

WATER SCARCITY AND SOLUTION FOR 2020

By:

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❑ GENESIS OF WATER SCARCITY:

- Population & Urban migration are uncontrollable
- Water Resources variable due to:
 - ✓ Global warming: 1 to 2°C rise
 - ✓ Rapid Environmental changes
 - Change of Rain Pattern – Intensity
 - Low pressure Zone – Timings – Distribution

❖ **Days of Rainfall / years are decreasing:**

SURAT
CLIMATOLOGICAL TABLE
 PERIOD: 1951-1980

Month	Mean Temperature (°C)		Mean Total Rainfall (mm)	Mean Number of Rainy Days
	Daily Minimum	Daily Maximum		
Jan	14.3	31.5	0.0	0.0
Feb	16.1	33.5	0.4	0.0
Mar	20.1	36.2	1.5	0.2
Apr	23.7	37.7	0.3	0.0
May	26.4	36.4	7.3	0.3
Jun	26.6	33.8	249.3	8.0
Jul	25.4	31.0	417.7	15.4
Aug	25.0	30.6	299.4	13.2
Sep	24.4	32.2	190.7	7.6
Oct	23.0	35.9	27.2	1.2
Nov	19.3	35.3	13.0	0.8
Dec	16.1	32.9	2.6	0.1
Annual	21.7	33.9	1209.4	46.8

Source: www.imd.gov.in

❖ Rain in Saurashtra doubled in 5 years:

Rains Recorded In Last Five Years

Year	North Gujarat	Saurashtra	Central-East Gujarat	South Gujarat	State average
2002	257.5	416.14	533.17	1379.5	646.58
2003	837	724.57	959.33	1616.8	1034
2004	517.5	605.57	864.67	1799.2	946.73
2005	903.17	873	1077.3	2362.5	1304
2006	1187.33	827	1277.5	1958.83	1311

all quantities recorded in mms

❖ INCREASED RUNOFF DUE TO URBANIZATION – CONSTRUCTION:

- ✓ Less recharging to Ground
- ✓ Storm Water Drains of hundreds of Crores drains Sweet Water to Sea.

❖ TAPTI SOURCE FOR SURAT NOW CATERES,

- ✓ South Gujarat, Atul to GNFC Bharuch
- ✓ Towns & Villages
- ✓ Power – Irrigation
- ✓ Multipurpose Industry - Water supply

❖ **UKAI STORAGE MAY DECREASE WITH UPSTREAM 4 DAMS & MANY CHECK DAMS IN NEXT DECADE.**

❖ **NO OWNED SOURCE FOR WATER IN CITY**

- ✓ Need 2020 - 2000 MGD,
- ✓ Source < 700 MGD, from Tapti.

❖ SURVIVAL OF CIVILIZATION & GROWTH:

- Not possible unless water is secured.
- Minimum need per person: WHO 2,000 cu.m / year
- Available at Surat in 2020, < 1,000 cu.m / year

WATER SCARCITY IS OBVIOUS

❑ CONSERVATION:

- Indian habits to save protected country against recession over world
- Save (not waste) rain water to keep Bank (ground water) flooded for 2020 – 2025
- ✓ WE MUST EVERY DAY SAVE WATER & CONSERVE IT FOR OUR CHILDREN.

HOW ?

❖ WHAT WE CAN DO?

➤ Gods gifted rain should be stored, conserved and stopped from draining into tidal / sea water.

➤ How?

1) Reuse water for more than one use before draining to sewage drains.

Bath, washing m/c water can be use for flushing toilet,
Garden

2) Every terrace say per 100 square meters generates 1 lakh liter / year (from rainy days)

- Store 30,000 liters in Under Ground tanks

(5 m x 3 m x 2 m deep), drinking use.

- Harvest 60,000 liters by a 6" dia bore.

10 to 20 m deep as per location of ground water.

This is enough for 2 – 3 persons minimum needs for year

Note in 2015 water can cost Rs. 10/- to 15/- per liter.

