

Utility Planning- Water Supply

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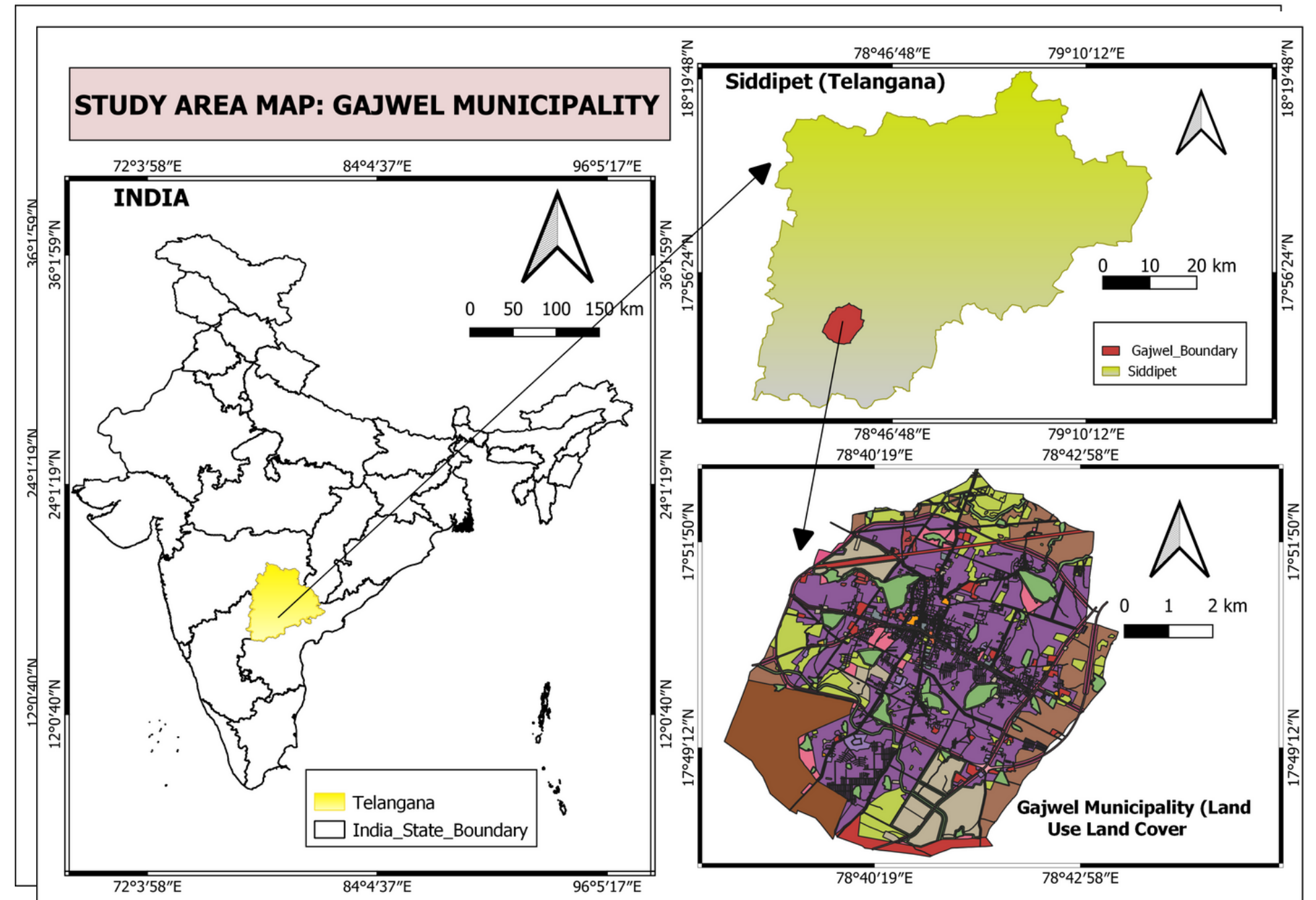
GAJWEL- PRAGNAPUR MUNICIPALITY -2041

Group 1

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STUDY AREA

- Gajwel, officially known as Gajwel–Pragnapur, is a town and municipality situated in the Siddipet district of Telangana, India.
- The town is positioned approximately **53 kilometers northwest of Hyderabad**, the state capital, and **lies on the Deccan Plateau**.
- The municipal jurisdiction spans an area of **51.9 km²**, covering the Gajwel–Pragnapur region.
- With an **average elevation of 540 meters (1,770 feet)** above sea level, the town features **undulating terrain**, including scattered hills and valleys.



WATER GOVERNANCE IN TELANAGNA

Hydrological assessment of availability of water in the river basins including water allocation to the Irrigation

**Irrigation & Command Area
Development Department**

**Rural Water Supply and
Sanitation Department**

The nodal agency in the State for providing drinking water and sanitation facilities in rural areas under Rural Water Supply sector.

