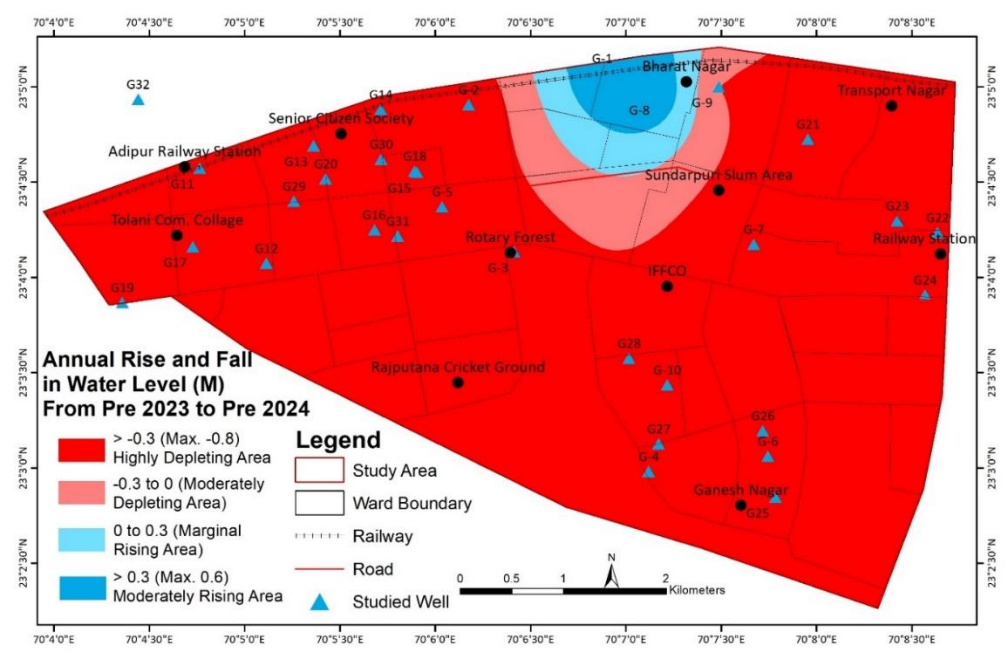
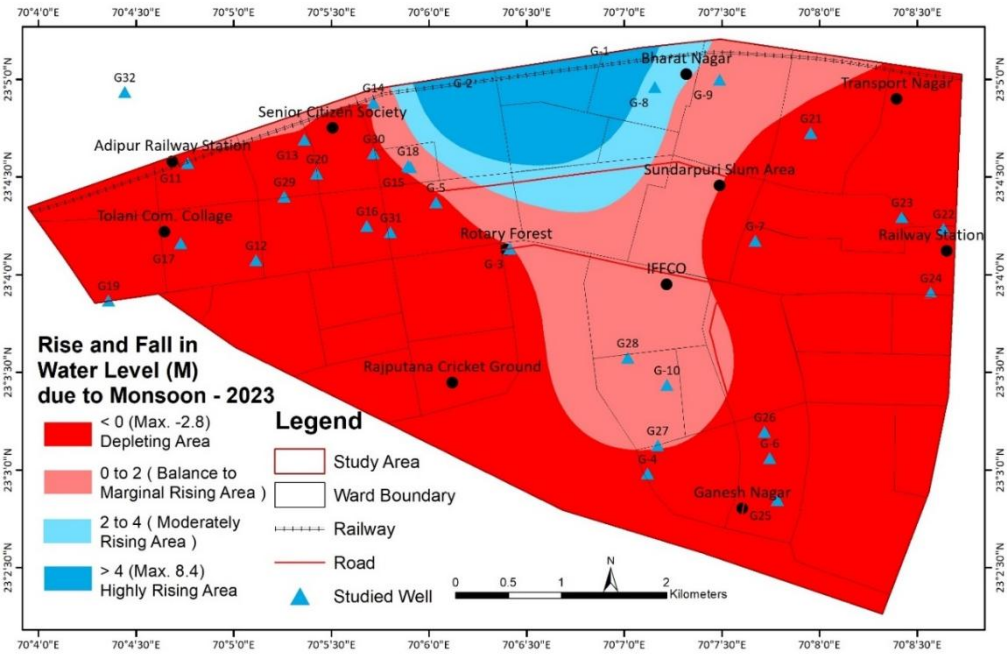
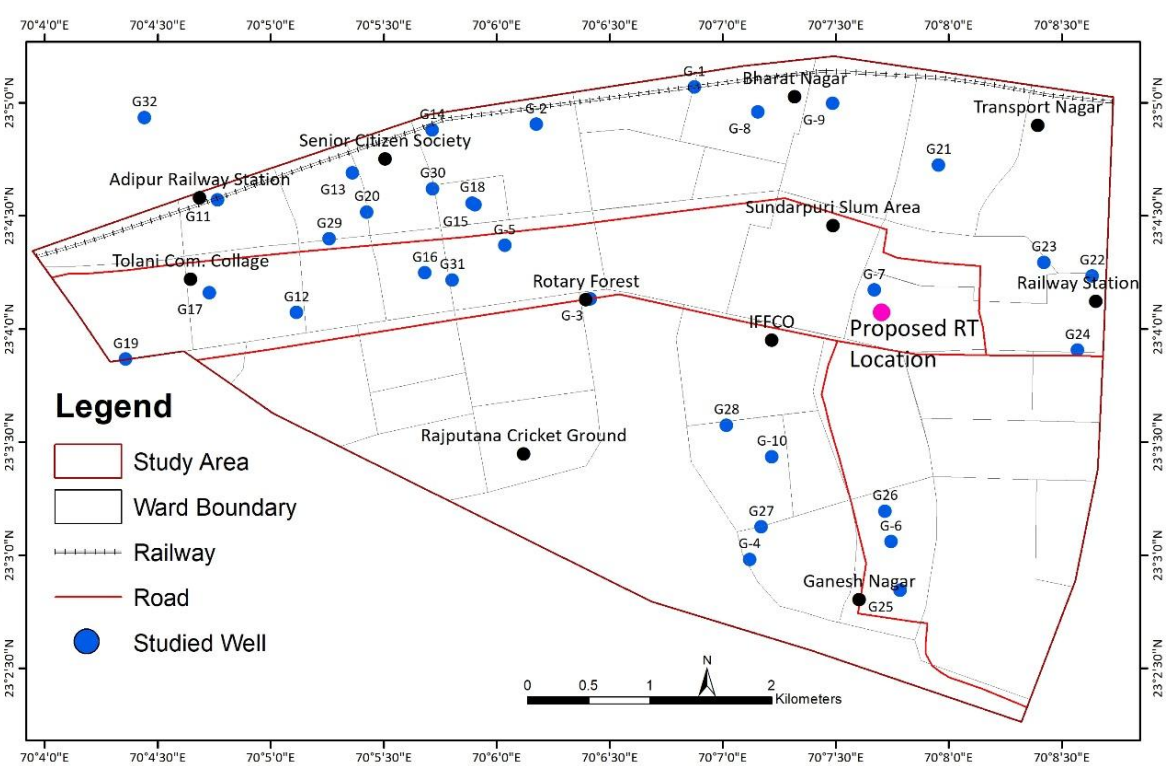
Water security assessment framework help identify key issues and opportunities around water security in both cities



