

**Indigenous knowledge alive with indigenous people**

**General Assembly  
community command common  
properties**

Drought free India possible  
Only community driven decentralized management of  
common properties

Keystone, Kotagiri.

# WATER CRISIS

**Global modern problem, traditional local solutions**

**जलवायू परिवर्तन अनुकूलन**

**CLIMATE CHANGE ADAPTATION**

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**LBSNAA, MUSSOORIE, 27-03-2017**



**tarun bharat sangh**





# **MODERN cRISIS is the Drought gone???**

13 States, 327 Districts

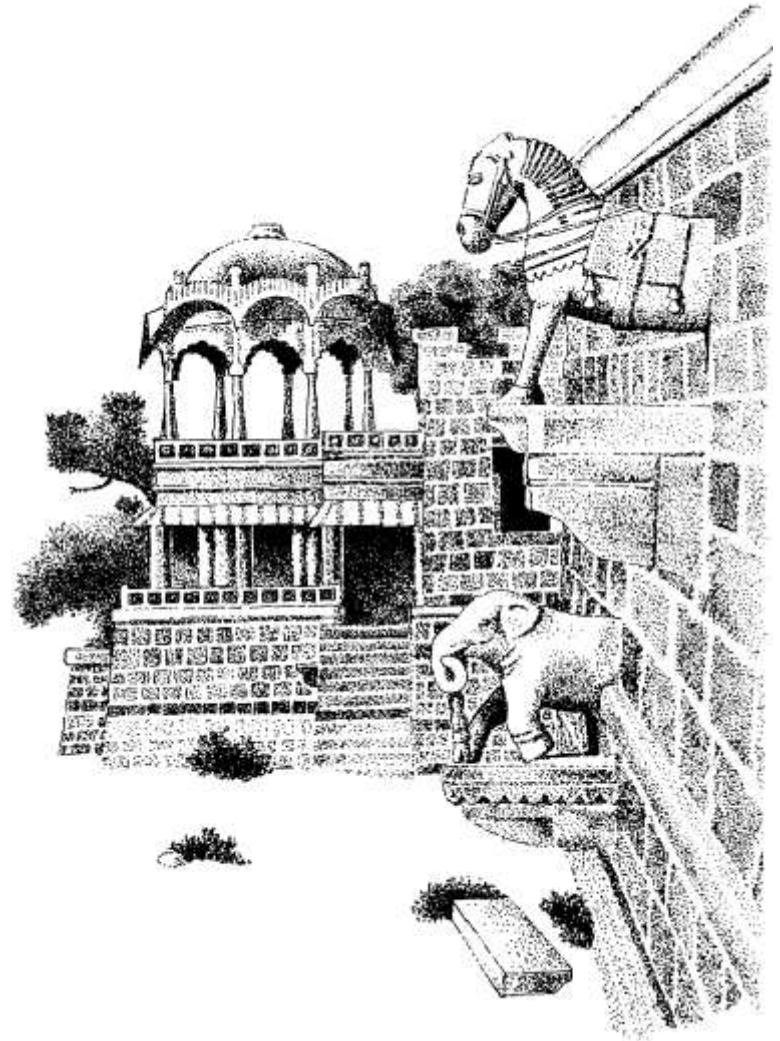
# Traditiona

## WATER HARVESTING SYSTEMS IN INDIA

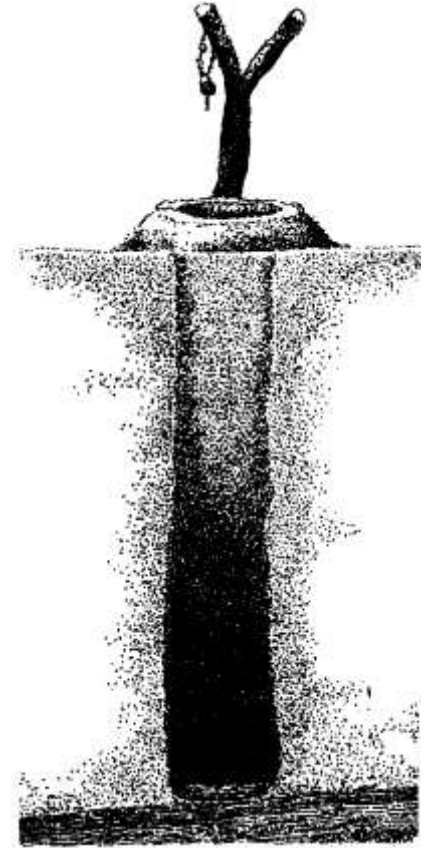
THERE ARE VARIOUS  
METHODS OF WATER HARVESTING  
EXISTING IN INDIA.

**THE MAIN COMMON PECULARITIES OF ALL  
SYSTEM ARE :**

- USE OF LOCAL RESOURCES AND TECHNOLOGY
- COMMUNITY BASED OPERATION
- COMMUNITY DRIVEN  
DE-CENTRALISED WATER MANAGEMENT
- CONSERVATION AND DISCIPLINED USE OF  
NATURAL RESOURCES

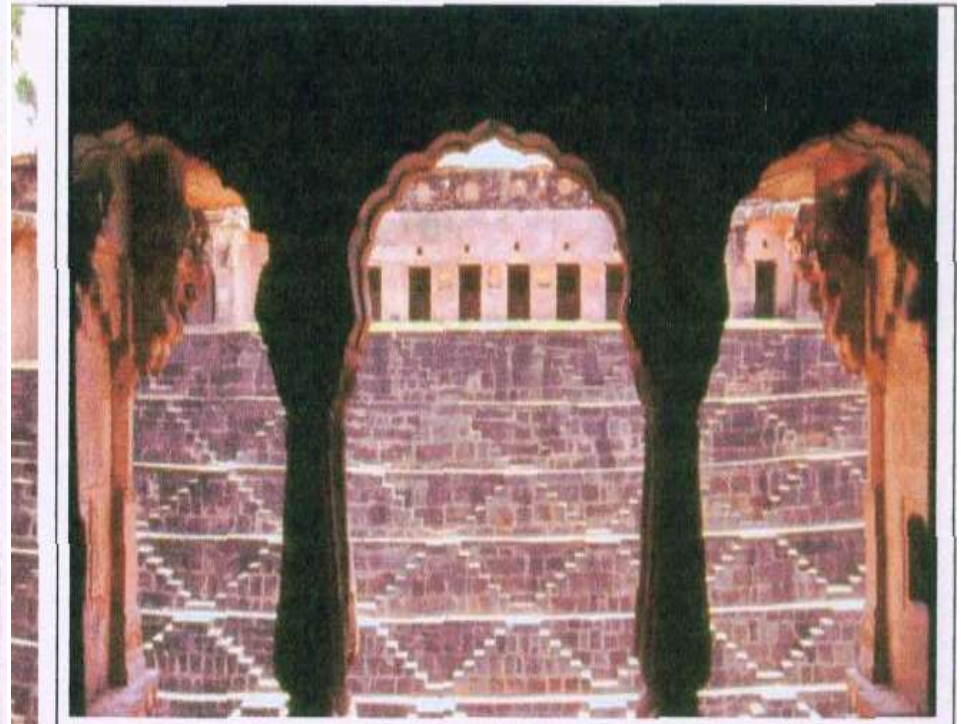
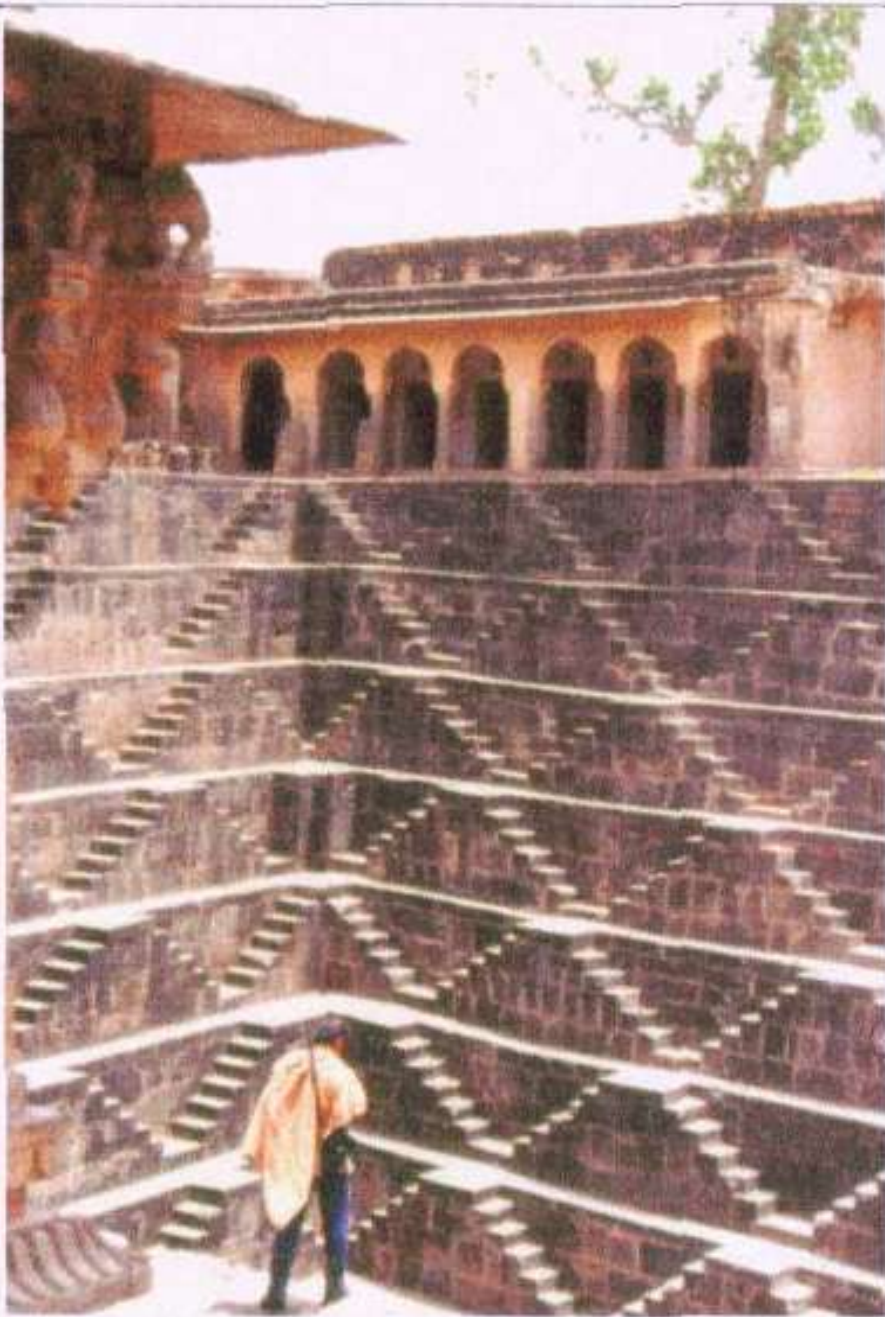