Responsible for planning and managing water resources at the district level

**District Water
Management Agencies**

SCHEMES: WATER SUPPLY

01

Mission Kakatiya

The objective of Mission Kakatiya is to enhance the development of agriculture based income for small and marginal farmers through restoration of 46,531 irrigation tanks.

02

Mission Bhageeratha

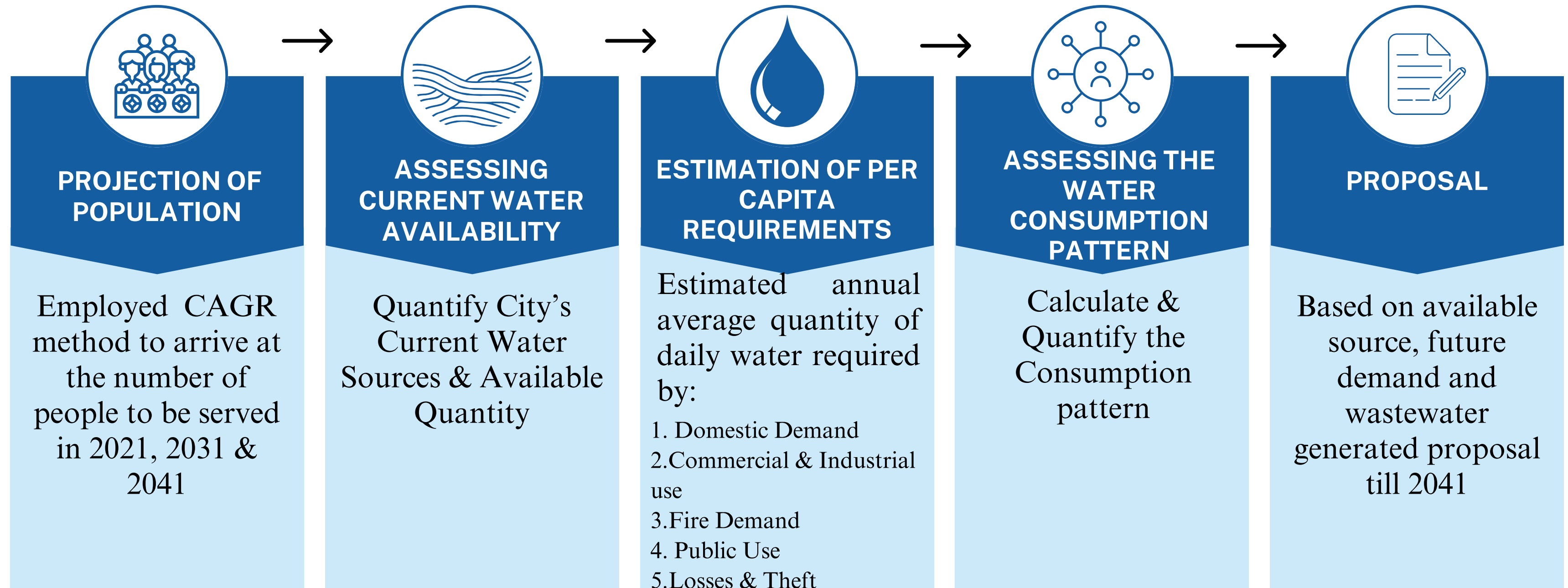
Under the mission Government provide drinking water in all the rural and urban areas by integrating the existing water supply systems in the rural and urban areas with the Grid proposed to be developed by TDWS Corporation.