“Water Security is **access** of water for **basic human needs** in adequate **quantity and quality**, which is **reliable and affordable**.”

Key findings	
	High dependency of distant water Questioning source sustainability?
	Depleting Groundwater levels
	Poor groundwater quality with salinity ingress
	Urban Flood situation during monsoon
	Intermittent Water Supply - Alternate day in Anjar and once in 4 days in Gandhidham
	Issues related to Water supply in Slum pockets

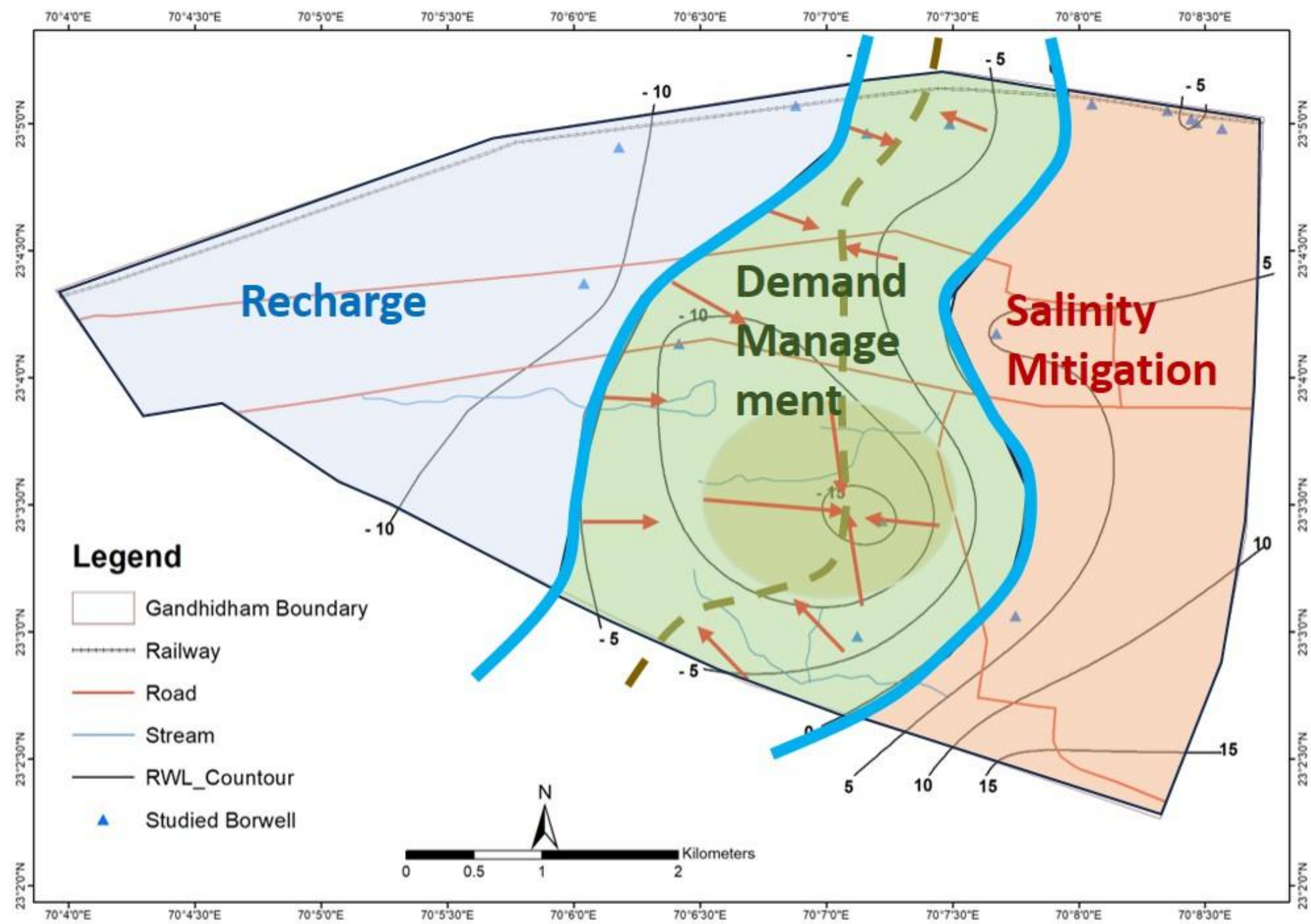
Geohydrological study for understanding aquifer and watershed of cities



- To understand groundwater occurrence, detailed well inventory of multiple wells

