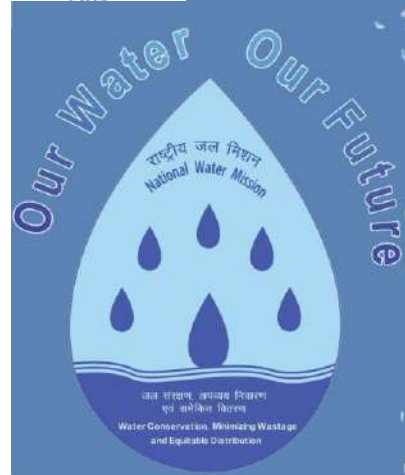


Water Conservation and Rainwater Harvesting



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Jal Shakti Abhiyan



Water
conservation
and rainwater
harvesting



Renovation of
traditional
and other
water
bodies/tanks



Reuse water
and recharge
structures



Watershed
development

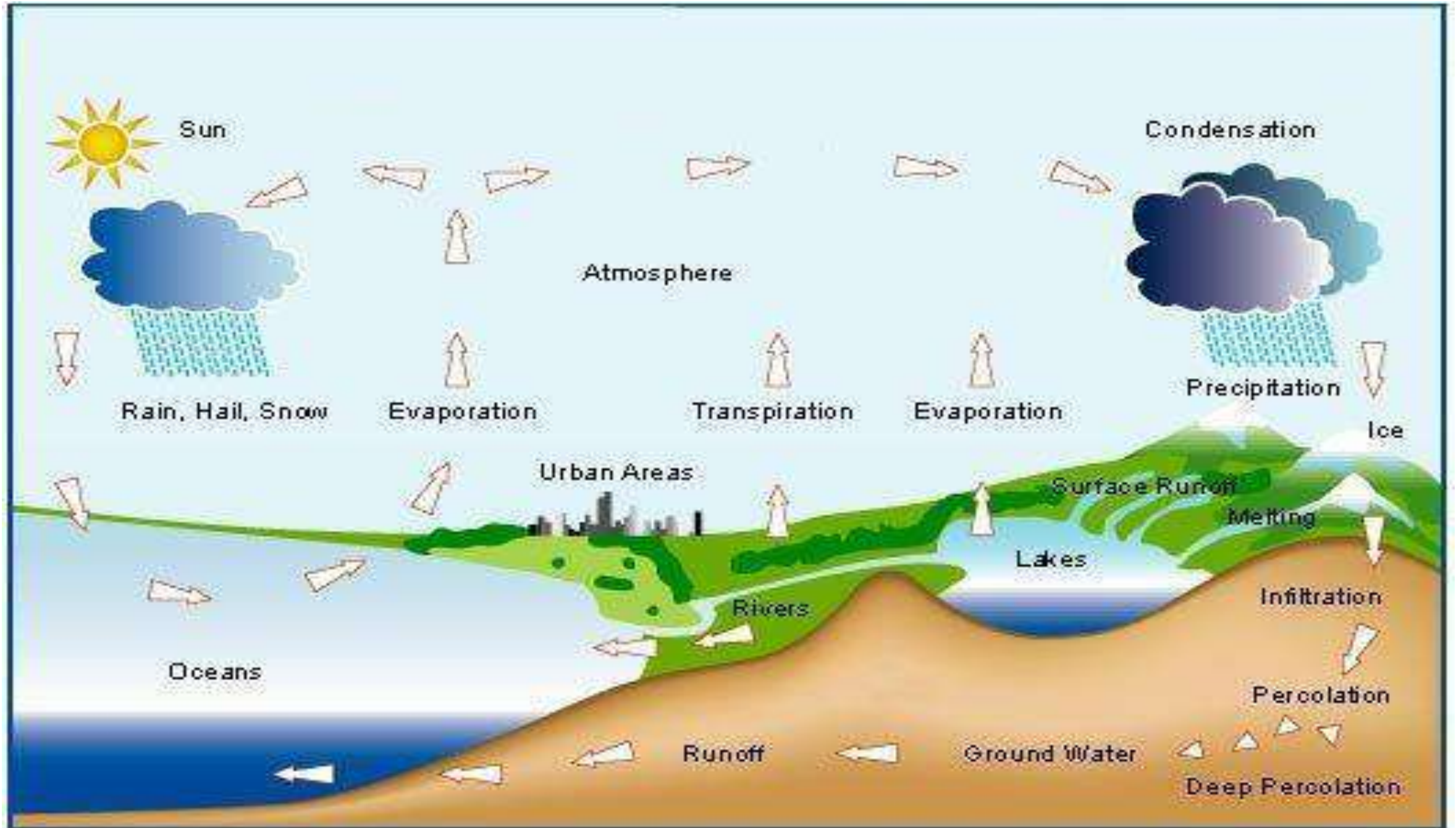


Intensive
afforestation

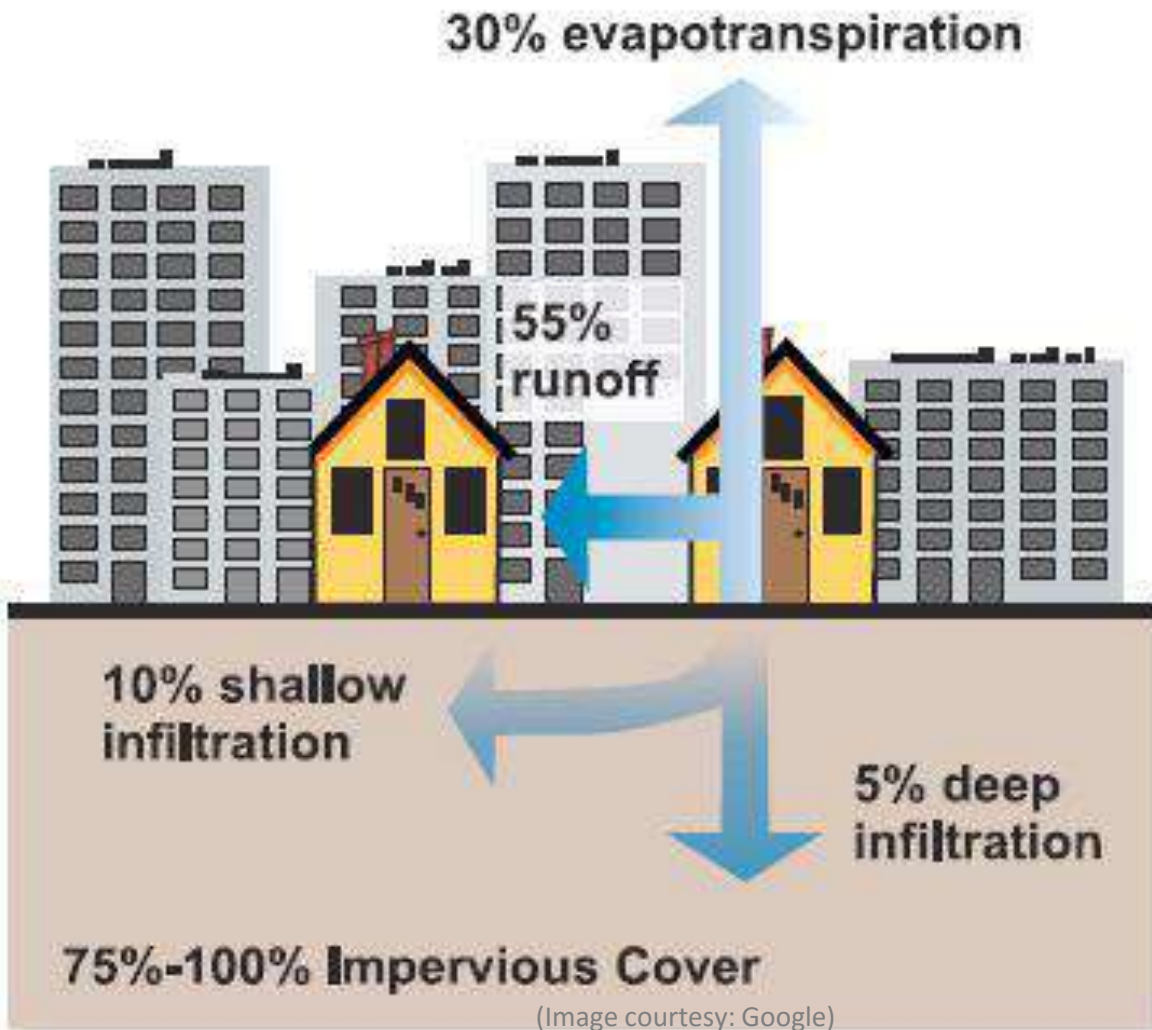
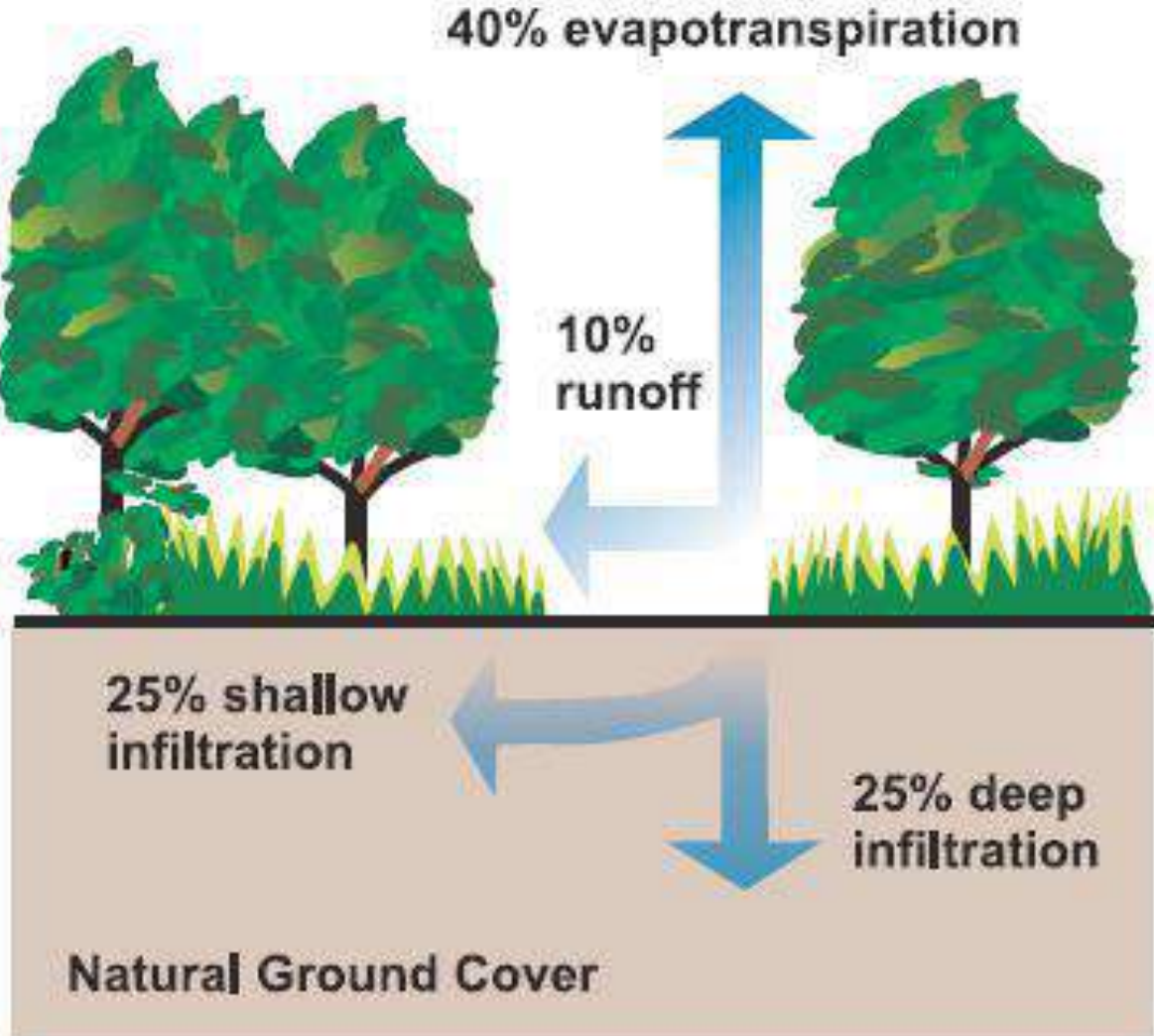
Focused on integrated demand and supply-side management of water at the local level, including creation of local infrastructure for source sustainability