03

Initiatives by Environment Protection Training & Research Institute

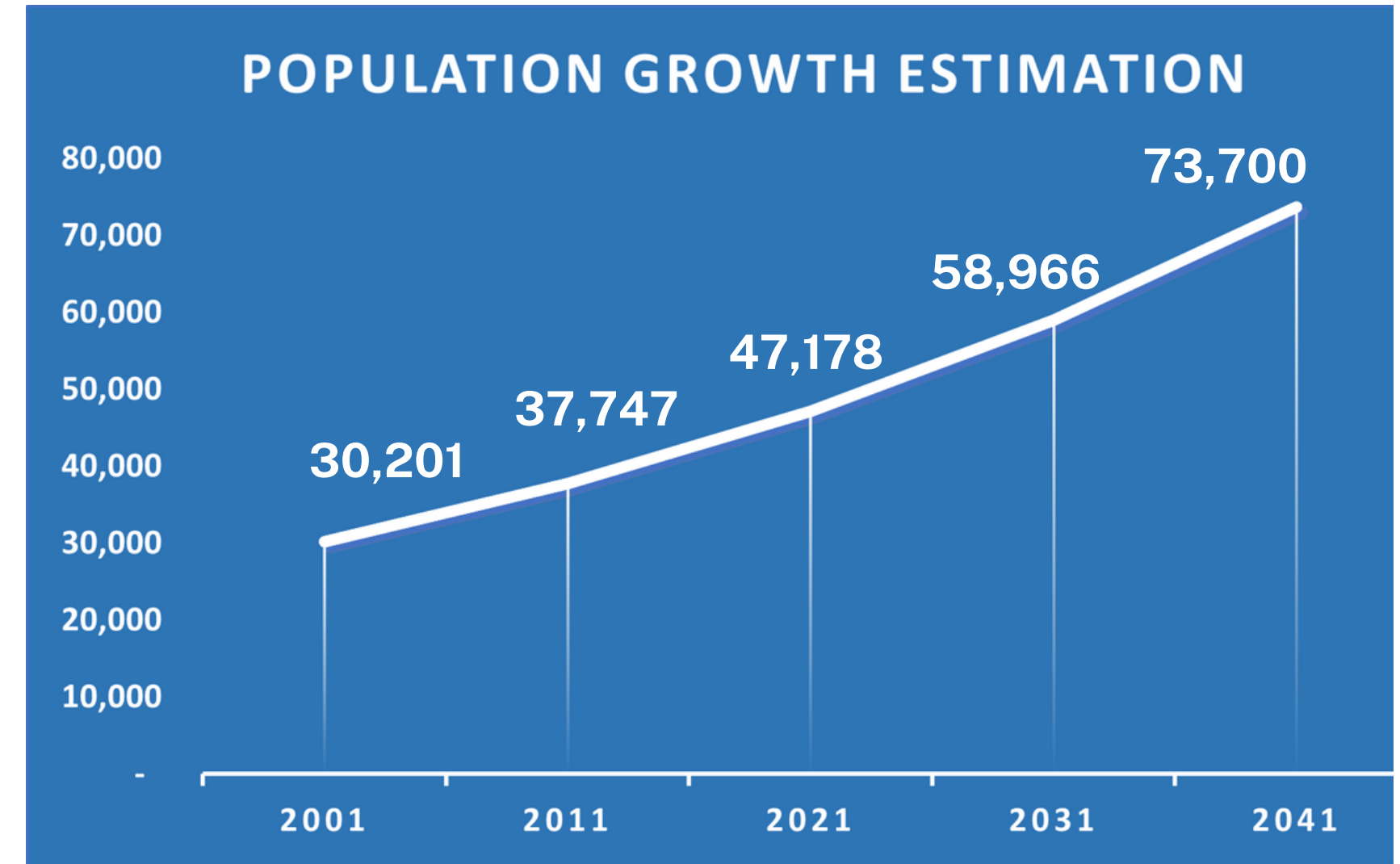
Project “State Specific Action Plan (SSAP) for water sector for Telangana State”, in accordance with directions issued by Government of Telangana State

WATER SUPPLY PLANNING PROCESS FLOW



DEMAND ESTIMATION: POPULATION PROJECTION

- By employing Compound Annual Growth Rate (CAGR) method, Gajwel-Pragnapur Municipality is projected to have 73,700 population by 2041.
- The approach aligns with the assumption growth rate is will remain constant over the year and the population is expected to be compounded as the city is young and is rapidly urbanizing.



Municipality	Population 1991	Population 2001	Population 2011	Growth Rate 2001-2011	Growth Rate 1991-2011	Adopted Compound Annual Growth Rate
Gajwel-Pragnapur	21,591	30,201	37,747	2.26%	2.83%	2.26%

CAGR Formula: $((2011 \text{ Population} / 2001 \text{ Population}) ^ (1 / n) - 1) * 100$

TOTAL WATER AVAILABILITY - GAJWEL

Telangana Time



Yellampally Reservoir

Capacity: 137.3 MLD^{*1}

Times of India



Lakes/Ponds

Number : 74

Area: 319 Hectare^{*2}

Capacity: 8665.17 MLD

Stockindia Image



Ground Water

Volume: 4387.8 MLD^{*3}

**Total Water Availability
= 13,190.27 MLD**

WATER QUALITY STANDARDS

Water quality standards specified in the CPHEEO Manual on water supply for Physical, chemical and Bacteriological quality will be followed.

*1.<http://irrigationap.cgg.gov.in>

*2.Independently calculated the data through GIS

*3.Ground Water (GW) Volume: GW ham of mandal x ULB Area/Mandal Area x 0.5

PER CAPITA CONSUMPTION DEMAND

Category	Categorized Population Projections ⁴			Category wise per capita per day water ^{5 6}	Estimated Water Requirement (LPCD) ⁷		
	2021	2031	2041		2021	2031	2041
Residential	18,492	25,629	34,426	150	70,76,700	88,44,900	1,10,55,000
Industries	47,178	58,966	73,700	45	8,32,140	11,53,305	15,49,170
Government Institutes	850	905	950	45	38,250	40,725	42,750
Educational Institutes	14,153	17,689	22,110	45	6,36,885	7,96,005	9,94,950
Hospital	120	160	200	340	40,800	54,400	68,000
Domestic	18,492	25,629	34,426	150	70,76,700	88,44,900	1,10,55,000
Others	62,301	77,720	96,960	475	15,48,075	20,44,435	26,54,870