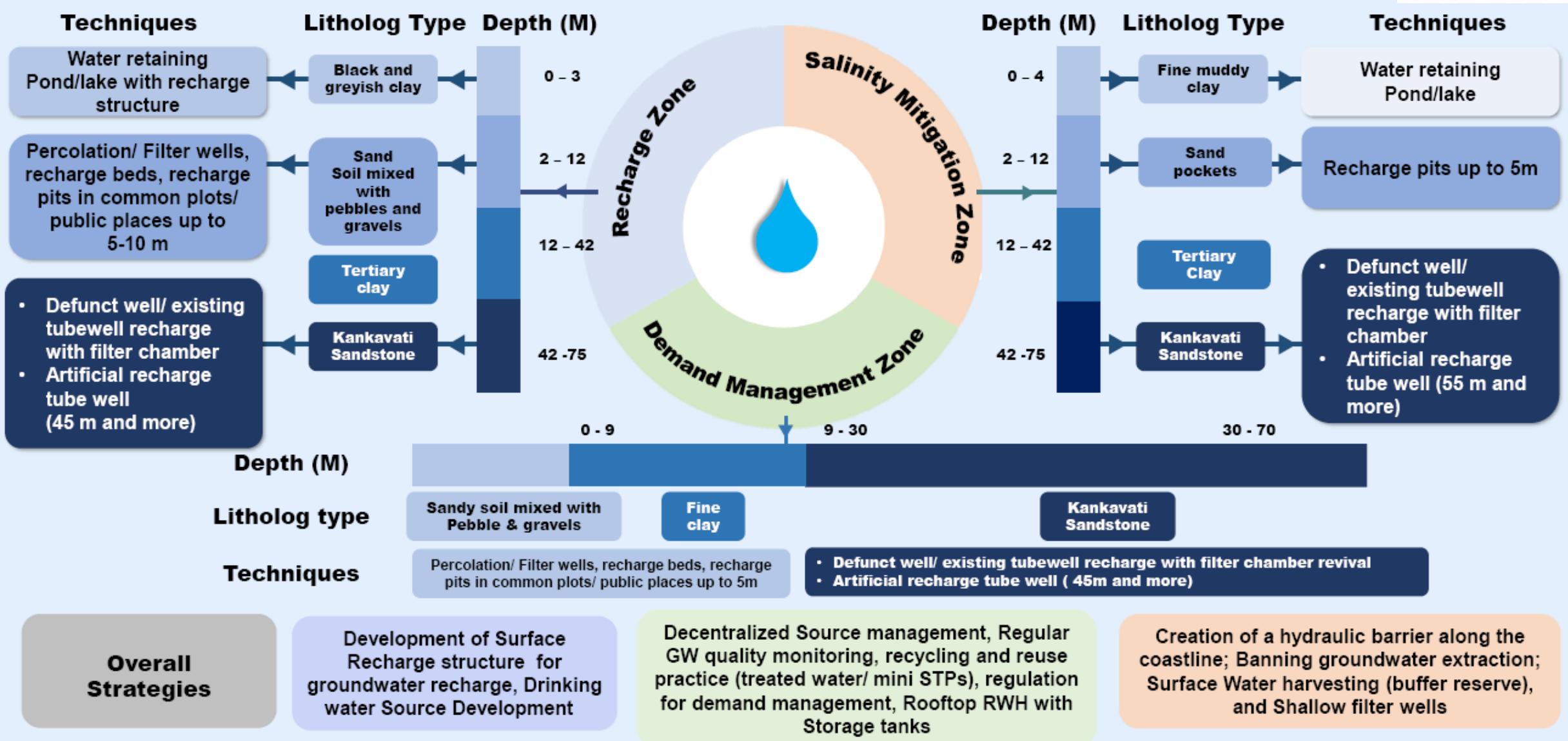
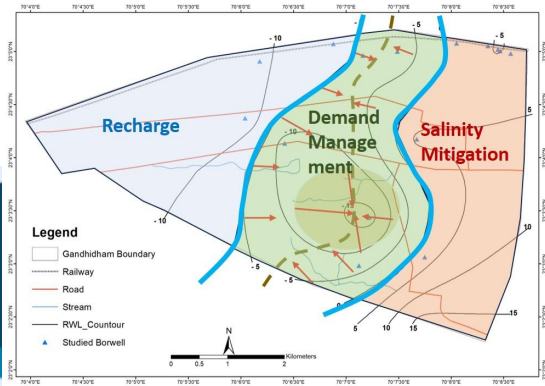
- To understand Seasonal and annual changes in GW levels, comparing rise and fall in GW levels in observation wells.
- Changes categorized into four categories.
- Pre and post monsoon ground water quality is also checked.

Identification of potential water recharge zones...