Catch the rain, where it falls, when it falls

The Water (Hydrologic) Cycle



Green and Blue Spaces (Recreate/Rejuvenate)



The Problem: Why water conservation?

Delhi
Haryana
Himachal
Jammu & Kashmir
Ladakh



Table - 1 Per capita water availability in India

Year	Population (Million)	Per capita water availability (m ³ /year)	Remarks
1951	361	5178	
1955	395	4732	
1991	846	2210	
2001	1027	1820	
2011	1211	1651	water stressed#
2015	1326*	1508 ^s	water stressed#
2021	1345 ^a	1486 ^s	water stressed#
2031	1463 ^a	1367 ^s	water stressed#
2041	1560 ^a	1282 ^s	water stressed#
2051	1628 ^a	1228 ^s	water stressed#

Source: Government of India, 2009 (NCIWRD Report, 1999), *projected from 2011 census

Population Vs Water Needs



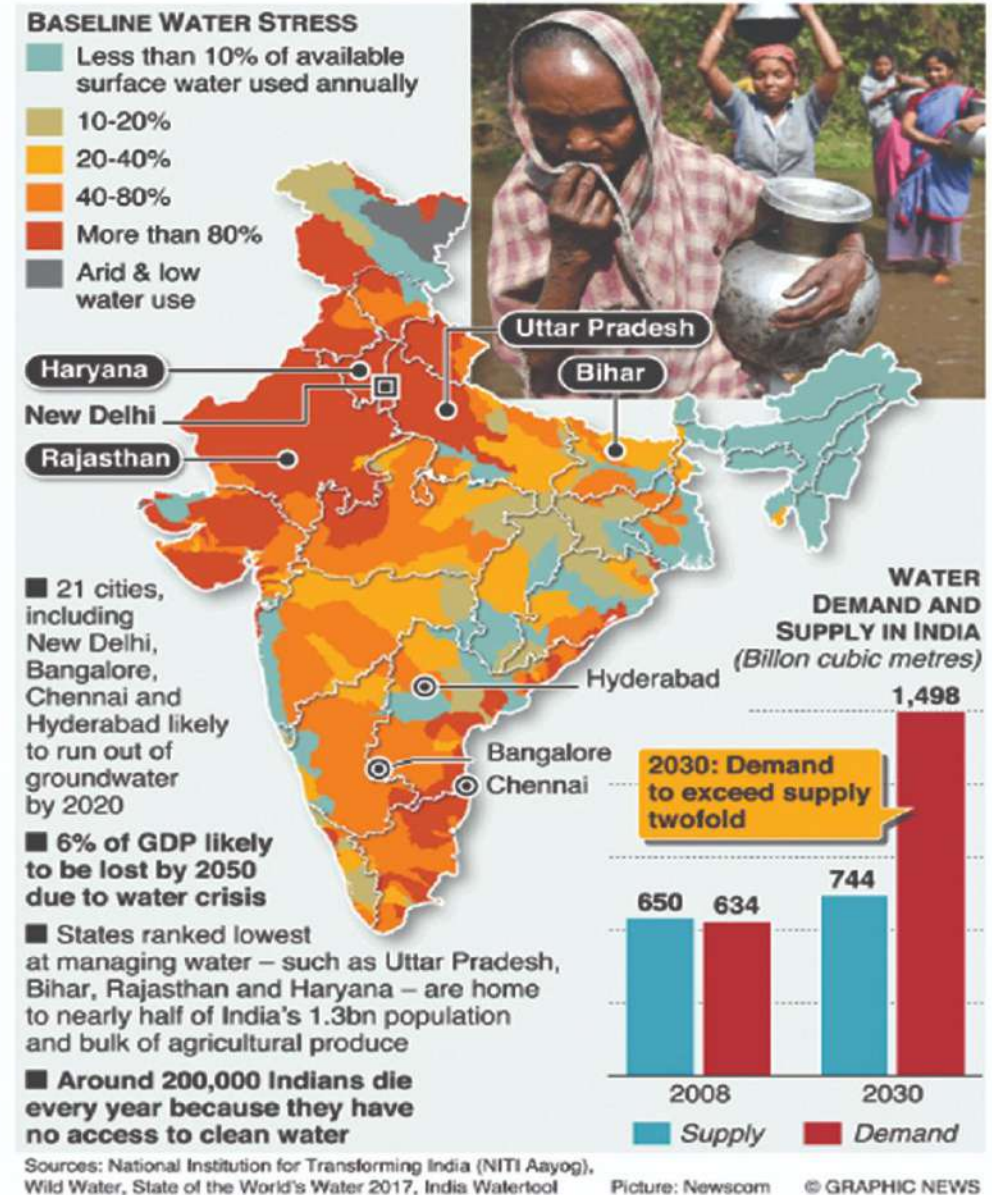
Water Stress

Area of the country as % of world area	2.4%
Population as % of world population (Census, 2011)	17.1%
Water as % of world water	4%
Average annual rainfall (India Meteorological Dept.)	1160 mm (world average 1110 mm)
Range of distribution	150-11690 mm
Range Rainy days	5-150 days

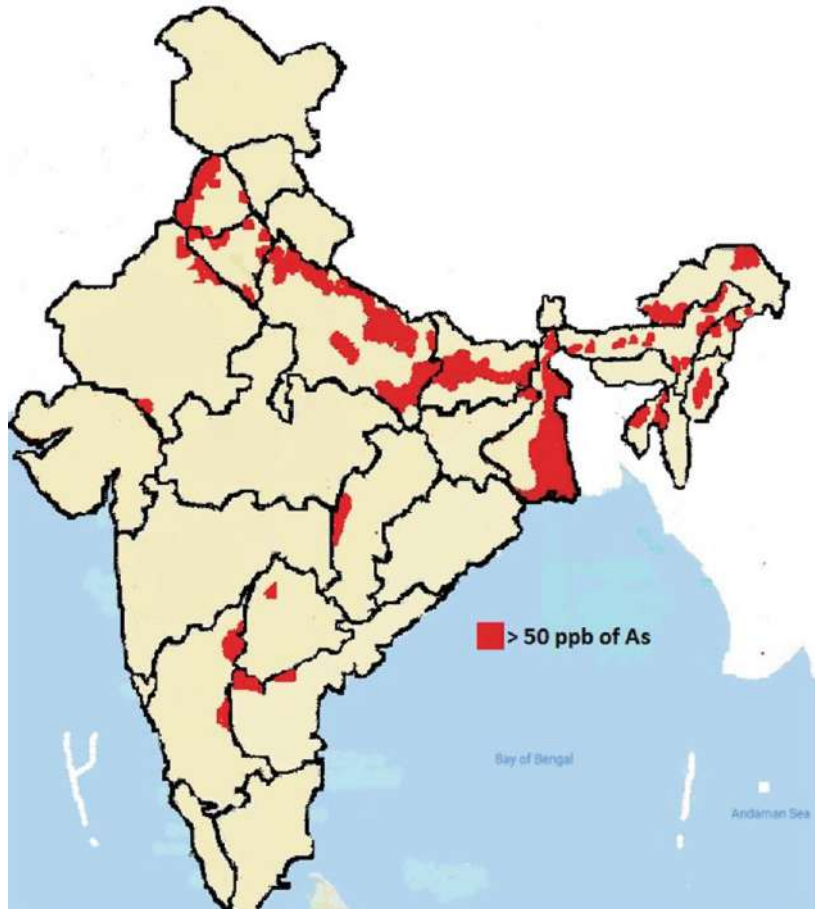
Source: Water Resources Information System of India