**2041 Water Requirement = 13,709,870
LPCD**



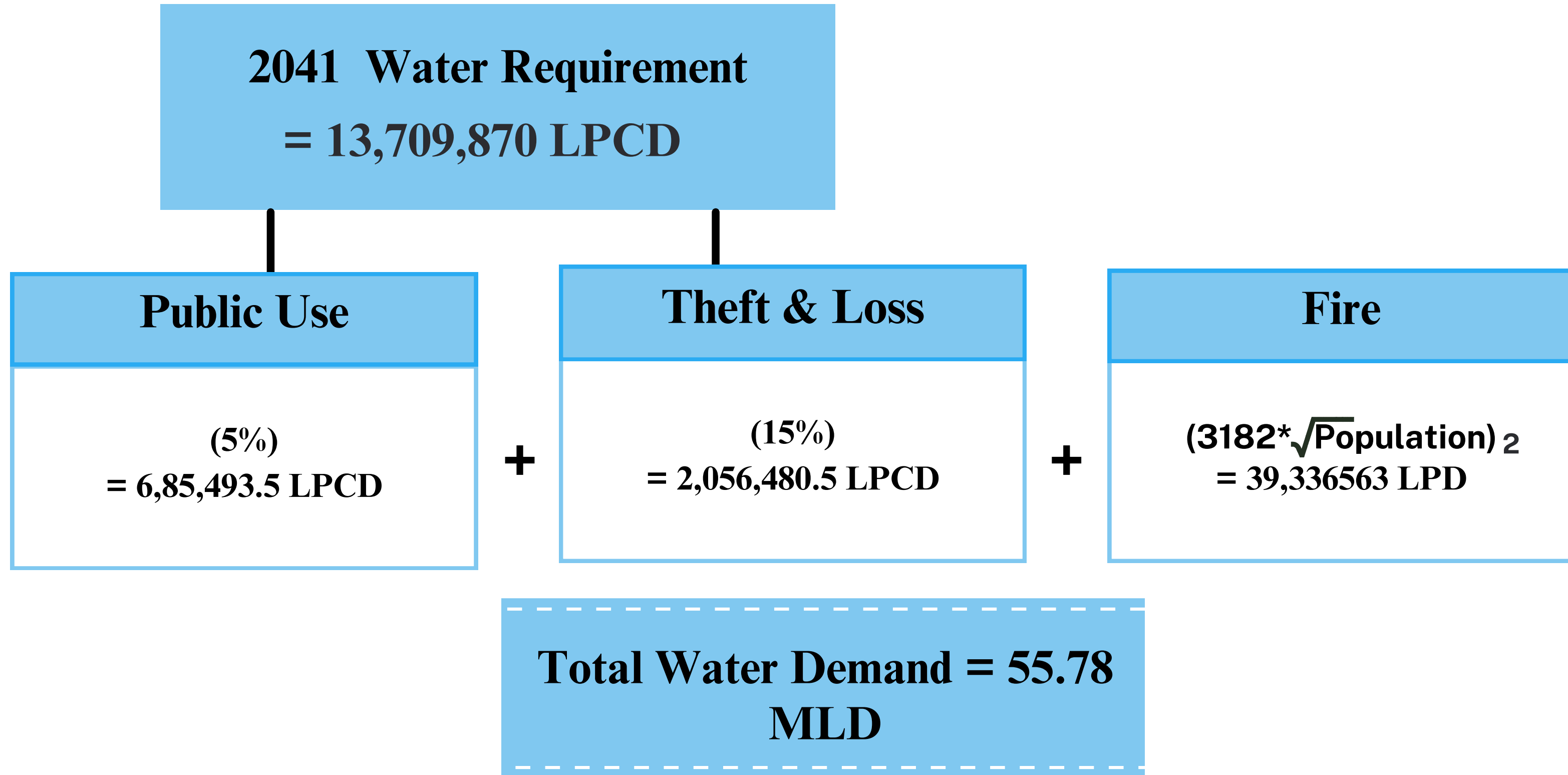
4. Calculated based on census 2011 proportions