FOR FIVE FAMILIES KAUINA  
IN DESERT OF INDIA



.....Since beginning

**FOR 100 & MORE FAMILIES  
BAGUDI**



.....**B**EAUTIFUL  
& SUSTAINABLE



.....Ideas into reality

# COMPLETED STRUCTURES ON Bhagani BASIN





**Increased water-level in a well**

# WATER for food



# Indigenous vision about water

1. **Water is life.** Water as *rasa* (literally 'the juice of life'). Connected with the second chakra, sex, creation, procreation, increase and abundance. The necessary element for life to exist at all.
2. **Water as a healer.** To wash away dirt, hygiene, etc, to cook with, to bathe with, to anoint with, the sacred aspect of water, baptism, washing away of sins, Ganga jal, to aid the digestion. Clean water is at the heart of good health.
3. **Water as a binding agent.** Principle *mahabhuta* or key principle of water is that it is cohesive, it holds things together that otherwise would fragment and lose their form. Eg dust can crumble and blow away; add water and it holds together as solid earth, soil.
4. **Water finds its level** – it takes the lowest path. But, like a waterfall, like a hydroelectric plant, the energy in falling to that lowest place has the power to move mountains.
5. **Water is a medium** – it transports. As sap, it transports nutrients to the leaves and branches. As blood, nutrients and oxygen around the body.

6. **Water is in constant transformation:** it is never still. Rain, earth, plants, evaporation, mist, clouds, snow, ice. Its nature is to circulate, to flow. As such it is an agent of, and a symbol for, change & transformation.

7. **Water stored is water shared,** water harvested is water **multiplied**. Recharging the ground. Building up a reservoir is not only to plan ahead for scarcity and drought, it actually creates **abundance**, cooling the ground, allowing plants to grow, which trap more water, which feed the clouds which results in more rain.

8. **Water creates a path:** to live ones life, like water lies in a channel. Flowing onwards, creating as you go your own path, as a river creates itself; easy, easeful, natural, graceful. You cannot struggle to flow uphill...

9. **Water is as powerful** as God: unstoppable. Waves erode rock to sand, the action of water sculpts coastlines, create ravines, carves mountains. It is the most yielding substance and yet the most powerful: the power of softness, the strength of gentleness.

10. **Water is clear, if it is still.** Cultivating stillness: letting the dust settle. The clarity of mind that comes with meditation, with mindful awareness, with letting the irritations and distractions simply settle.

# Why THEY WENT OUT OF USE OF INDIGENOUS KNOWLEDGE?

- INCREASE IN HUMAN AND LIVESTOCK POPULATION
- WATER EXTRACTION TECHNOLOGY
- CHANGED PARADIGM OF DEVELOPMENT
- STATE TAKEOVER OF COMMUNITY FUNCTIONS
- CREATION OF DEPENDENCY SYNDROME
- DISINTEGRATION OF COMMUNITY INSTITUTIONS
- PEOPLE LOST INITIATIVES AND CREATIVITY
- NEGLECT OF TRADITIONAL SYSTEMS

# REVIVAL OF SYSTEMS USING INDIGENIOUS KNOWLEDGE

- INTERVENTIONS UNDERSTANDING TRADITIONAL SYSTEMS AND USE OF INDIGENIOUS KNOWLEDGE
- MOBILISATION OF COMMUNITY AROUND LAND, WATER, AND FOREST
- PARTICIPATION IN REJUVENATING OLD STRUCTURES AND CONSTRUCTION OF NEW STRUCTURES
- CREATION OF NEW VILLAGE LEVEL AND RIVER BASIN INSTITUTIONS

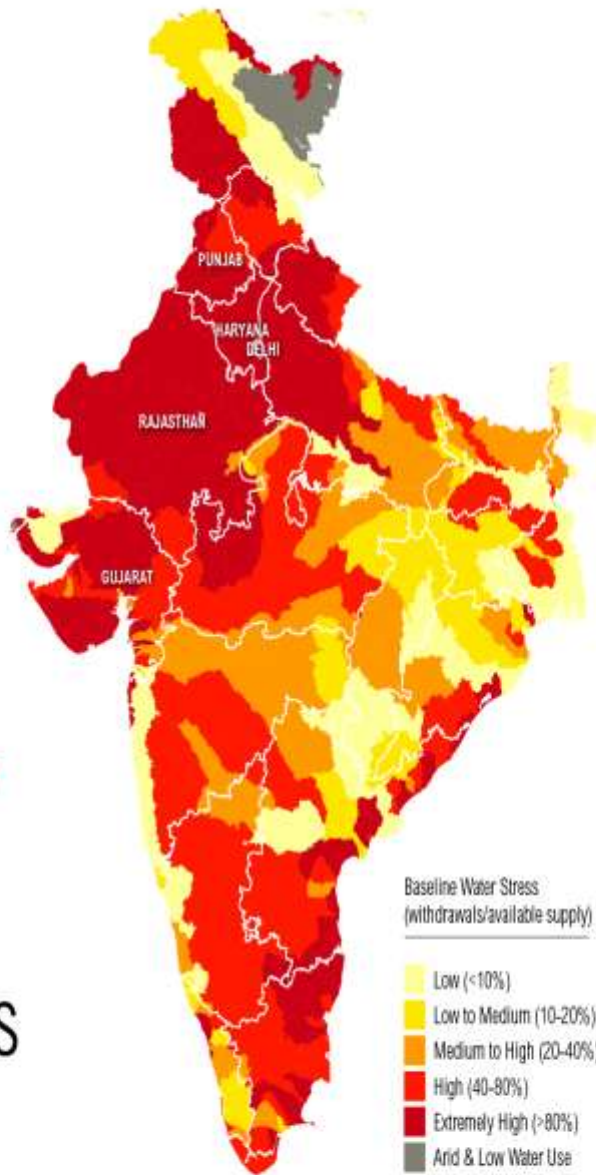
Drought, flood & Climate change  
global problem

Solutions are local!