❖ Ground Water Recharge Scheme at AMD, SVNIT, Surat

































3) EDUCATE PEOPLE, WOMEN, ELECTED REPRESENTATIVE TO LEGISLATE:

- a) Reservation of 5 – 6 % of land (low lying) for water body & recharge well in each T.P. Schemes of city.
- b) Prevention of legal / illegal occupancy of existing water bodies for other uses.
- c) Conserve flood spills by drains to large flood detention reservoirs along coastal area.
- d) 10 km long x 1 km wide x 6 m deep or so at Tena, Sena, Kakra khadi, Kim & Mindhola (Conserve 60 to 100 MCM as source of water for industry, ponds in no source villages)

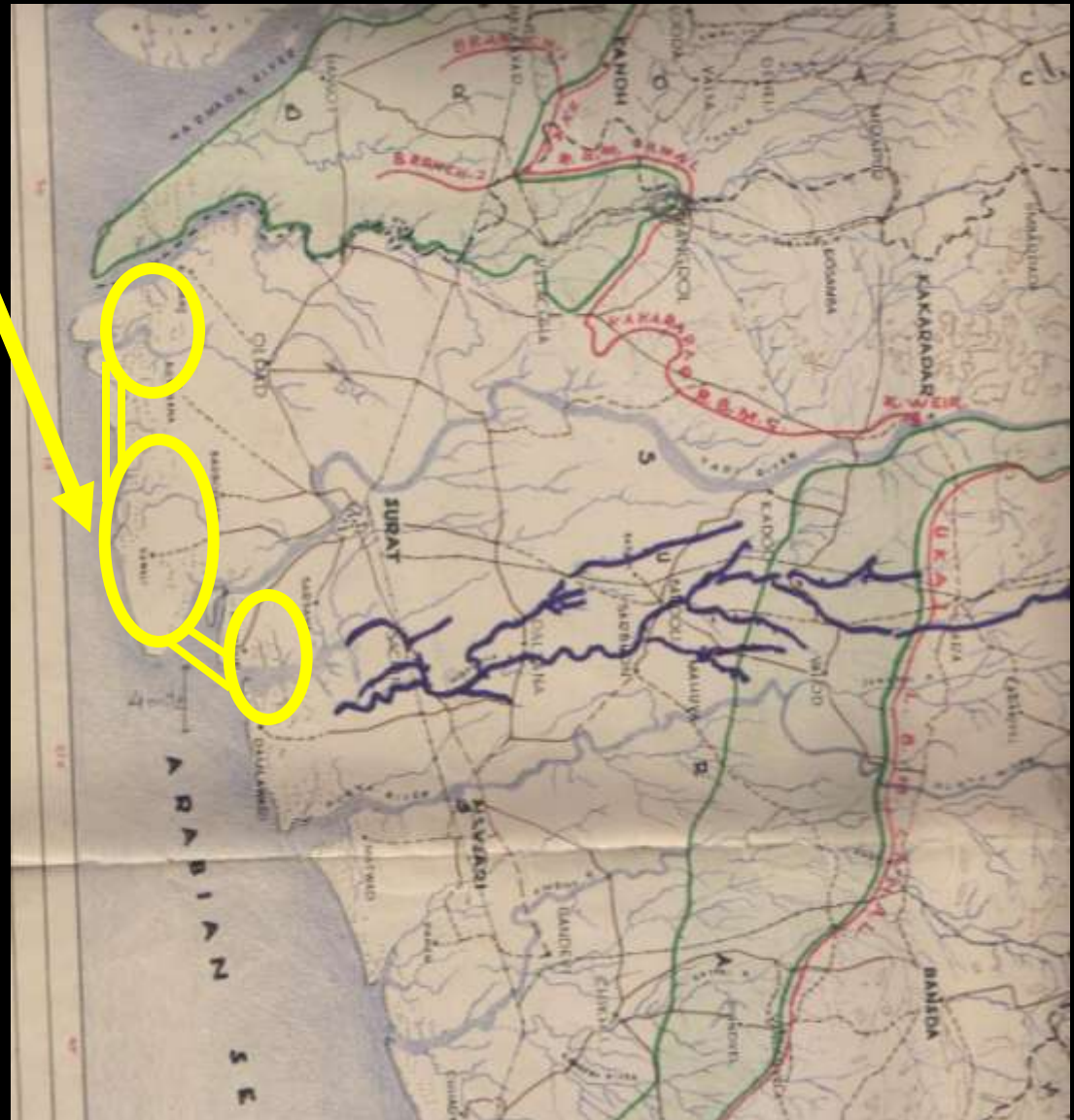
Flood Detention Reservoir with Ballon dam spillway:

Coastal Area of Hajira, Olpad.

