

### Water resource management at local level

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# **WATER RESOURCE MANAGEMENT AT LOCAL LEVEL**

**IMPORTANCE OF COMMUNITY  
MANAGEMENT**

**JAIPUR**

- WATER AS A RESOURCE – IT FLOWS
- ESSENTIAL FOR SOCIO-ECONOMIC DEVELOPMENT
- MAINTAINING HEALTHY ECO SYSTEM – SO AS TO CONTINUE TO PRODUCE ECO SERVICES
- RAINFALL IS FINITE
- AT WHAT STAGE OF JOURNEY FROM SKY, SOILS, TO AQUIFERS TO RIVER AND SEA, IT IS CAPTURED
- BY WHOM AND HOW MUCH
- BY 2025 TWO THIRD OF INDIA WILL HAVE LESS THAN 1,000 KILO LITRE/CAPITA
- CRITICAL WATER STRESS : ABSOLUTE WATER SCARCITY

- TOTAL WATER FOOTPRINTS; MEANS THE VOLUME OF WATER USED FOR PRODUCTION OF GOODS AND SERVICES
- BY 2025, TWO THRID OF INDIA WILL HAVE LESS THAN 1000 KILO LITERS/ CAPITA/ ANNUM (CRITICAL WATER STRESS; ABSOLUTE WATER SCARCITY)

PRODUCE	WORLD AVERAGE (IN LITERS)	INDIA	REMARKS
WHEAT	1620	2014	FRANCE/UK - 590
PULSES	4055		COTTON -3600 JEAN – 10000 OUR VIRTUAL EXPORT OF WATER IS 4193 MILLION/M3/YEAR
MILK	1021		
SHEEP-GOAT	8763		
MEAT	15415		
SUGAR	197		
VEGEATABLES	322		

## **ADD NEW SUPPLIES TO EXISTING SUPPLIES;**

### **AUGMENT SUPPLY**

- RAIN WATER CONSERVATION INCLUDING RAIN WATER HARVESTING
- EFFECTIVE USE OF SURFACE RUN OFF; INCREASE PERMEABILITY, ABSORPTION AND INCREASE BIO-MASS
- IMPROVING GROUND WATER STORAGE; NATURAL AND ARTIFICIAL RECHARGE
- SOIL AND MOISTURE CONSERVATION FOR RAISING LAND PRODUCTIVITY

## **REDUCING DEMAND: WATER USE EFFICIENCY : WATER PRODUCTIVITY**

- NATURAL FARMING: IMPROVE SOIL STRUCTURE, CHOOSE SUITABLE CROP VARIETY AND BETTER AGRICULTURE PRACTISES.
- REDUCE EVO TRANSPIRATION: SPECIFIC FORM OF VILLAGE, MULCHING OF SOIL.
- ENSURE EFFICENCY OF SYSTEMS
- ZEOR WATER FOOT PRINT IN INDUSTRY.

- THERE ARE EMPHIRICAL EVIDENCES THAT IN A MINI/MICRO WATER SHED AREA 800 MM OF RAIN IS SUFFICIENT FOR OPTIMUM LAND BASED PRODUCTION
- 8% EXOGENOUS SUPPLY WOULD BE NEEDED- 650 MM
- 35% EXOGENOUS SUPPLY WOULD BE NEEDED- 500 MM
- THUS MANAGING MINI/MICRO WATER SHED AT COMMUNITY LEVEL ENSURES DEMAND MANAGEMENT FOR OPTIMUM PRODUCTION
- WITHIN THE ECO SPACE COMMUNITY CAN MANAGE DEMANDS AND CLAIMS
- TAKE MEASURE FOR ECOLOGICAL RE-GENERATION SO AS TO AUGMENT SUPPLY OF ECO SERVICES
- REDUCING DEPENDANCE ON DEGRADED ECOLOGICAL SERVICES
- ENHANCE PRODUCTIVITY OF LAND AND ANIMALS
- WATER LITERACY; LEARNING WATER BALANCING AND MAXIMISING PRODUCTION PER UNIT OF WATER