India on brink of worst-ever water crisis

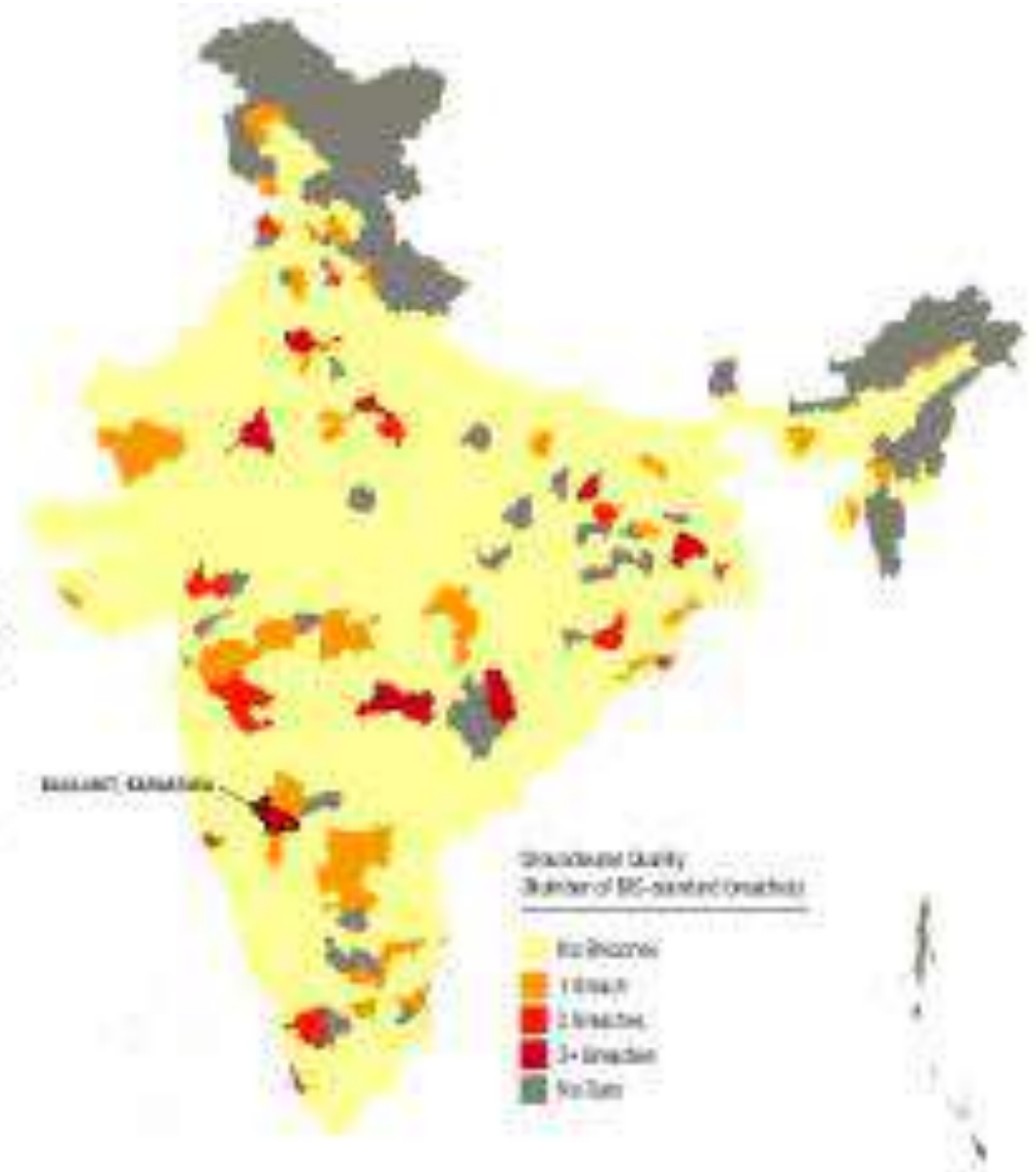
India is suffering from the worst water crisis in its history with some 600 million people facing acute water shortage. The crisis will worsen as demand is projected to be twice the available supply by 2030