Experience of

CLIMATE CHANGE ADAPTATION THROUGH  
COMMUNITY DRIVEN MANAGEMENT OF  
WATER, NATURAL AGRICULTURE & FOREST

**54%**  
of India  
Faces  
**High to  
Extremely  
High**  
Water Stress



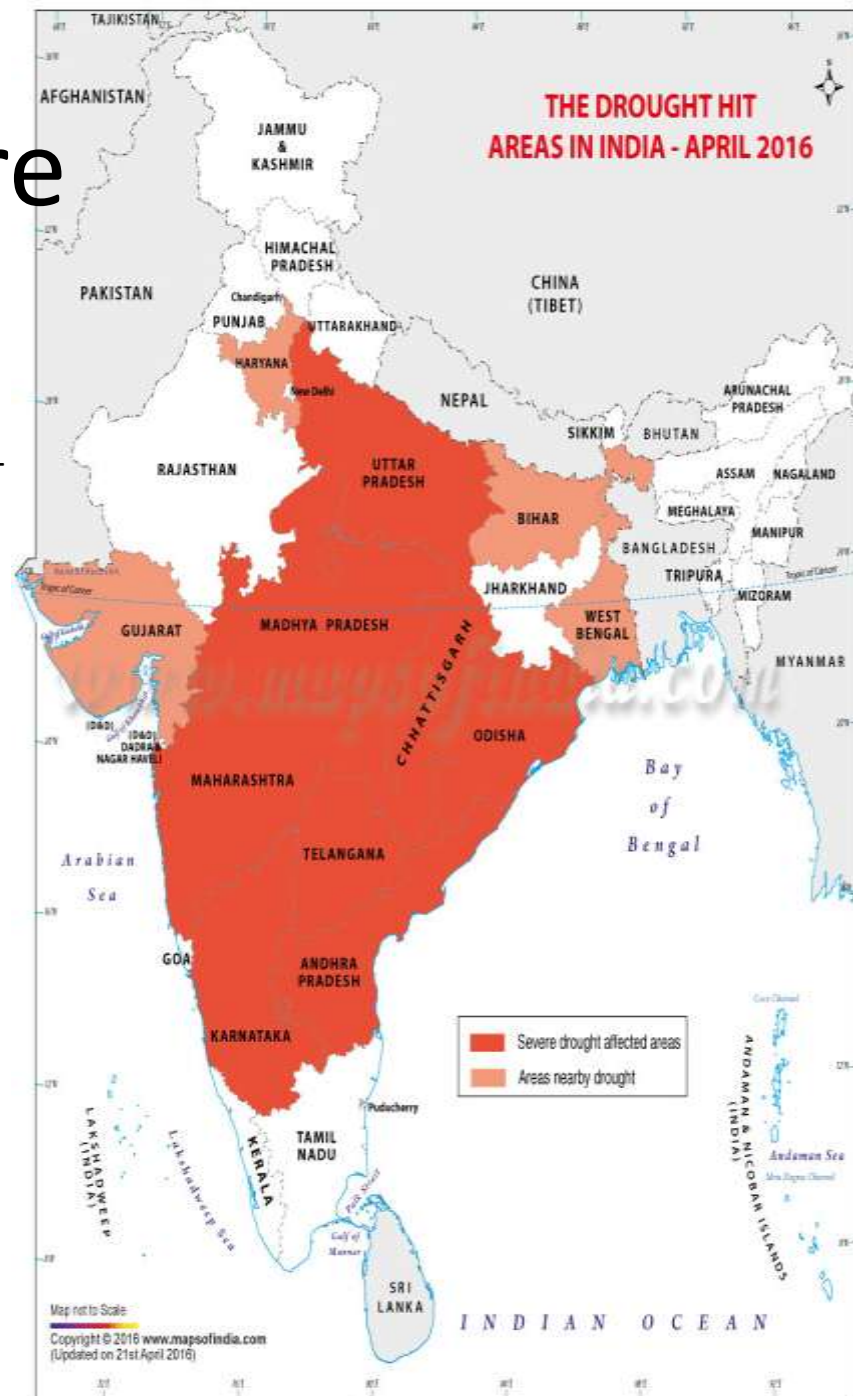
**Nowhere on Earth  
are groundwater  
declines greater  
than in Northern  
India;**

NASA found that large-scale irrigation caused 108 cubic kilometers of groundwater loss in Haryana, Punjab, Rajasthan, and Delhi between 2002 and 2008.

The study's lead, Matt Rodell, observed that "The region has become dependent on irrigation to maximize agricultural productivity. If measures are not taken to ensure sustainable groundwater usage, the consequences for the 114 million residents of the region may include a collapse of agricultural output and severe shortages of potable water."

# where

- **MAHARASHTRA**- Marathwada, Vidarbha, Khandesh- No relation in crop and rain
- **MADHYA PRADESH/UTTAR PRADESH**- Bundelkhand- Soil Erosion and Destruction of Old water harvesting system and change in crop pattern
- **CHATTISGARH**- Sand Mining
- **ANDHRA PRADESH**- Dying rivers, Increasing Desertification
- **TAILANGANA**- Destruction of Old water harvesting system
- **RAJASTHAN**- Overdraft of underground aquifers
- **ODISHA**- Distribution of water to industries ignoring farmers need
- **TAMIL NADU**- Encroachment over water bodies
- **KARNATAKA**- Killed rivers by big dams
- **BIHAR**- Flash floods/ Erosion
- **HARYANA**- Unequal distribution of water for irrigation
- **GUJARAT**- Over exploitation of Water



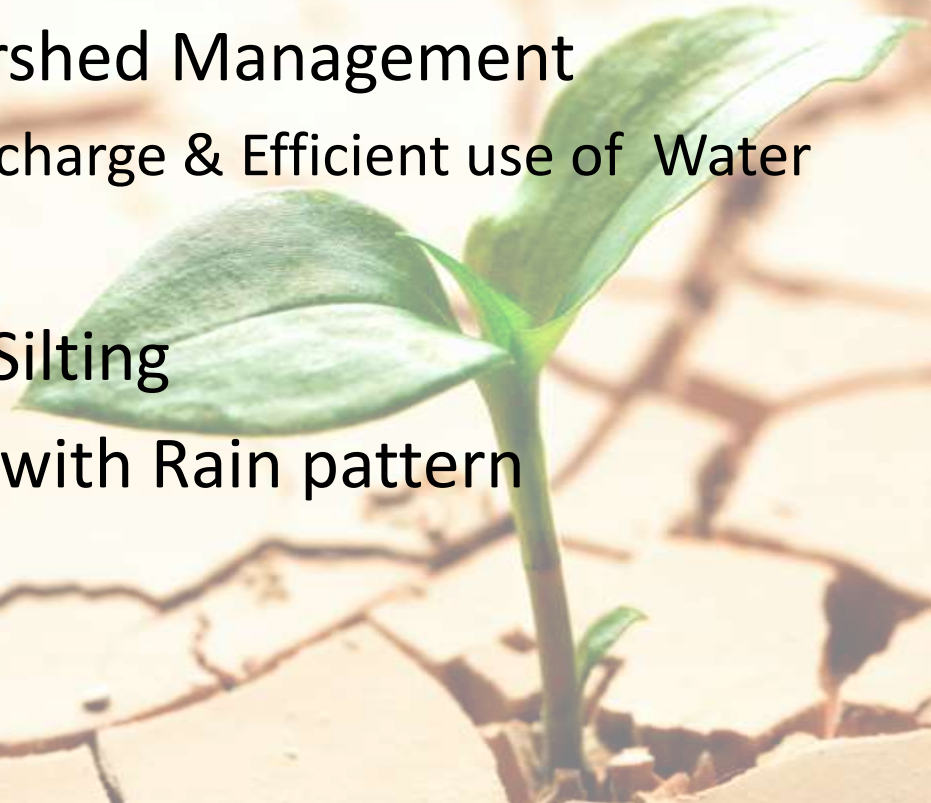
# III-effects...

- Food Scarcity
- Water Scarcity
- Loss of Crops
- Loss of Seeds
- Distress Sale
- Forced Migration
- Change in Food Consumption