- THUS THE CHALLENGES WHICH WE ARE GOING TO FACE
- PROVIDING 150 LITRES/PER DAY/PER PERSON FOR DOMESTIC USE (THE DEMAND WILL DOUBLE IN 2025)
- WATER AVAILABILITY FOR LIVELIHOOD; INCREASE IN LAND BASED PRODUCTION FOR 50% POPULATION
- PROVIDING DOMESTIC WATER FOR INCREASING URBAN AREAS; DEPENDS ON TRANSPORT OF WATER FROM LONG DISTANCES; THUS REDUCING WATER SUPPLY IN OTHER WATER SHEDS FROM WHERE IT IS TRANSPORTED
- INCREASING POLLUTION; THUS MAKING BIG QUANTITY OF WATER UNUSABLE
- RAISING PRODUCTIVITY PER UNIT OF WATER; JUDICIOUS USE OF WATER
- BUILDING/ RE-DESIGNING THE INSTITUTES FOR PROVIDING WATER ON EQUITY BASIS

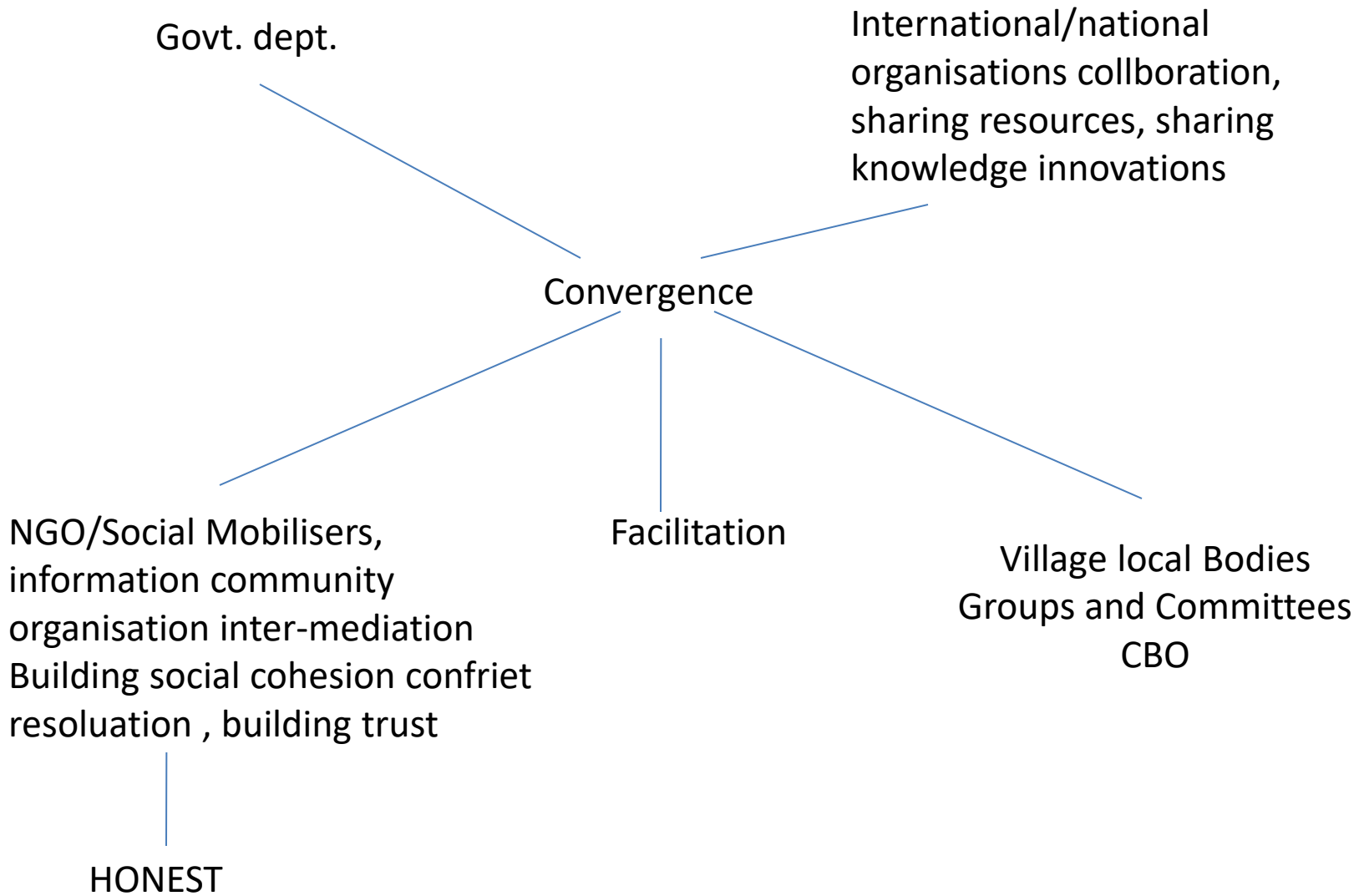
# **PLENTY TO SCARCITY AND VICE VERSA**

- EXOGENOUS SUPPLY; PRECIOUS WATER; PLENTY SUPPLY LEADING TO HIGH WASTAGE
- IT HAS HIGH COST AND UNAFFORDABLE; IT ALSO DEPRIVES ACCESS TO WATER TO OTHER POPULATION
- SUCH SUPPLY NEEDS BETTER MANAGEMENT OF AVAILABLE WATER AT LOCAL COMMUNITY LEVEL; IT IS EXPANDABLE 3 TIMES IN AREA COVERAGE AND MANY FOLD IN PRODUCTION