The Status of Arsenic Contamination in India



More than
100
MILLION
People Live
in Areas of
Poor Water
Quality



ACCESS TO PIPED WATER

% of rural households with piped water supply

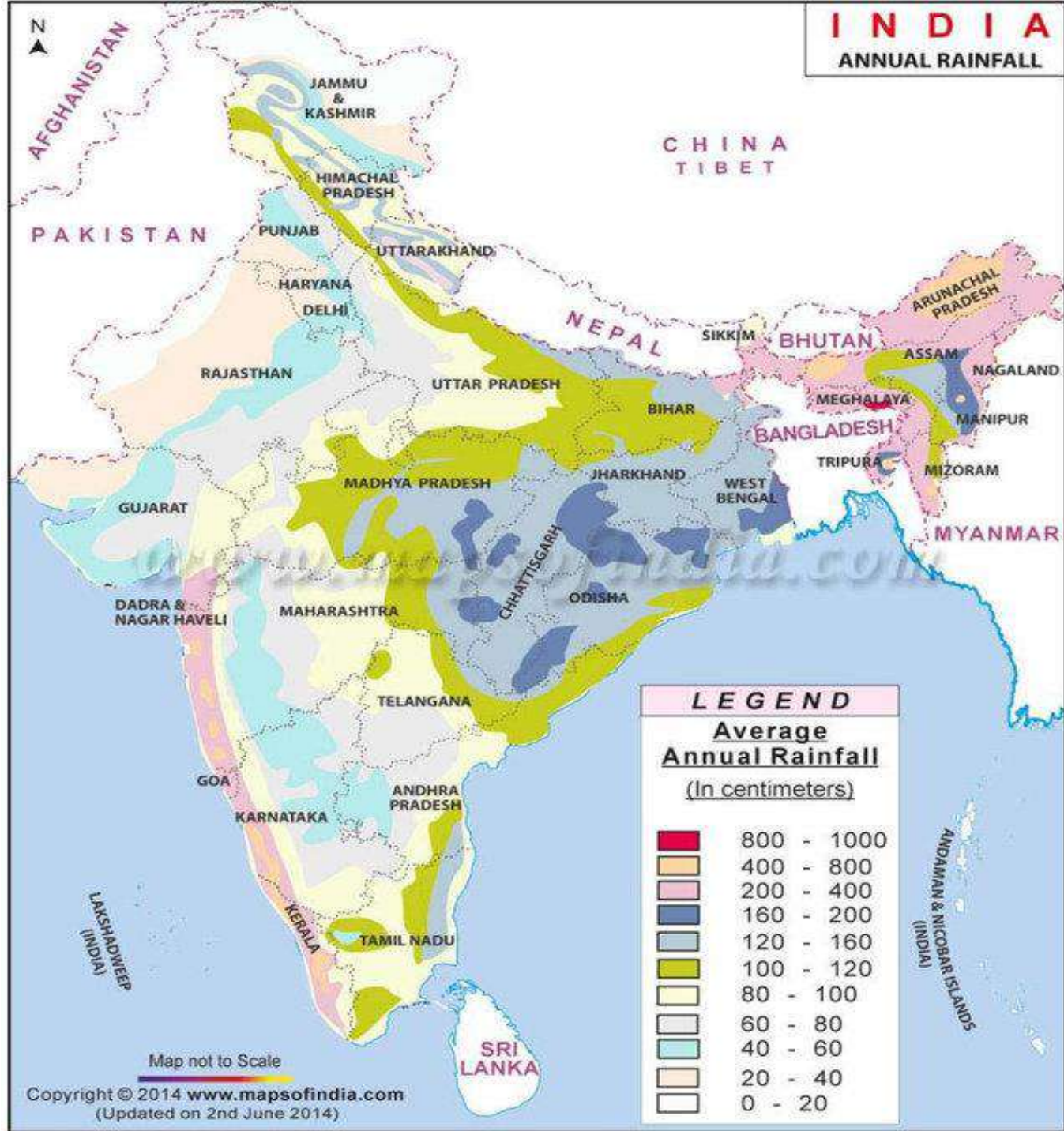


SIKKIM	99.34
GUJARAT	78.46
HIMACHAL PRADESH	56.27
HARYANA	53.47
PUNJAB	53.28
PUDUCHERRY	50.35
KARNATAKA	43.81
MAHARASHTRA	38.44
TELANGANA	33.53
ANDHRA PRADESH	33.52
JAMMU & KASHMIR	30.02
TAMIL NADU	29.74
KERALA	16.75
MIZORAM	15.74
UTTARAKHAND	14.32
RAJASTHAN	12.38
MADHYA PRADESH	12.2
ANDAMAN & NICOBAR	10.15
ARUNACHAL PRADESH	9.09
CHHATTISGARH	8.93
JHARKHAND	5.75
MANIPUR	5.58
NAGALAND	4.89
ODISHA	3.94
TRIPURA	3.18
ASSAM	2.21
BIHAR	1.88
UTTAR PRADESH	1.33
WEST BENGAL	1.31
MEGHALAYA	0.95
GOA	0