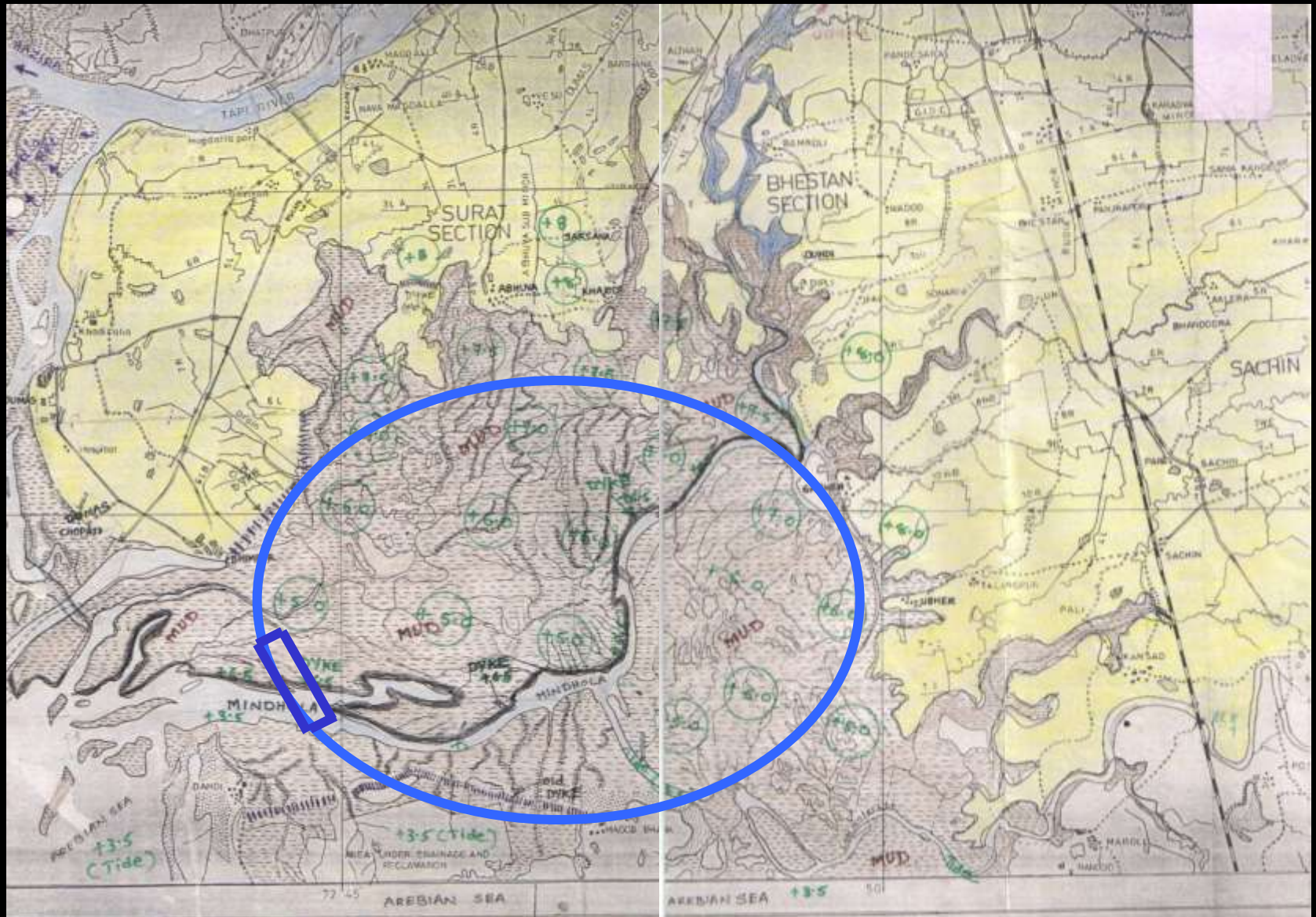
- Tena Sena Creek & Kim River

Coastal Area at Mouth of

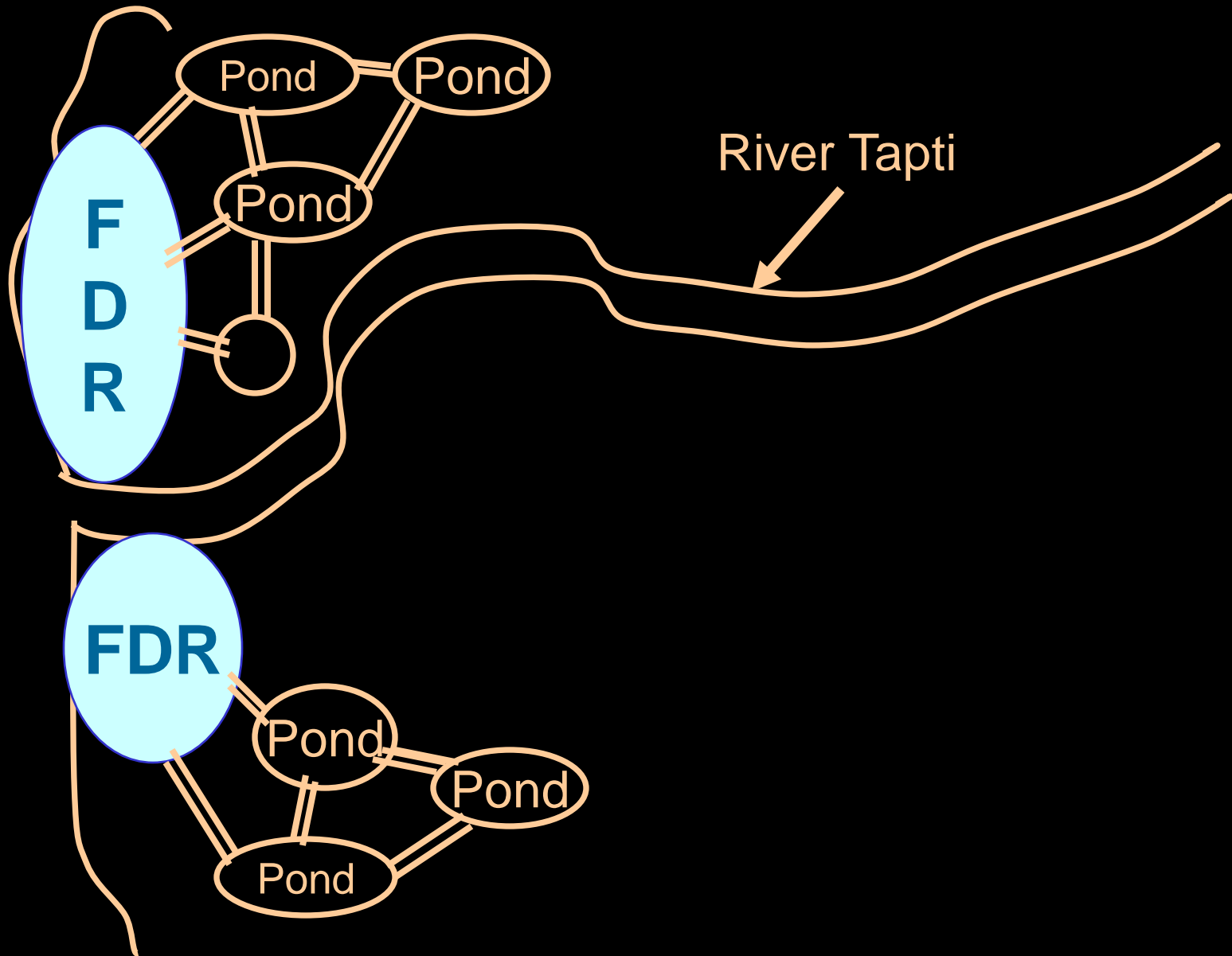
- Mindhola River



Flood Detention Reservoir - Mindhola River



Linking of Village Ponds (reserved) for no source villages





Proposed Coastal Highway with Flood Detention Reservoir

— NH-8.

— Proposed
Coastal Highway
Evacuation for
Hajira in Disaster

MAY GOD BLESS US WITH COURAGE, DEVOTION
AND SUCCESS TO PRESERVE RAIN WATER FOR
OUR FUTURE GENERATIONS' - PLANETS SURVIVAL.

Proposed Barrage - Umra (Surat)



THANKS TO
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THANK YOU