# **ESSENTIALS FOR WATER MANAGEMENT AT COMMUNITY LEVEL**

- ENABLING INSTITUTIONAL SUPPORT AND SYSTEM APPROACH FOR GRAM PANCHAYAT/ COMMUNITY
- MOBILIZE COMMUNITY, MAKE THEM AWARE, INVOLVE THEMSELVES SO AS TO CONTRIBUTE AND OWN THE SYSTEM FOR ASSURED SERVICES
- FOR MANAGING SATISFACTORY SERVICE LEVEL IF FRAMEWORK OF INCENTIVES FOR PERFORMANCE SO AS TO SUSTAIN THE SYSTEM
- CHOOSING APPROPRIATE TECHNOLOGY AND INSTITUTIONS
- DUAL WATER SUPPLY SYSTEM; INTEGRATE LOCAL WATER SUPPLY SYSTEM INTO PIPELINE SYSTEM
- WOMEN INVOLVEMENT IS CRUCIAL IN MANAGEMENT AND DECISION MAKING BY COMMUNITY
- GRAM SABHA TO REPRESENT COMMUNITIES; DEMANDING REQUIRED SERVICES FROM GRAM PANCHAYAT
- TRANSPARENCY BY APPROPRIATE INTERVENTION, PROCEDURES AND SYSTEMS

- COMMUNITY CONTRIBUTION IS THE KEY FOR INVOLVING COMMUNITY; CONTRIBUTION ENSURES COMMUNITY PARTICIPATION IN PLANNING THE PROJECT AND TO OWN THE SYSTEM; DEVISE AND PAY REGULAR TARIFF FOR O&M
- ENSURE APPROPRIATE O&M SUPPORT AND ACCOMMODATE EXPANSION OF THE SERVICES/ REPLACEMENT/ EXTENSION AND PROVIDE FOR SOURCE FAILURE
- FIXING SERVICE STANDARDS; MoU MAY BE DEVISED BETWEEN GRAM PANCHAYAT AND WATER PROVIDER