5. CPHEEO. (1999). Manual on Water Supply and Treatment

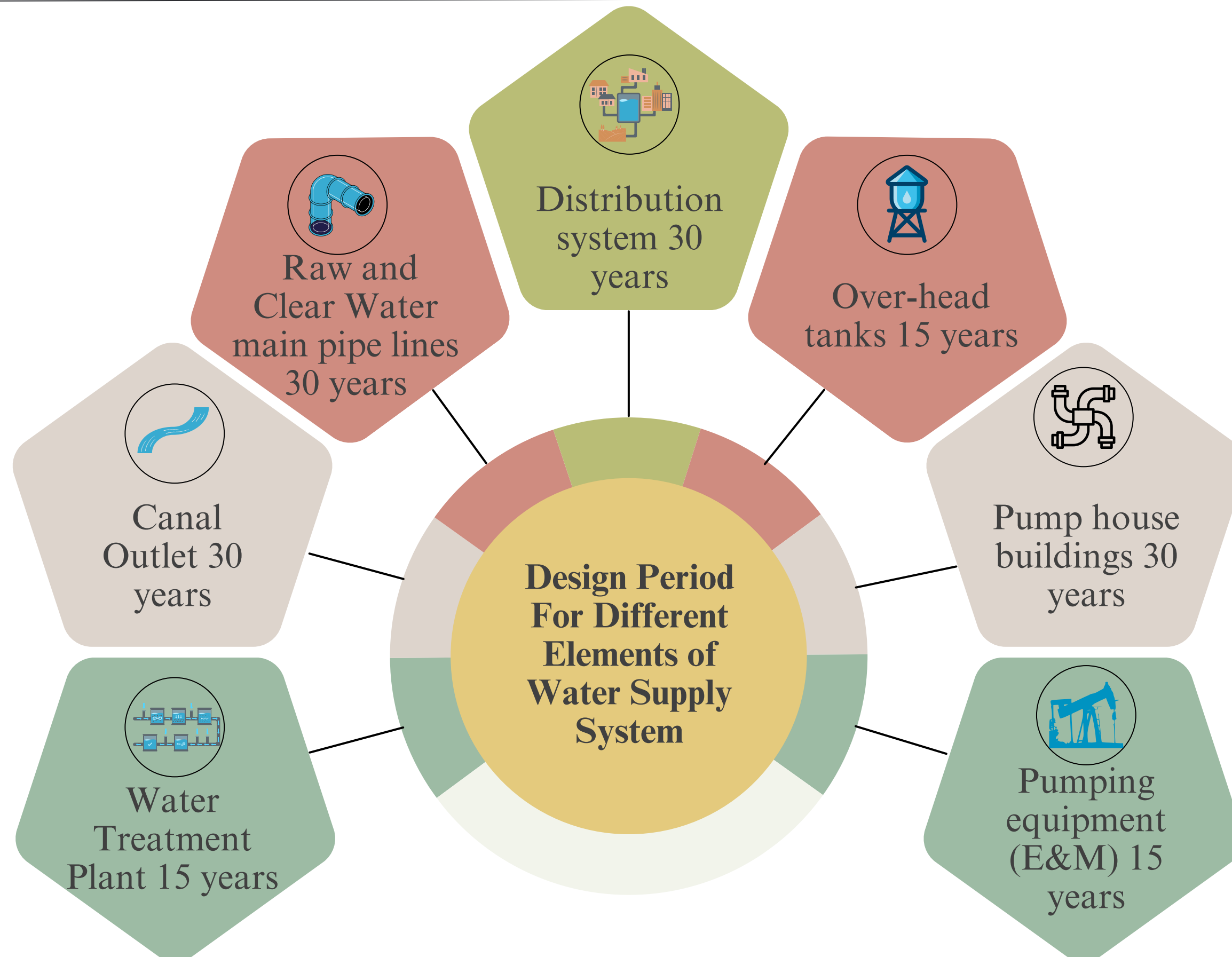
6. IS 1172:1993

7. Categorized Population Projections * Category wise per Capita per day Water