As in June 2019

INDIA

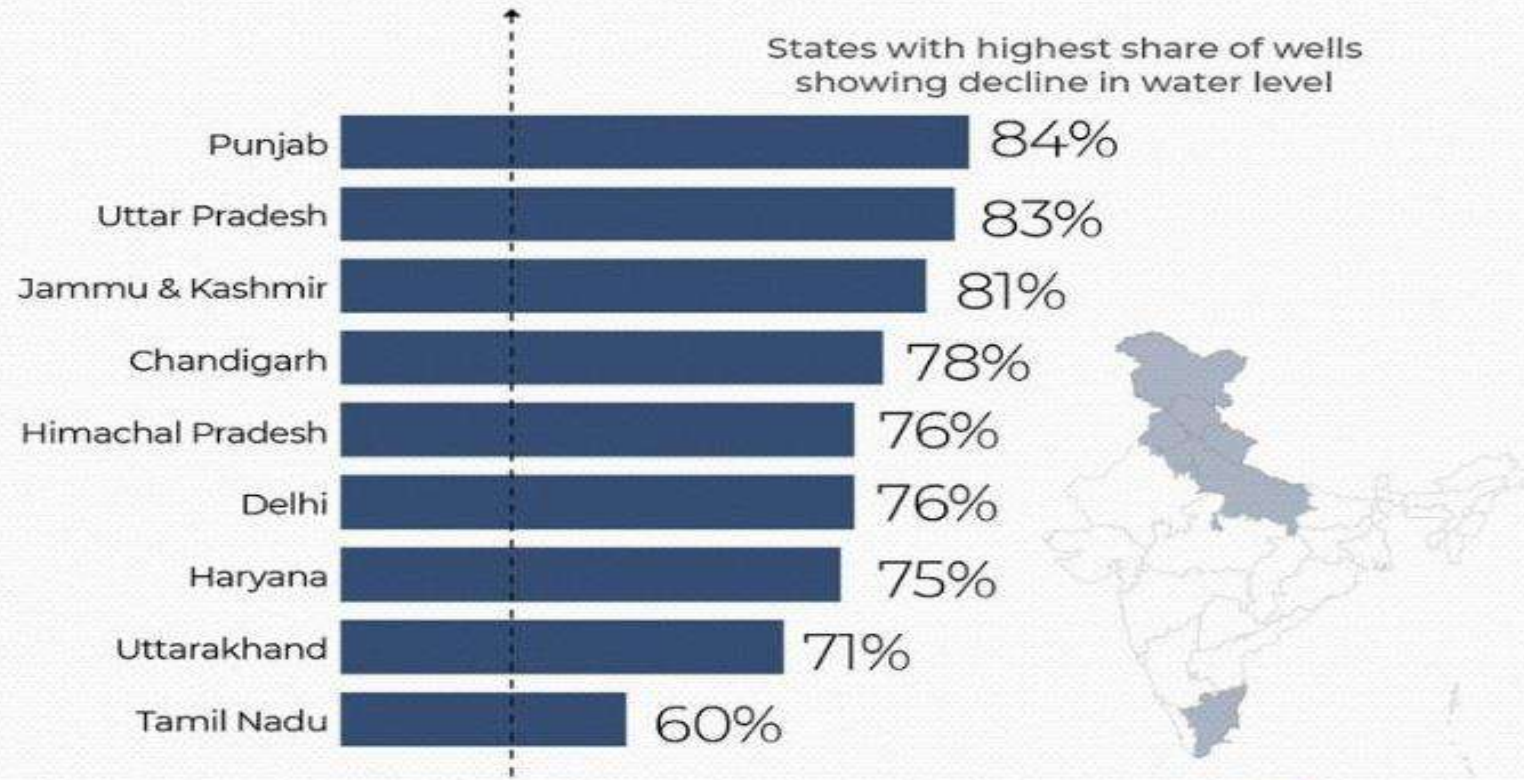
ANNUAL RAINFALL



LEGEND	
Average Annual Rainfall (In centimeters)	
	800 - 1000
	400 - 800
	200 - 400
	160 - 200
	120 - 160
	100 - 120
	80 - 100
	60 - 80
	40 - 60
	20 - 40
	0 - 20

FALL IN GROUND WATER LEVEL

52% of India's wells show a fall in water level



Based on water level data for 2018 vs the decadal average (2008-2017)
Source: Lok Sabha reply





Construction debris near GC road



Sewage flow through channel



Wetland near DLF Park place



Creek after GC road



Gurgaon Golf Course Road

Day Zero Shimla



India's Cape Town? Why Shimla is facing acute water crisis

By: FE Online | New Delhi | May 29, 2018 9:03 PM

A health crisis

- Forty-five per cent of India's children are stunted and 600,000 children under the age of five die each year, largely because of inadequate water supply and poor sanitation. (UNICEF, FAO)



An economic crisis

Loss of productivity to water and sanitation related diseases costs many countries up to 5% of GDP (WHO 2012)



A women's crisis

Women spend 150 million workdays every year for fetching water (UN Water)