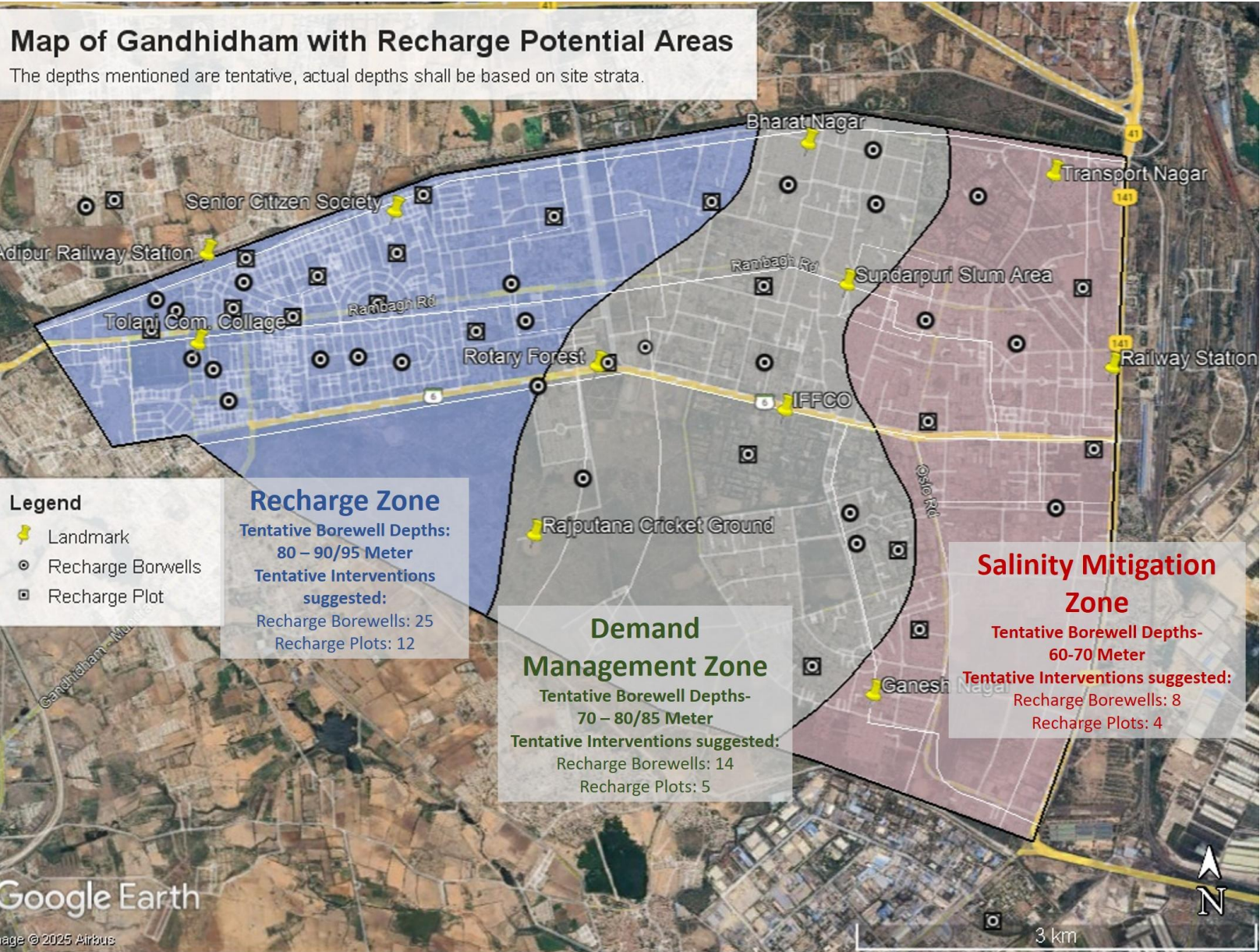


Identification zone-wise Groundwater recharge techniques

Zone-wise Recharge Techniques



Zone wise Map of Gandhidham with Recharge Potential Areas



Please note- these depths are tentative, and should be amended based on the actual strata encountered at the time of construction. For mitigating Floods, strategies like Borewell along with Filter bed, Recharge plot etc. is to be considered based on volume of water available in the area additionally, Recharge Pit, Percolation wells are also required.

- **Zone wise public/ institutional buildings** with large campus or flooding zones of the city were **identified**.
- Strategy shared with the city officials and preliminary visits were carried out **to check availability of land and willingness of the beneficiary**.
- **City adapted** this strategy and considered **100+ properties** for GW recharge **with state government/ MLA funds**.