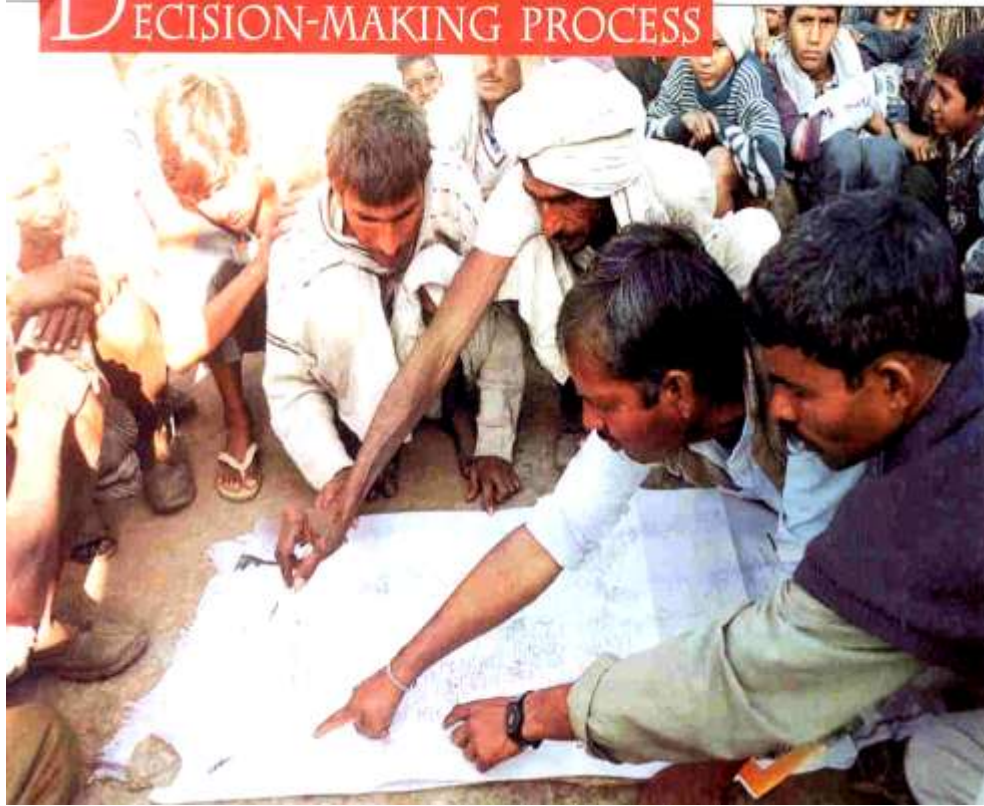


# SOLUTIONS

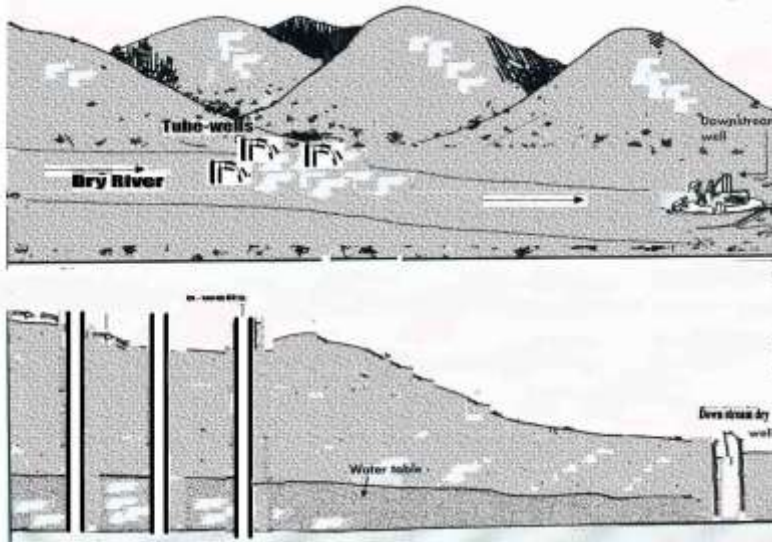
- Sustainable Watershed Management
  - Ground Water Recharge & Efficient use of Water
- Stop Erosion and Silting
- Link Crop pattern with Rain pattern



# DECISION-MAKING PROCESS

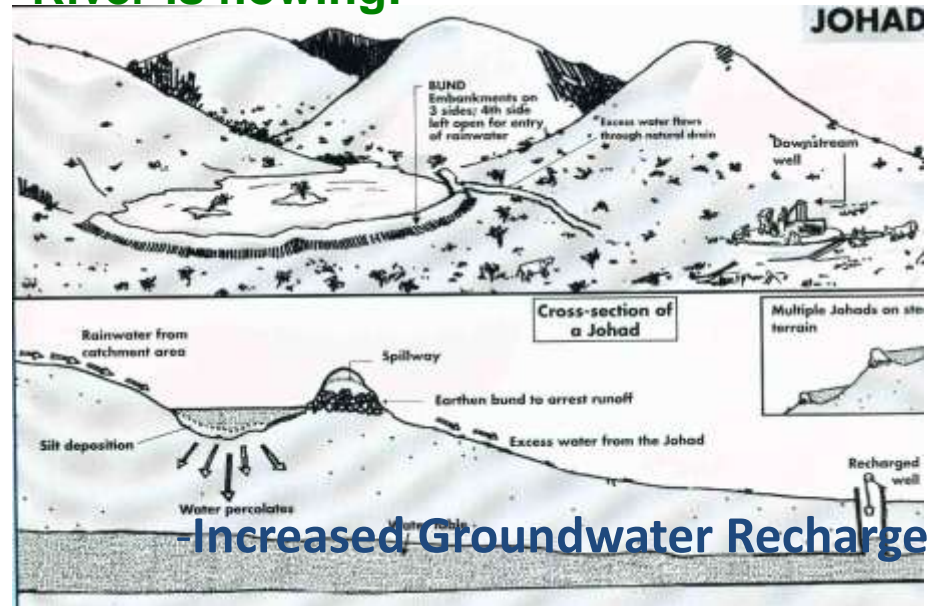


## River Goes Dry:



**Excess withdrawal of Groundwater**

## River is flowing:



**-Increased Groundwater Recharge**

**-Less Groundwater Extraction**





The river in 1985

The river in 2000







1985



2012



# **A Rejuvenated rivulet & FUTURE GENERATION ADAPTS TO CLIMATE CHANGE!**



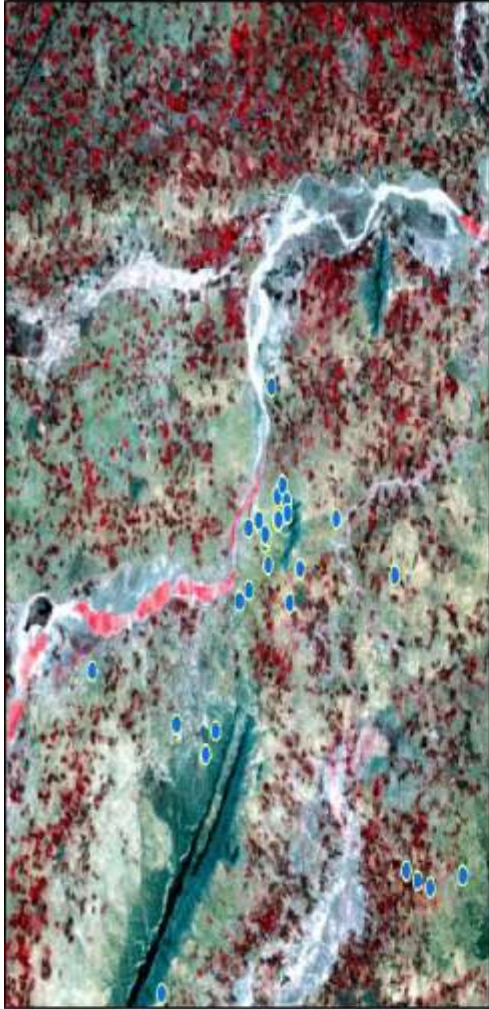
# Gopalpura- traditional wisdom of water conservation & new techniques of water use



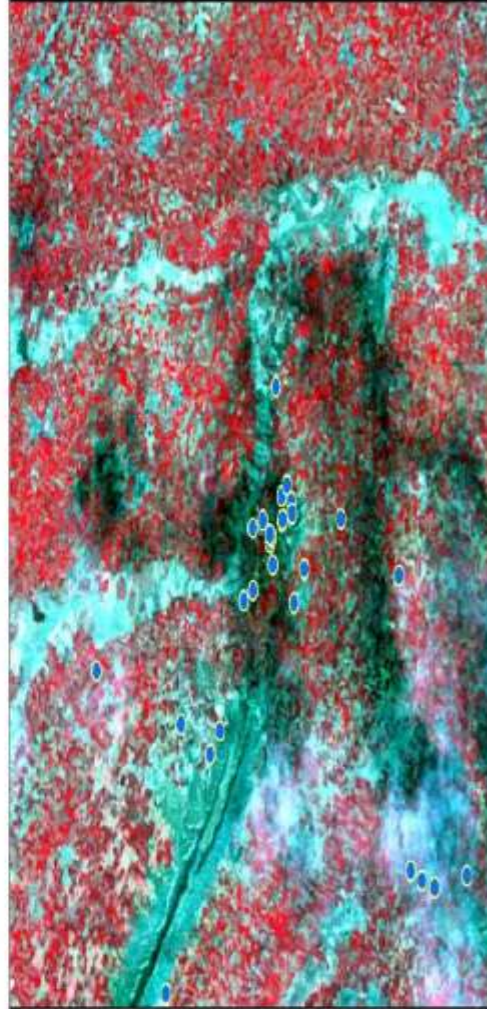


During third year of continuous drought- Local community of village Gopalpura is able to grow crops like coriander as an impact of Traditional Water Conservation Wisdom like JOHADS and new efficient water use techniques of irrigation like