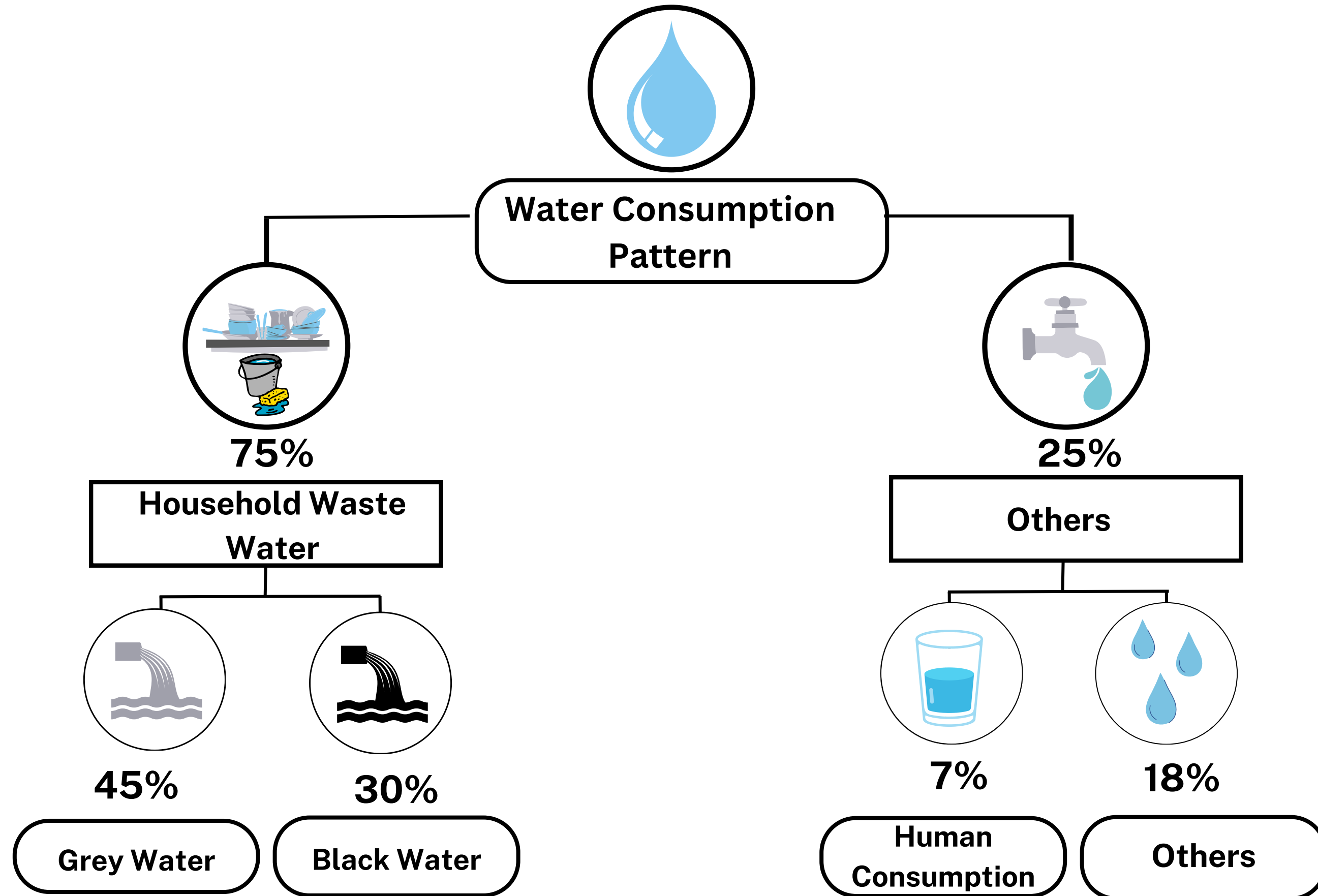
WATER UTILITY PLANNING - 2041



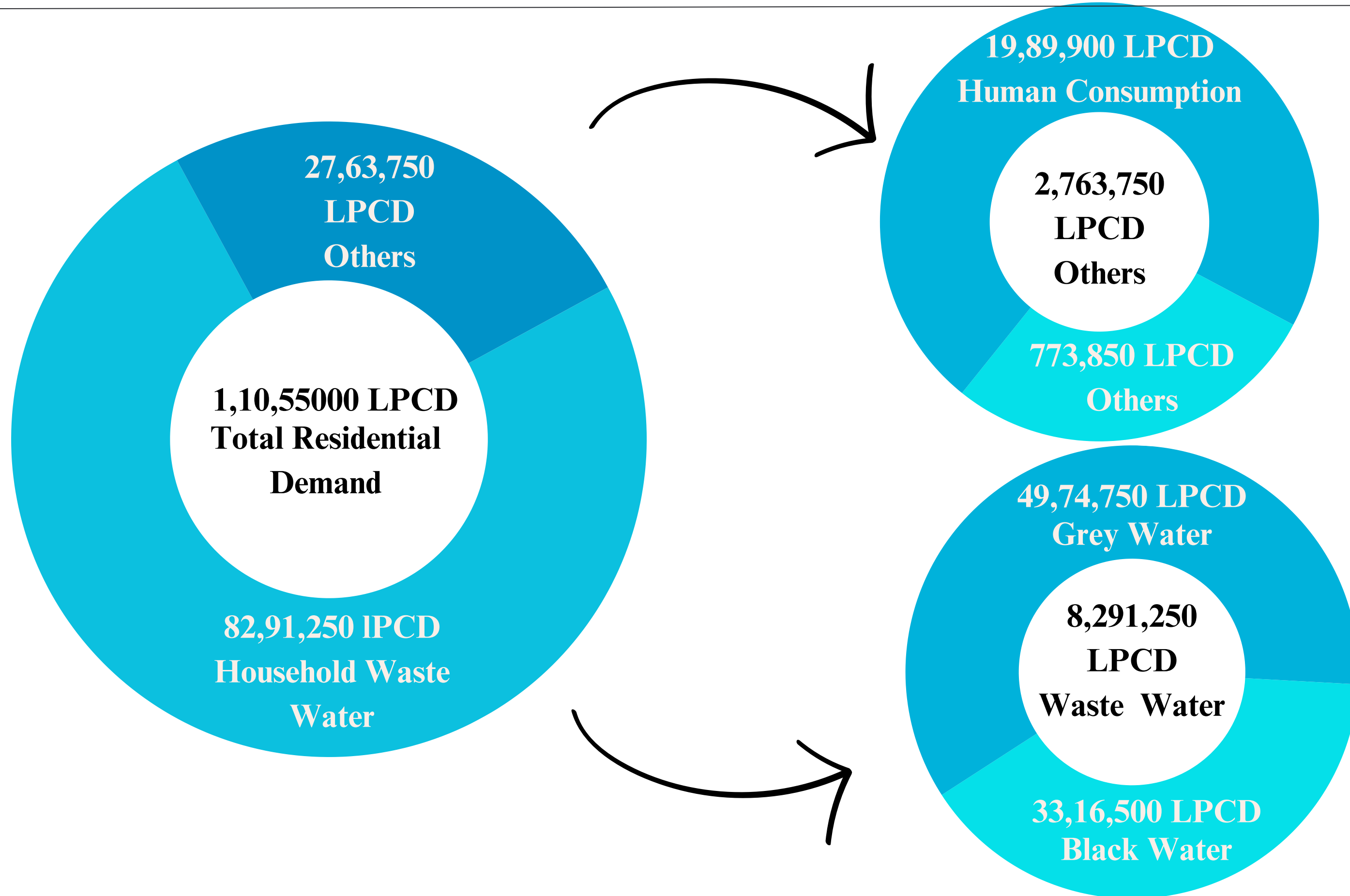
DESIGN PERIOD



RESIDENTIAL WATER CONSUMPTION PATTERN