***Initiatives  
for  
Water Security***

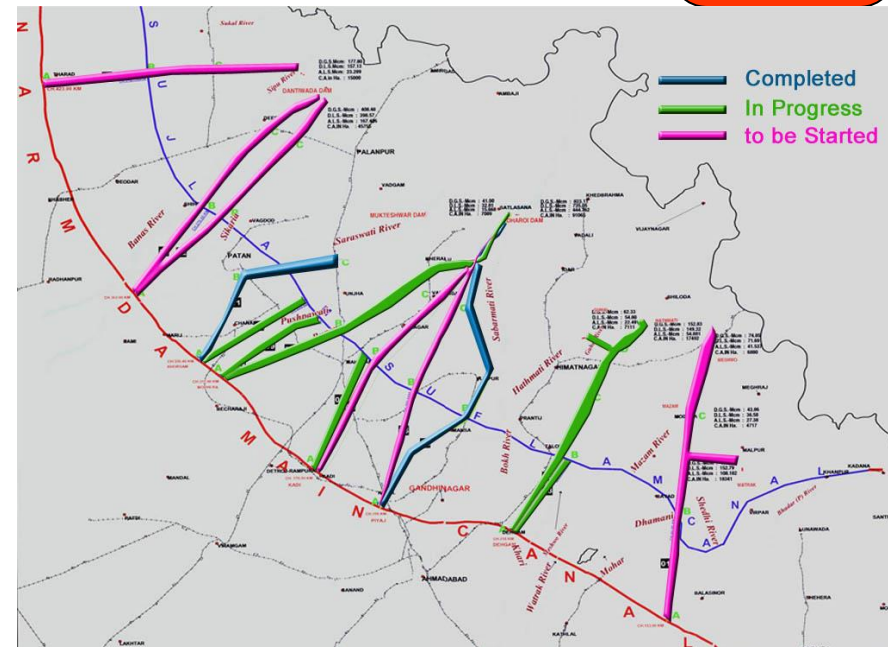
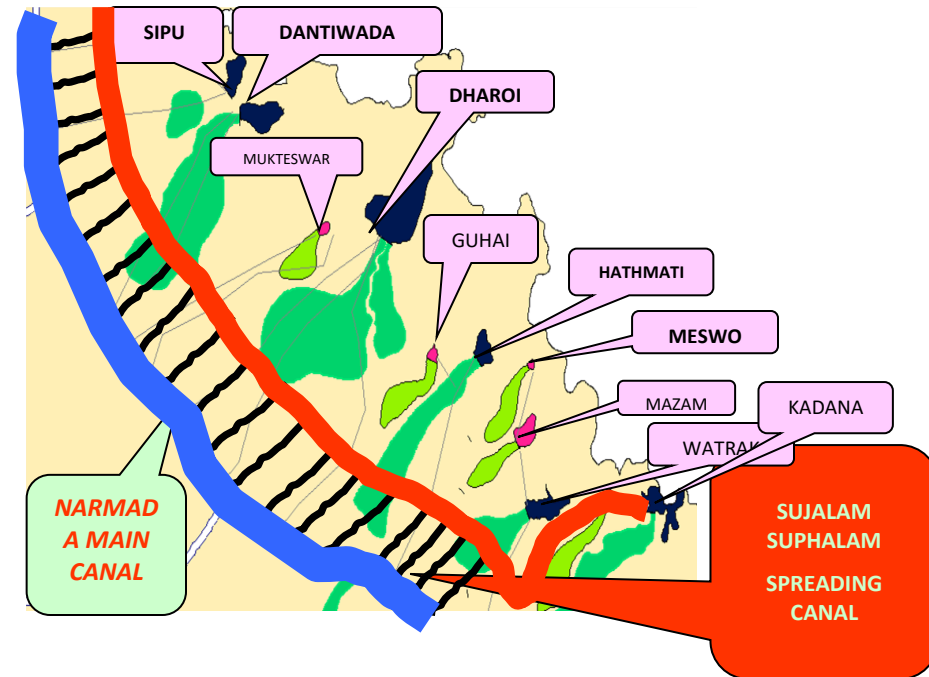
- State-wide Drinking Water Grid
- Sujalam Suphalam Yojana
- Spreading channels
- Interlinking of rivers and check dams in rivers
- More than **1,50,000** check dams
- Filling of ponds