16 March 1994



20 March 2014



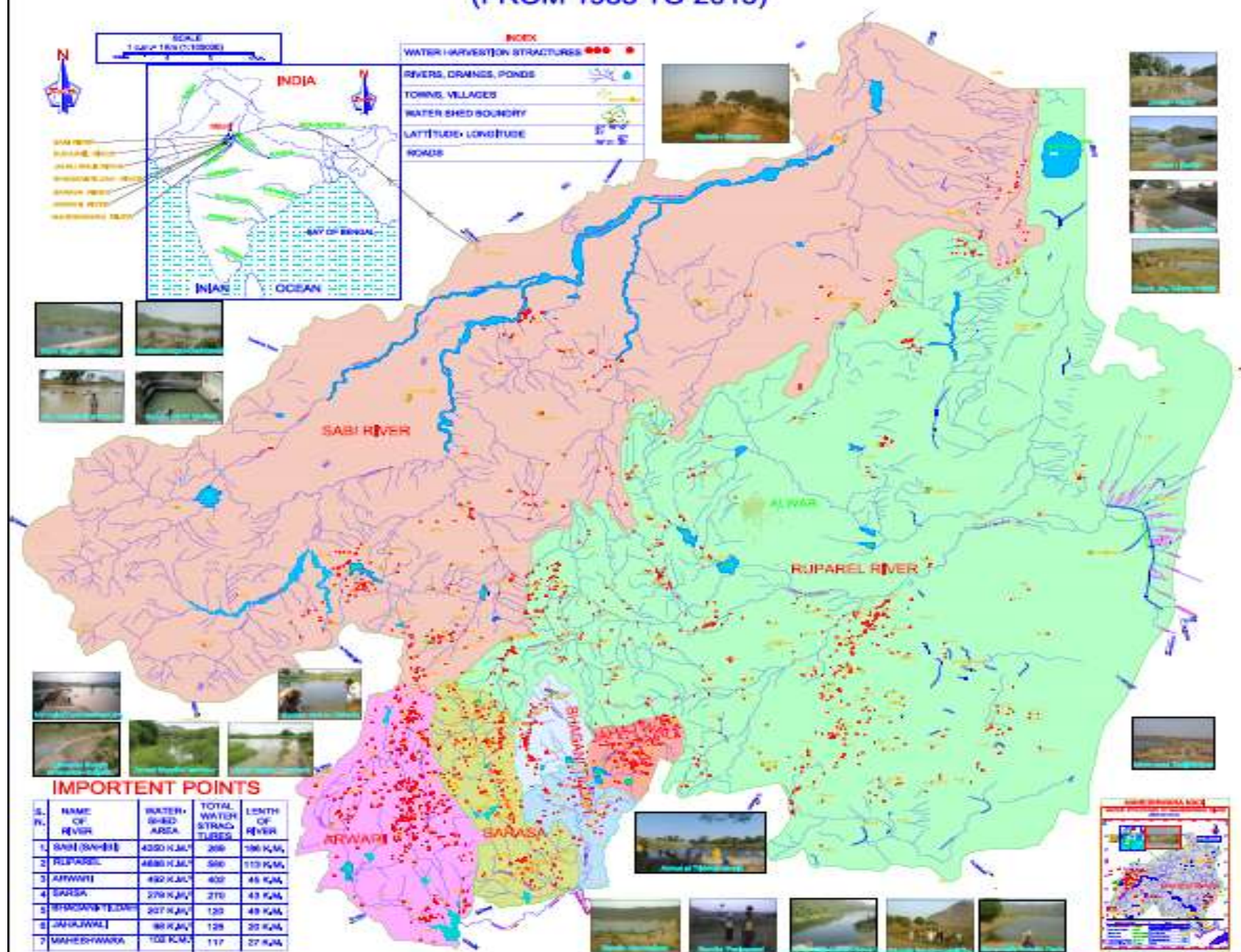
- Blue color spots depicts RWHS
- Immense Increase in vegetation is clearly visible in the region

False Color composite-  
Vegetation is depicted as Red

Credit: National Remote Sensing  
Centre, Hyderabad, India

# RAIN WATER HARVESTING STRUTURES BY TARUN BHARAT SANGH WITH COMMUNITY PARTICIPATION FOR REJUVINATION OF SEVEN RIVERS

(FROM 1985 TO 2015)



# The River Basin Organization

## Water Demand side management



Rules are framed about issues of water conservation and utilization, and forest conservation.



# 11 ASPECTS OF The River Basin Org.

1. Framing of rules regarding direct irrigation from the Bhagani river and the wells.
2. Framing of rules regarding crops and cattle feed.
3. Rules to first fulfill local needs with crop production.
4. No sale of water and conservation of fishes in the river.
5. Restriction on the sale of land and the efforts to reduce the need to sell land.
6. Making the whole river area green, ban mining and restrict extended grazing by nomadic grazers.
7. Restrictions on hunting of animals and illegal cutting of trees.
8. Revive traditional methods of water and forest conservation.
9. Prevent over exploitation of water and promote water conservation work.
10. Establish an active system of the management of the river.
11. Define and redefine the role of the village communities.

# SUCCESS...

In period of 30 years, over 10,000 Rain-Water Harvesting (RWH) structures have been restored.

The effects are visible in terms of recharging of wells and aquifers, renewed flow of rivulets which had been dry for many years, increased bio-mass productivity, significant increase in agriculture production, reversal of out-migration and reduction in women's drudgery.

Due to high fodder & water availability, villagers have also benefited from selling milk products through an informal cooperative arrangement.

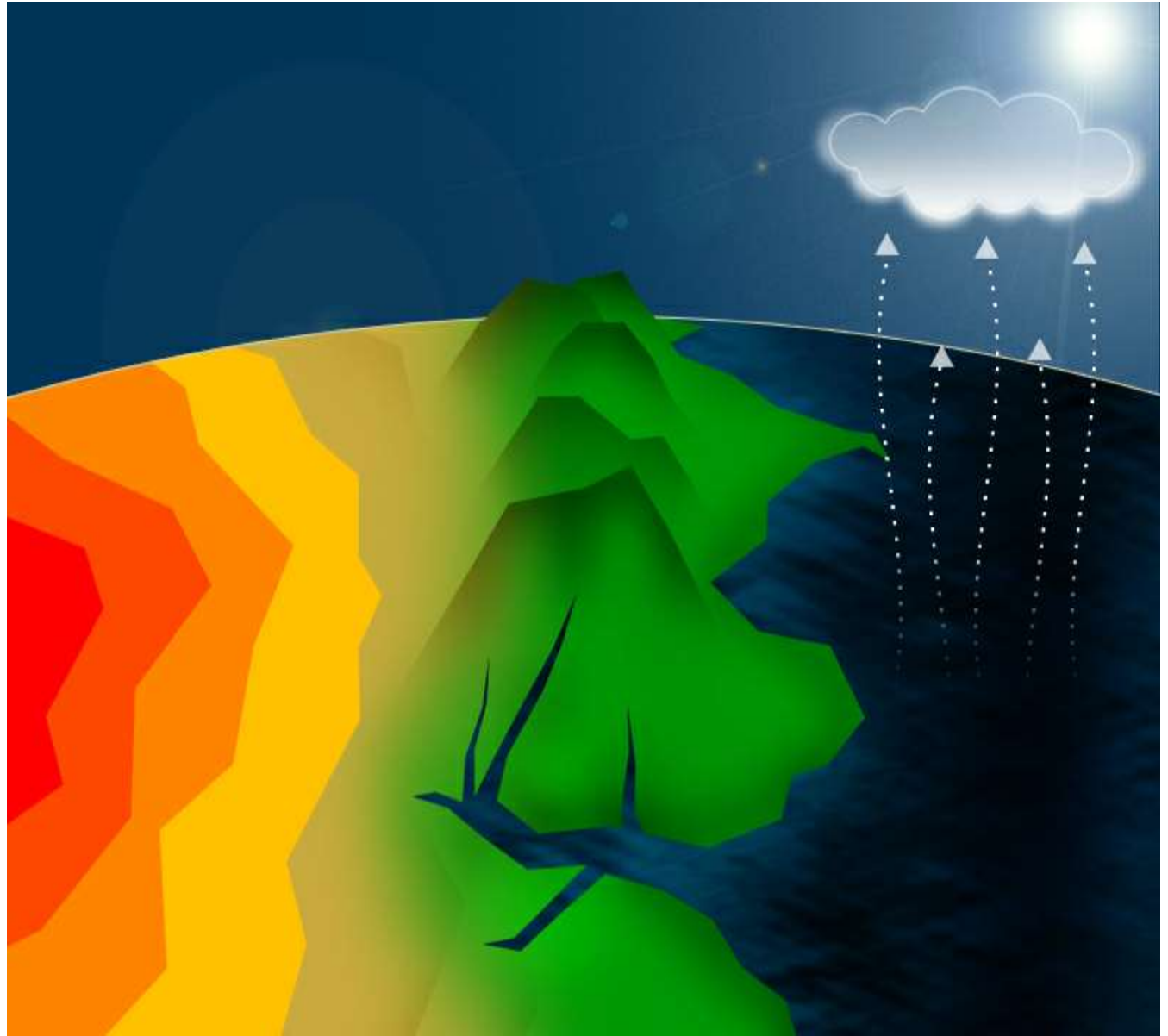
It is very important to capture the rainwater, which just comes and goes in a few hours.