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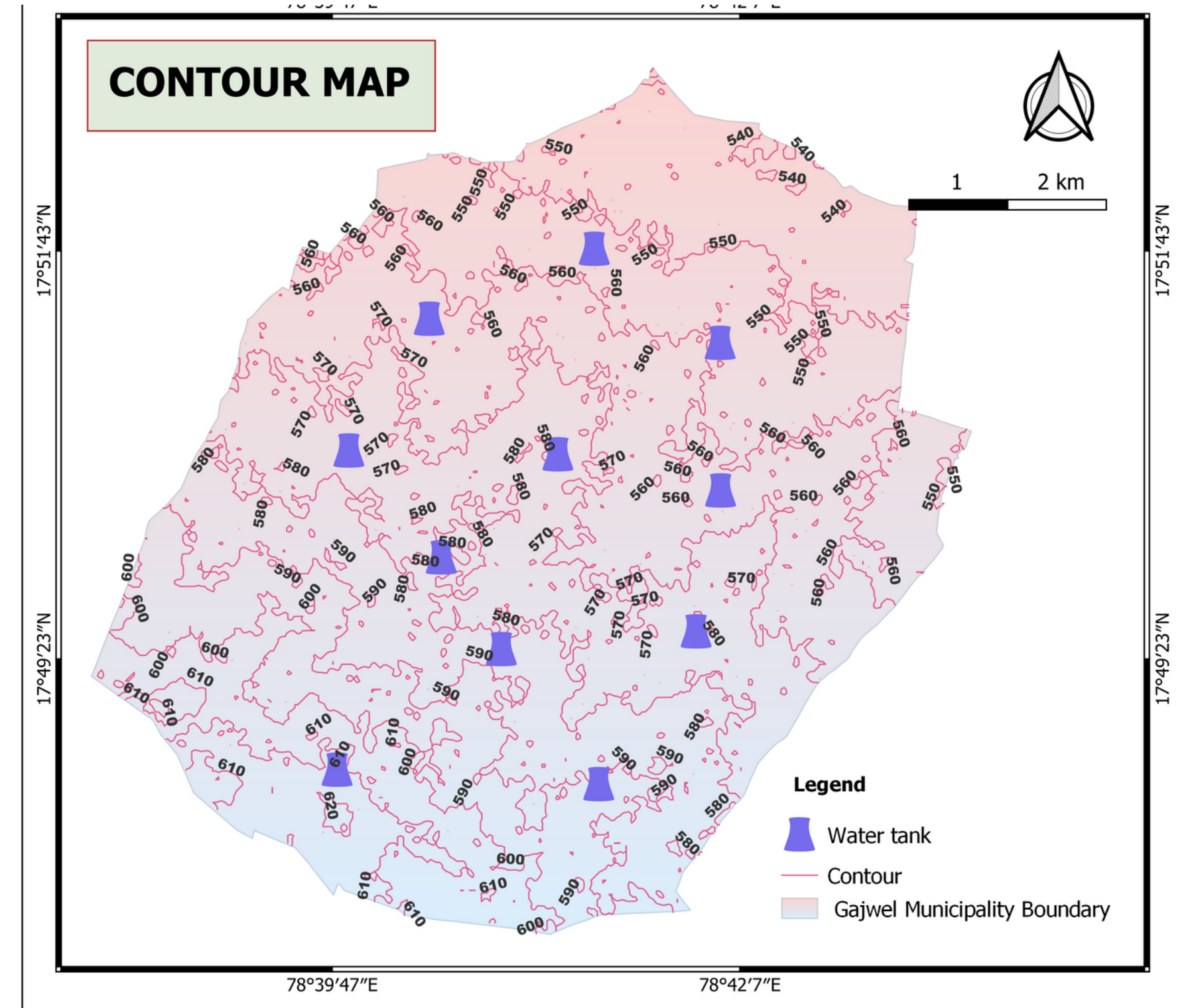


WATER TANK PROJECTION

For efficient and equitable distribution of water, grid pattern will be preferred.