# Inter linking of basins

- **Sujalam Suphalam Yojana**

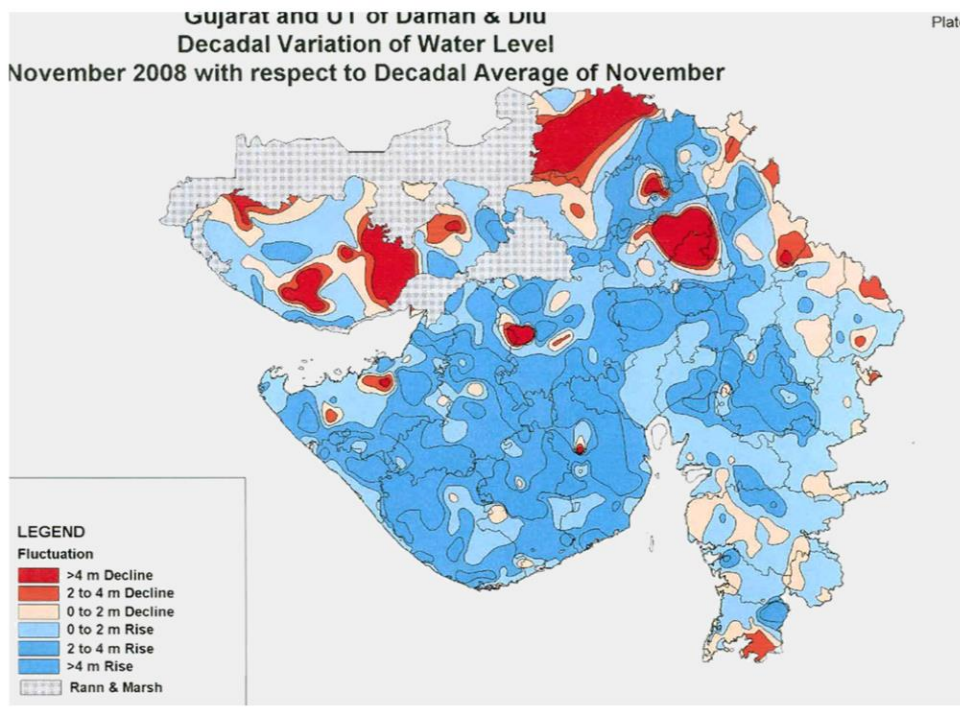
## 10 water scarce districts

- ❖ Flood water transfer to water scarce regions – Sujalam Suphalam canal
- ❖ Filling of dams from Narmada water – 14 pipelines for 10 dams
- ❖ Filling of ponds by Narmada water
- ❖ Inter linking of 27 rivers



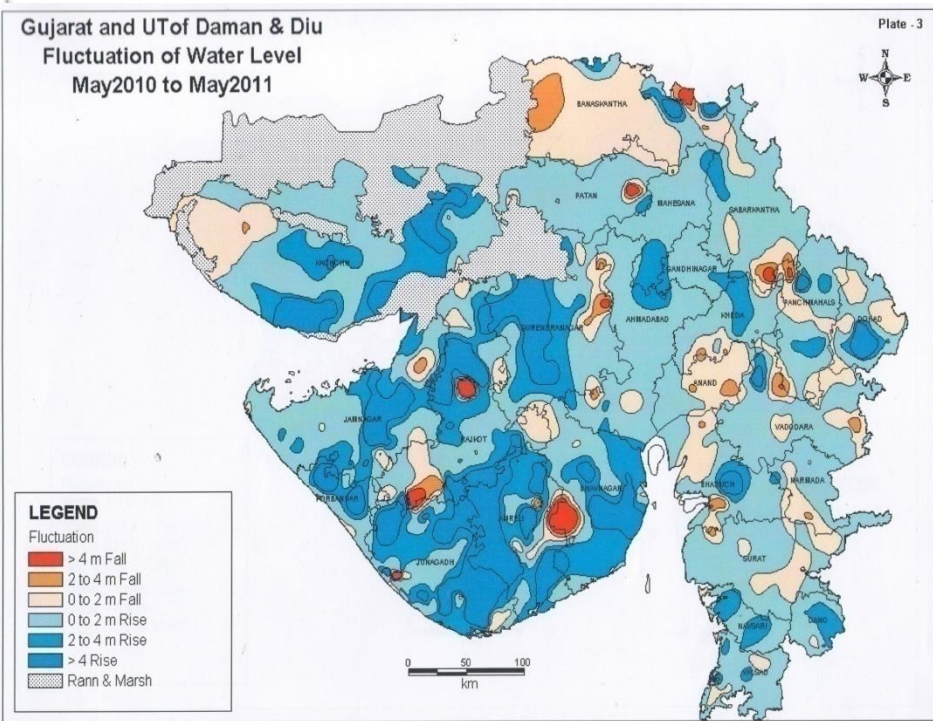
	<b>Check Dams</b>	<b>Boriband</b>	<b>Khet-talavdi</b>
Water Resources Dept.	78922	-	-
Rural Development Dept.	36010	121686	193311
Tribal Development Dept.	4840	164	-
Forest Department	6179	185	-
Agriculture Department	18268	-	56226
Water Supply Department	1489	-	-
<b>Total</b>	<b>145708</b>	<b>122035</b>	<b>249537</b>