# AN EXPERIENCE

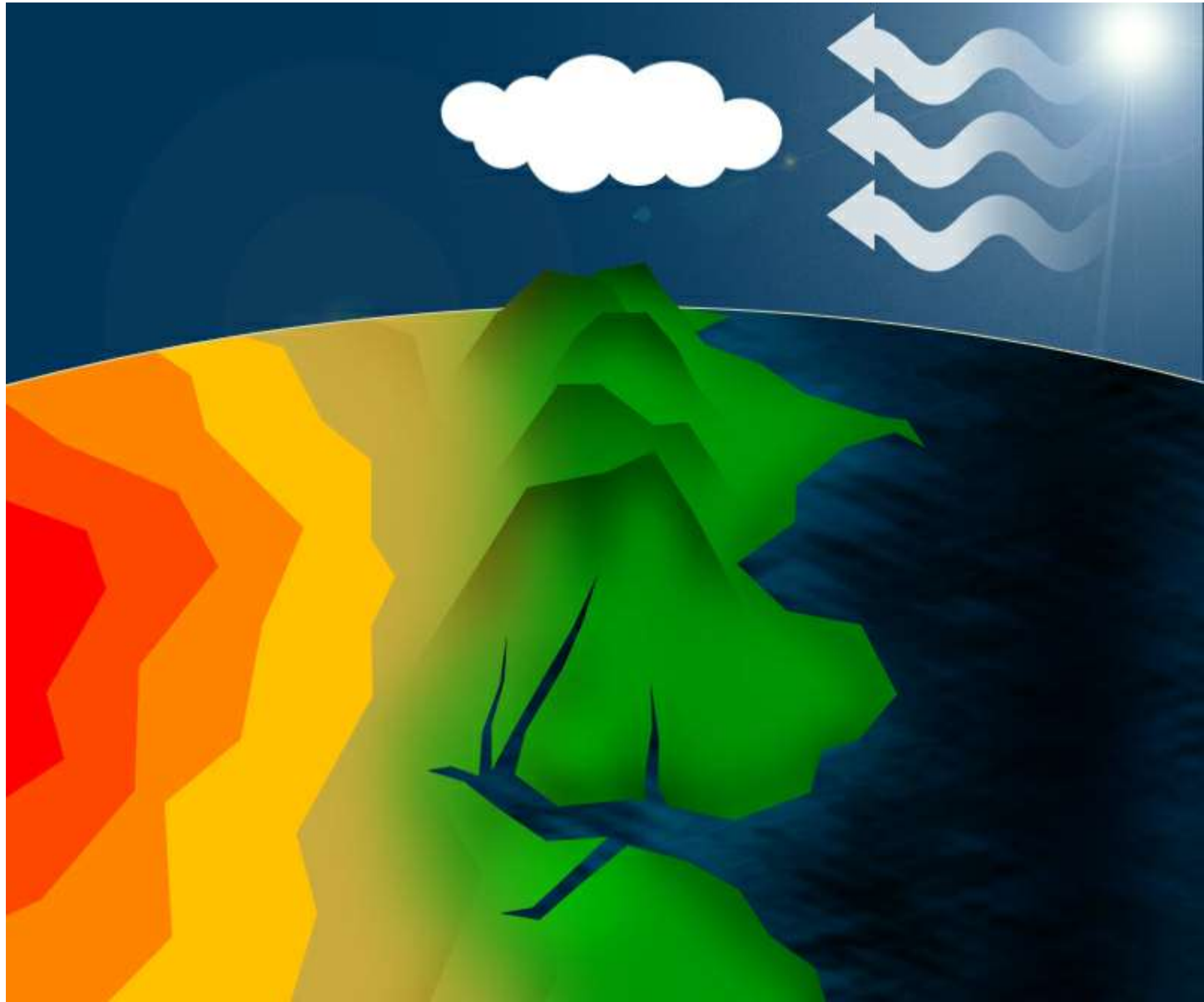
The TBS experiences reveal that **promotion of water harvesting structures** through appropriate institutional mechanisms and financial arrangements would be the best intervention or **adaptive mechanism to reduce the adverse impact of climate change on groundwater resources** as well as farm economy based livelihood.

# THE IMPACT OF WATER CONSERVA TION AND EFFICIENT USE OF WATER

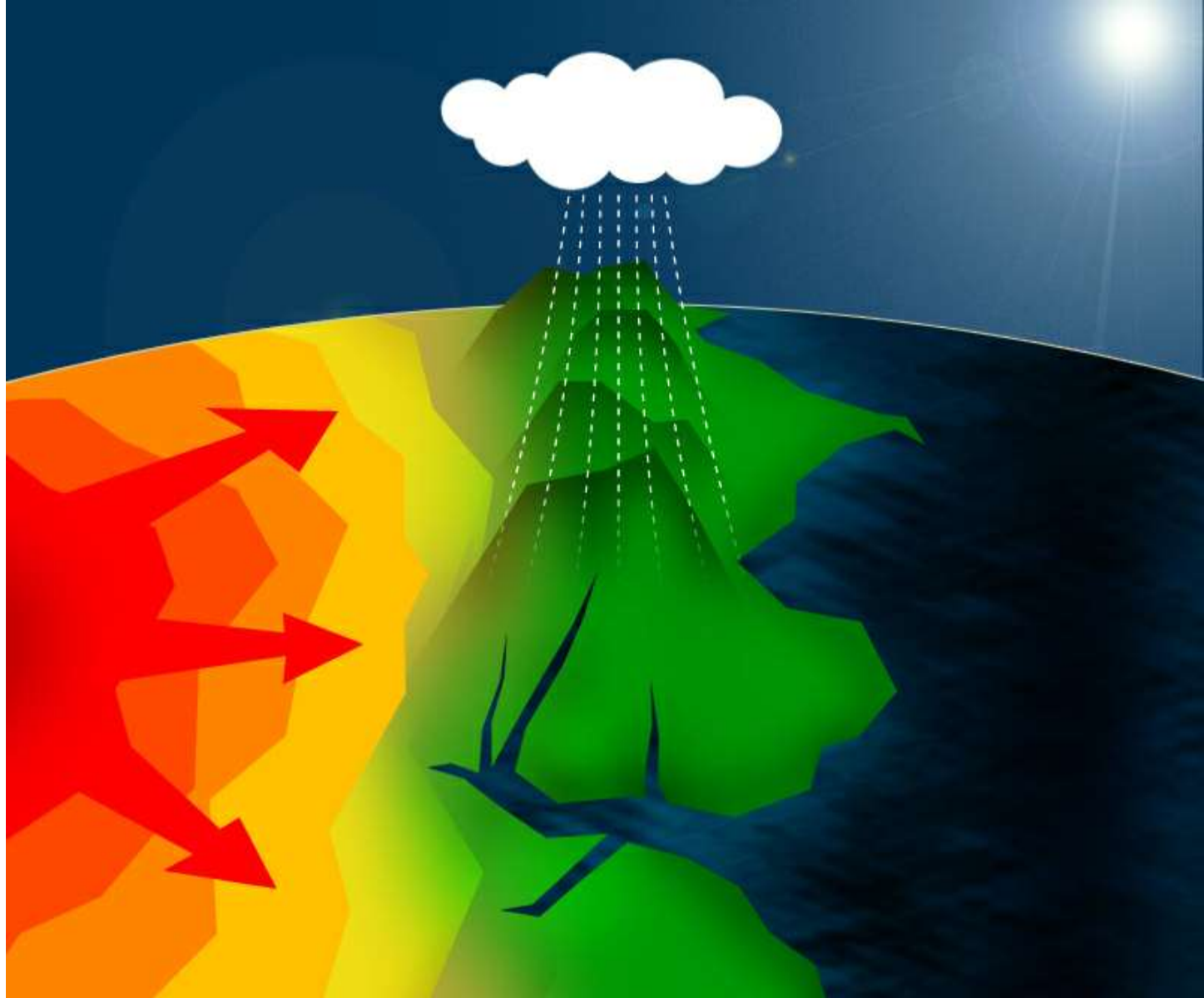
CHANGES IN  
CROPPING  
PATTERNS  
LINKED WITH  
**RAINFALL**