Zoning in the distribution system depends upon:

- Density of population
- Type of locality
- Topography
- Facility for isolating for assessment of waste and leak detection.



RECOMMENDATIONS

Alternate sources of Supply



Increase the capacity of dam by increasing the height of Yellampally dam.



Rain water harvesting.



Explore Mallanasagar Reservoir as a potential water supply source.



MALLANNASAGAR : The Crown Jewel of World's largest Multi-stage lift irrigation project, Kaleshwaram

- ◆ Serves as the "Mother reservoir to Kaleshwaram Project"
- ◆ Will act as the growth engine of Telangana's economy
- ◆ Will meet irrigation and drinking water requirements of **13 districts** in the state, including Hyderabad

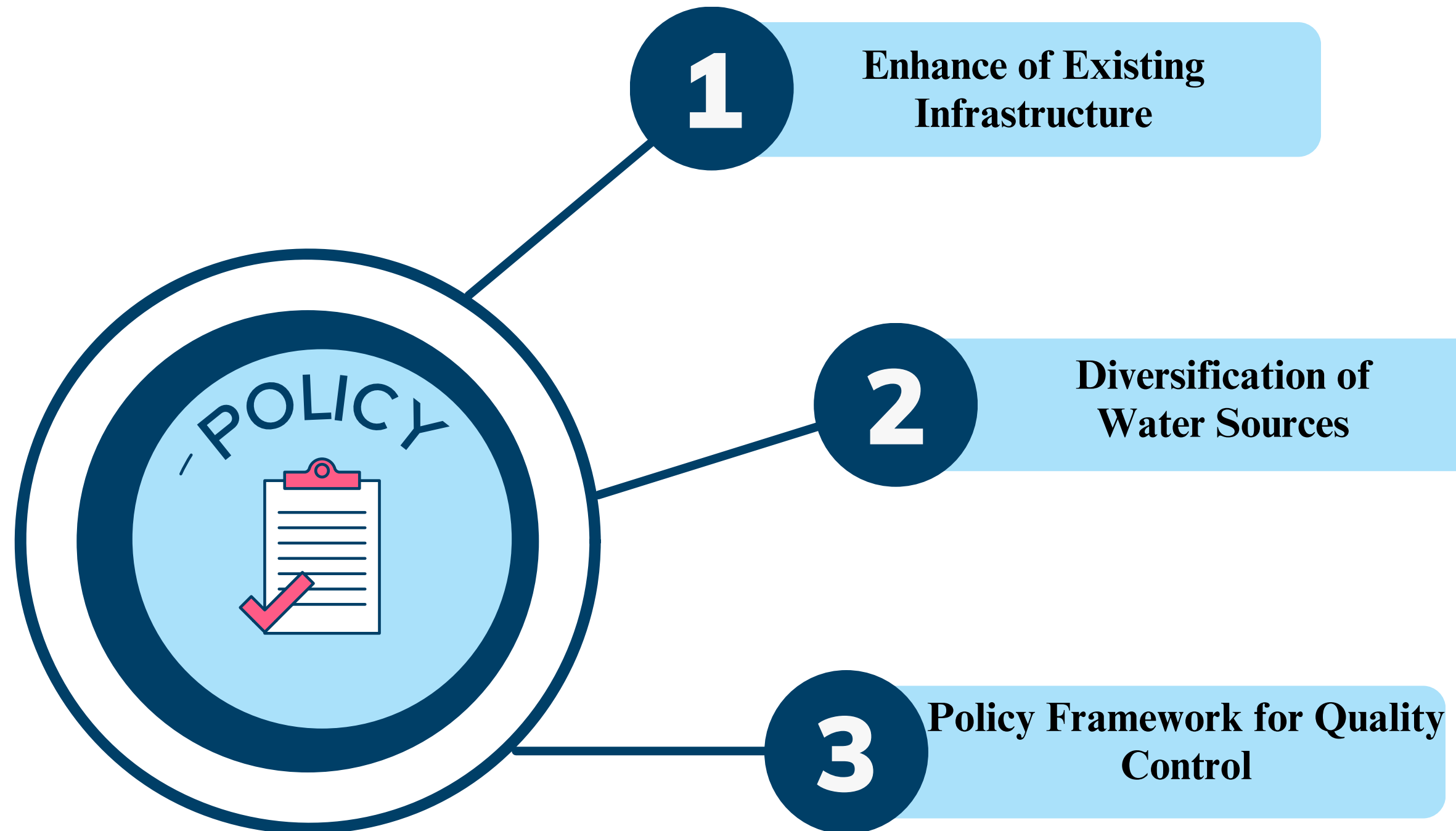
Figures Speak

Storage capacity: 50 TMC

Total Ayacut: 11.29 lakh acre

irrigationap.cgg.gov.in ›

POLICY INTERVENTION



THANK YOU