**Nov- 2008**



Plate

**May - 2011**



Is it:

- **A Solution ?**
- **An Alternative ?**
- **A sustainable source ? or**
- **A secured supply system ?**

**Certainly Not**

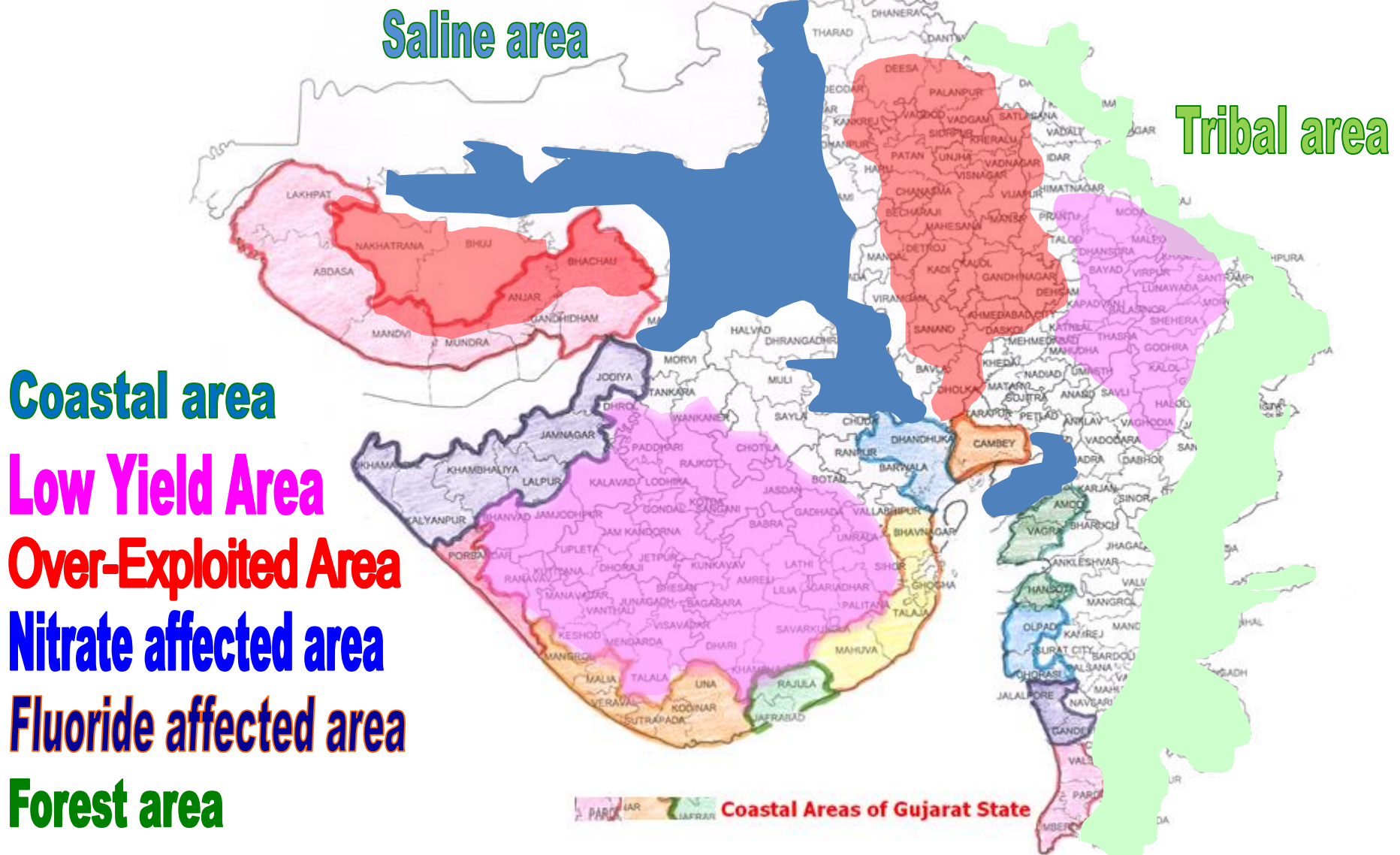
**Solution lies in**

**“W R M”**

**AND**

**“Water Budgeting”.**

# Constraints in Developing Water Supply System



# Hydro-geological Aspects of Gujarat