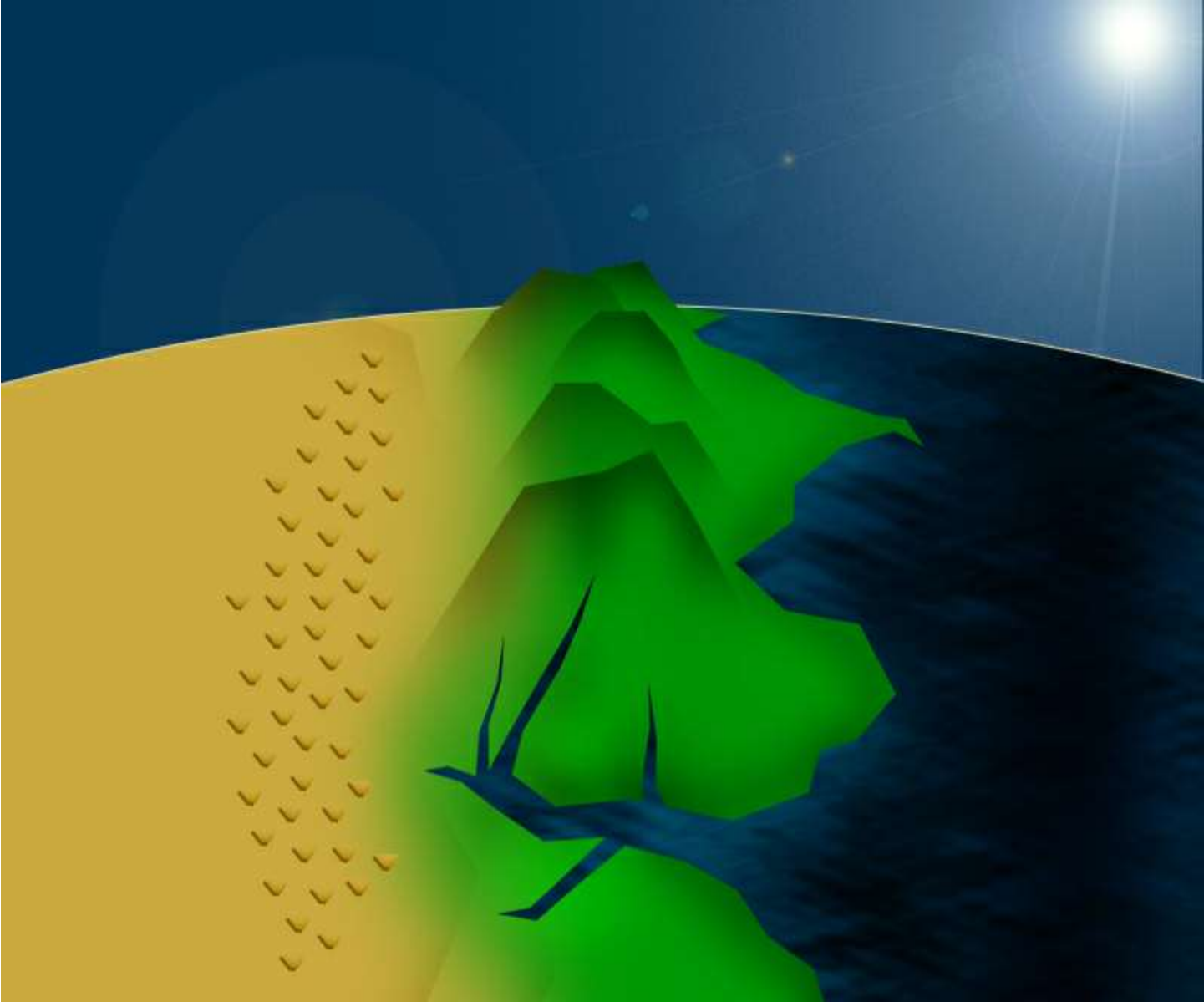
**tarun bharat sangh**



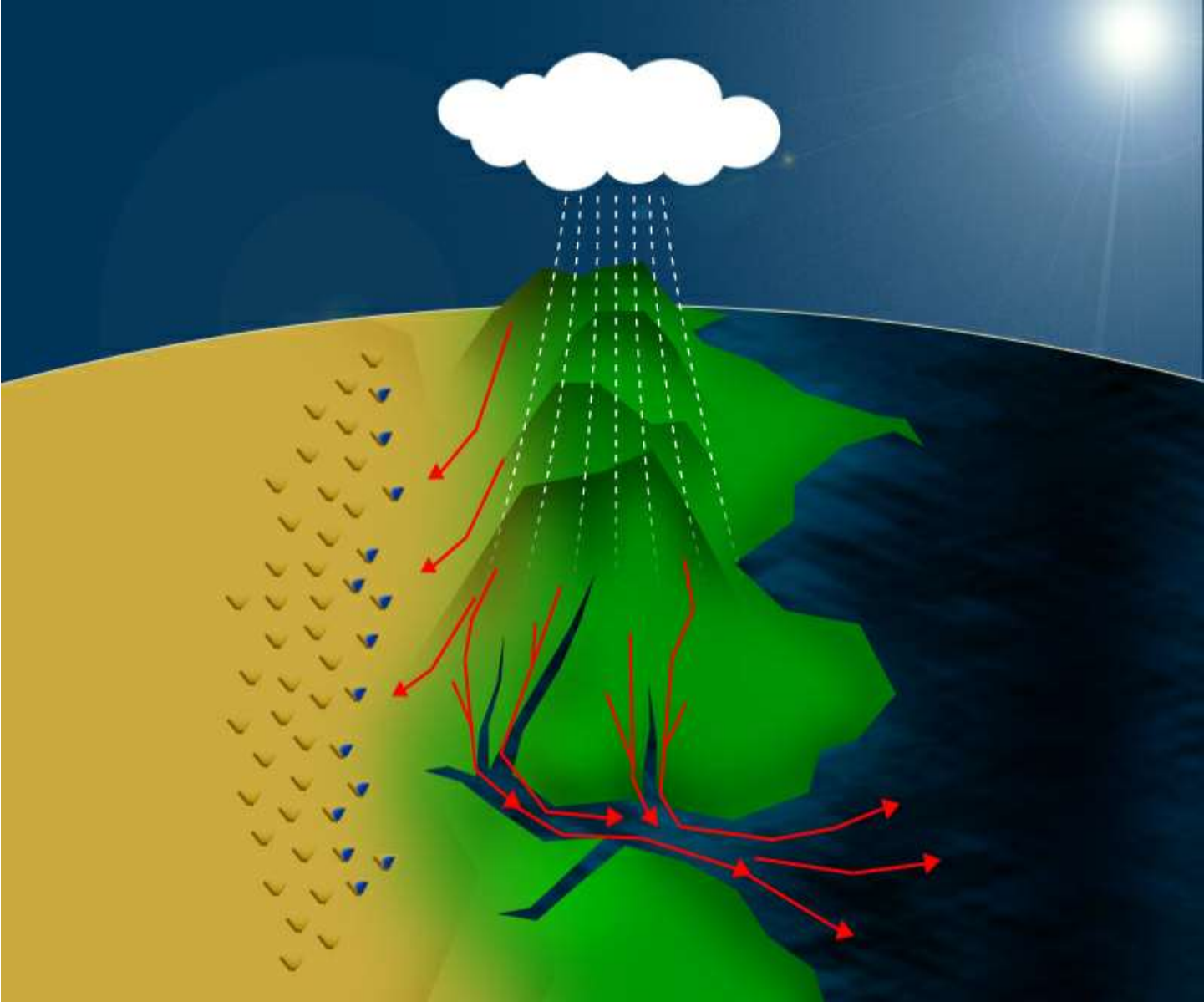
Credit: Michal Kravcik, Slovakia



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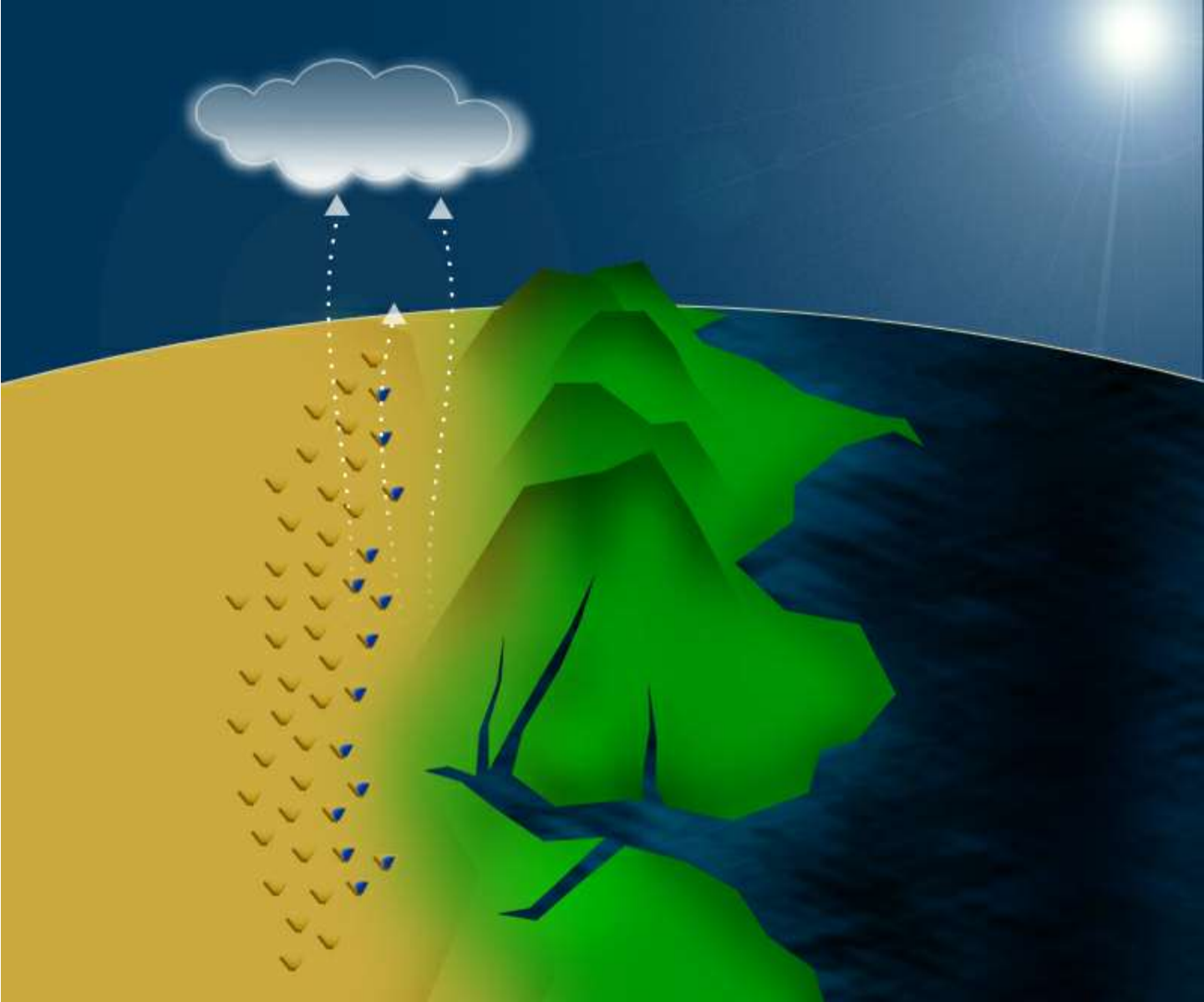