Impactful demonstration projects: Images from the ground

Rainwater Harvesting and Groundwater recharge @ Gandhidham



Anganwadi no-85



3 school cluster- Kanya Shala, Kumar shala and Hindi Shala



Gandhidham Municipal Council

Impactful demonstration projects : Successfully implemented multiple rainwater harvesting and groundwater recharge structures

Groundwater recharge structures @ **Anjar** to mitigate urban flooding and improve depleting Ground Water levels



Gokulnagar



Marutinagar



APMC



Swami Vivekanand school

Community engagement, awareness and capacity building

Jal Sanrakshan Mela – 1200+ attendees



Awareness program– 30,000+ people



Viksit Bharat, Government program

**Ramnavmi
Mela**

***Sstudents and teachers
awareness program***

Capacity building for - 100+ professionals



Multiple Stakeholder consultations



***Focus group discussions
with citizens and local
residents***

Multiple Stakeholder consultations with govt officials

Field visit to capture good practices in and around kachchh

Scaling up at city and district level

Discussion with various stakeholders

Discussion with **APMC Secretary**, for developing RWH at APMC building and further scale up in +60 near by villages at **Taluka level**



Discussion with **Development Authority** – Anjar Area Development Authority and Gandhidham Development Authority



Discussion with **Taluka Panchayat Education Officer** for further scale up in school in Anjar and Gandhidham



Discussion with **Sindhu Resettlement Corporation** about the study and potential location for developing GWR structures to mitigate urban flooding situation in Gandhidham



Round Table meeting with **Gandhidham Chamber of commerce (GCCCI)** for various potential scaleup initiatives



Discussions planned with **Collector, MP and MLA** for scaling up activities at district-level and with **Urban Development Department (UDD)** and **Gujarat Urban Development Mission (GUDM)** for state-level scale-up through ongoing government programs

Replication interest for RWH/GWR from Various Stakeholders



Industrialist : Gandhidham Chambers of Commerce
Agarwalla Timbers



City governments : Gandhidham , Anjar, Morbi, Surendranagar and other cities of Gujarat



Residential colonies :
Navratna society,
Individual households








Sector partners :

Rotary Club
Inner wheel women club
Kanya Vidhyalay
Marwadi Samaj

CWAS supported through technical assistance . . .

RWH theme park in Gandhidham in partnership with SRC

Adisar Pond – As RWH Theme Park



The city has developed a **human-made water body** named **Adisar Pond**, which is a **recreational spot** for the city and is operated and maintained by SRC. The pond has an **existing Groundwater recharge** structure.



**Rainwater Harvesting System–
for Drinking Purpose and
Display screen**



**Rainwater Harvesting System –
Traditional Practice of
conservation**



**Existing Groundwater Recharge
System – Groundwater
Replenish**



**Ground Water Recharge
through Filter Bed**

SRC to fund 20% of total project cost, bringing partnership and ownership in the project

Adisar Pond will be developed into **RWH Theme park** in tune with Bangalore RWH Theme Park – **first for the State**

Impacts and Achievements of 2.8 years of our work...



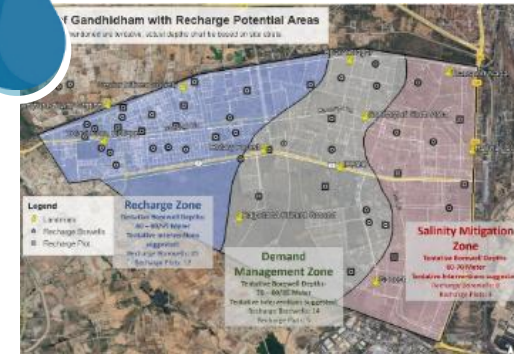
40,000+
Litres fresh water available for
3000+ students, through
Rainwater Harvesting Project



1200+ visitors
from various walks of life visited the Jal
Sanrakshan Mela, including MP, MLA,
Government Officials, Development
Authority, Armed forces, villagers, citizens



56+ million
litres groundwater recharging annually
through GWR equivalent to drinking
water for **10,000+ HHs**



INR 3 Cr.
Invested by the state government in
50+ ground water recharge,
leveraging CWAS pilot projects to mitigate
urban flooding and in **35+**
Institutional/school buildings.



100+
Professional trained
and made aware about the
importance of RWH/GWR including
Engineers, teachers, plumbers etc.



Development of
**1st Rainwater Harvesting
(RWH) Theme Park of
Gujarat**
in collaboration with Sindhu
Resettlement Corporation

A collaborative approach to move towards water secure and climate resilient cities...



THANK YOU

CWAS CENTER
FOR WATER
AND SANITATION

CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY

About us

The Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS undertakes action-research, implementation support, capacity building and advocacy in the field of urban water and sanitation. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner.



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