Credit: Michal Kravcik, Slovakia

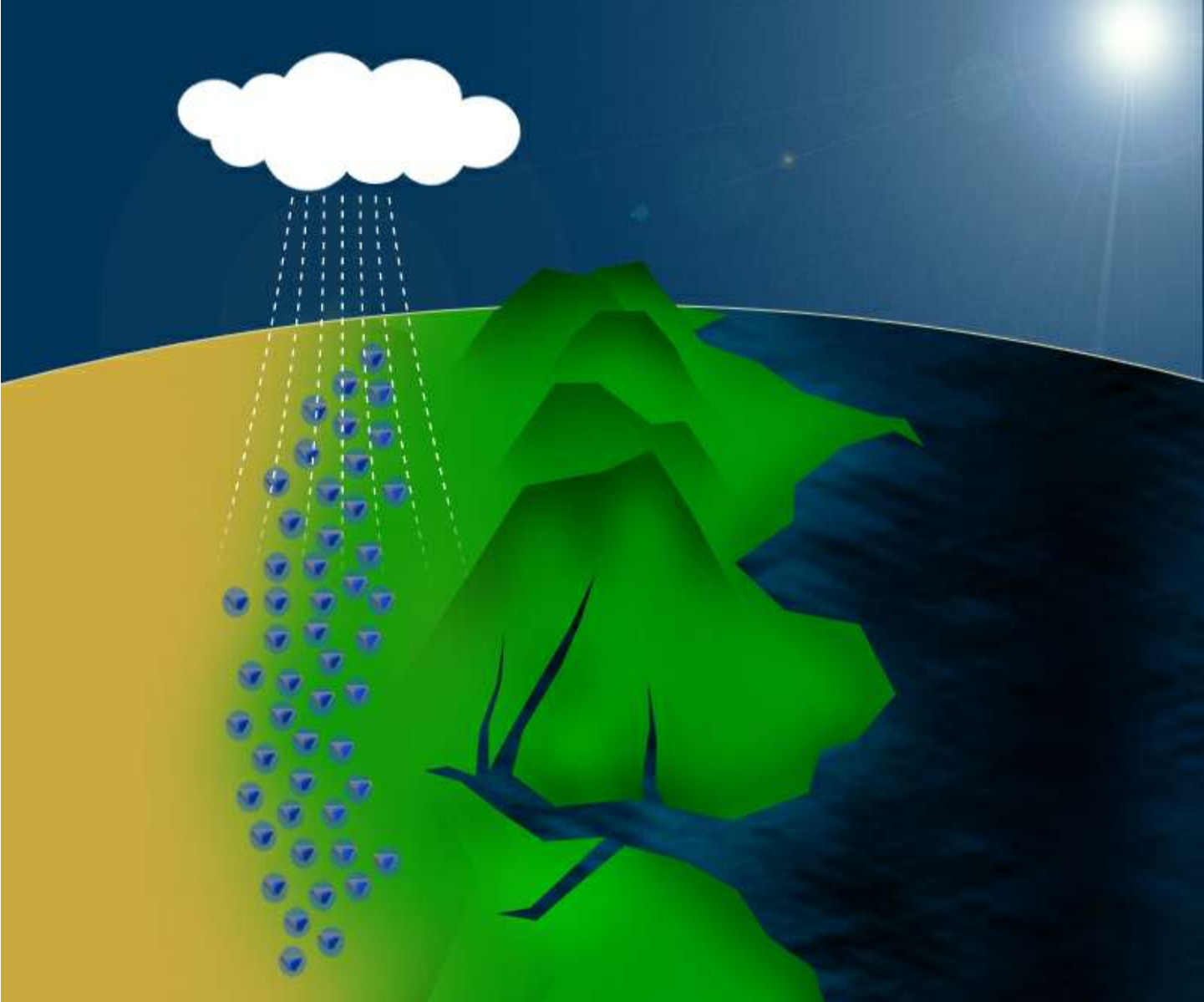


## The Situation in 1996

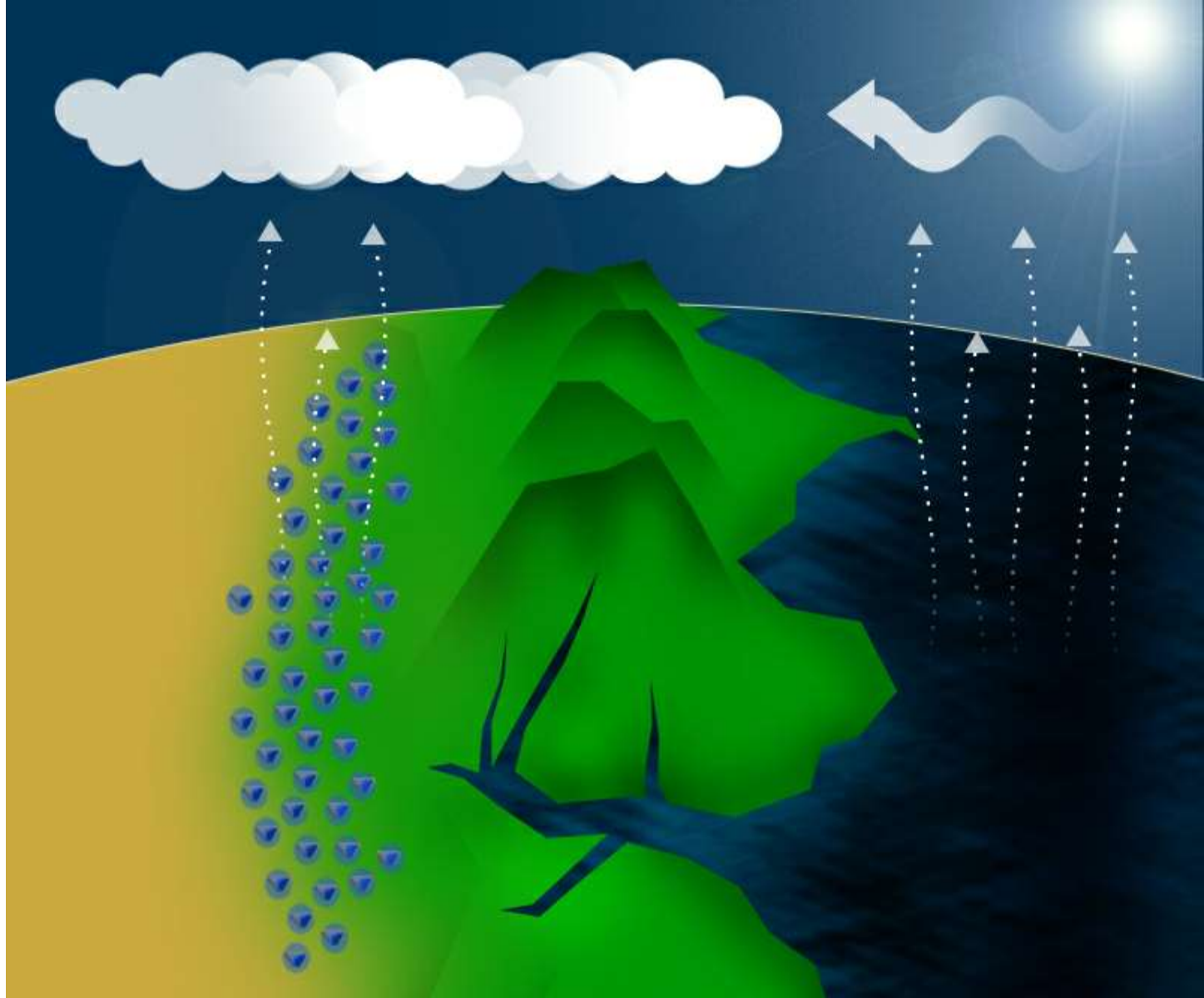
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WATER IS CLIMATE  
CLIMATE IS WATER...

...THANKS &  
REGARDS  
RAJENDRA  
SINGH