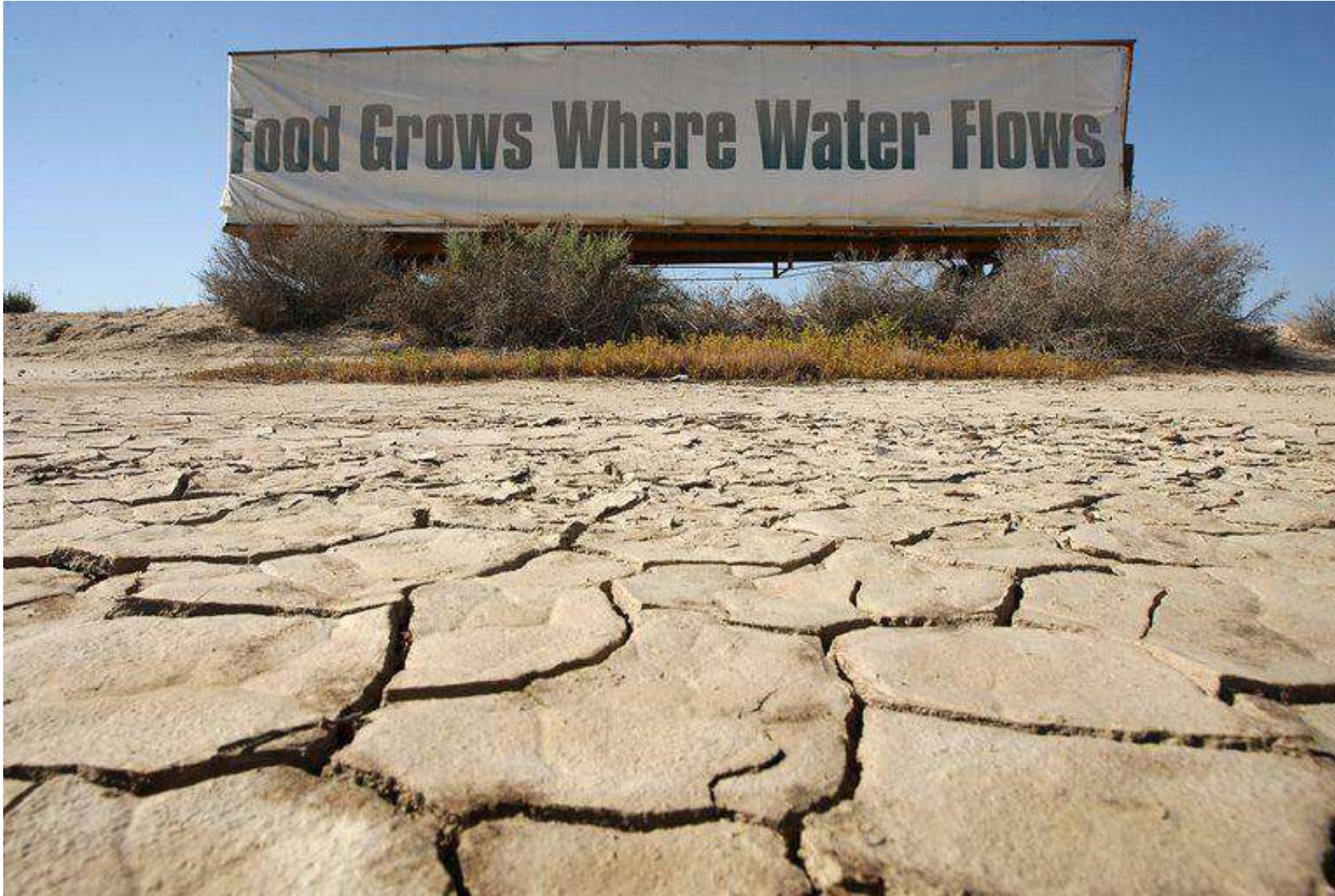
An education crisis

Children are often responsible for collecting water to help their families.



A hunger crisis

The Global hunger index 2020 report has placed India at 94th position among 107 countries



What we have? – A rich traditional water management knowledge

A Baoli in Ferozshah Kotla, New Delhi



Jhalara, Rajasthan



Ahar Pynes of South Bihar



Tanka from Rajasthan



A Johad in Rajasthan



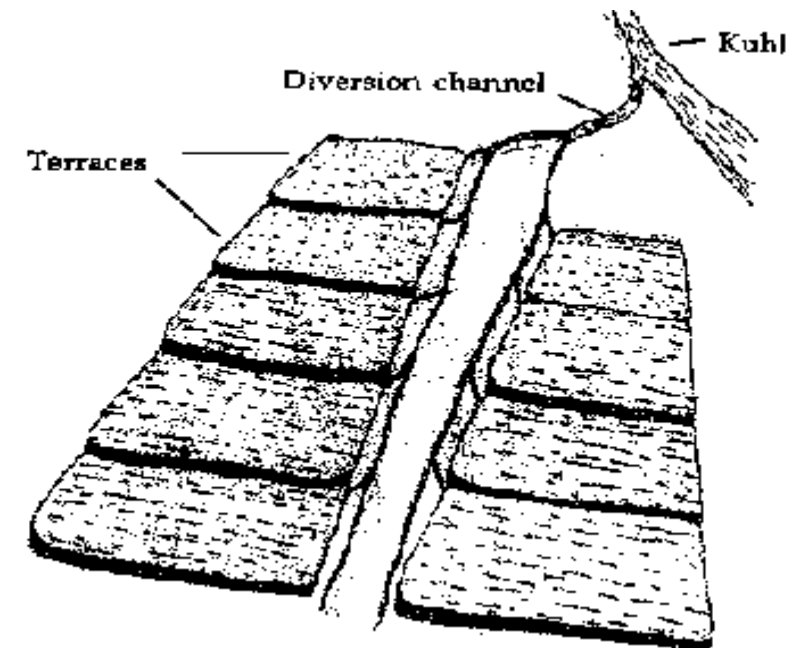
Tank System in Tamilnadu



What are Kuhls?

- Traditional irrigation system in Himachal Pradesh
- Surface channels diverting water from natural flowing streams (*khuds*).
- A typical community *kuhl* serviced 6 to 30 farmers, irrigating an area of about 20 ha.
- Consists of a temporary headwall (constructed usually with river boulders) across a *khud* for storage and diversion of the flow through a canal to the fields.

Book: The Kuhls of Kangra : Community-managed Irrigation in the Western Himalaya- By Mark Baker



JOHAD

Simple mud and rubble barriers built across the contour of a slope to arrest rainwater

These earthen check dams are meant to catch and conserve rainwater, leading to improved percolation and groundwater recharge

Built across a slope with a high embankment on the three sides while the fourth side is left open for the rainwater to enter

Used for the drinking purpose by humans and cattle.

Are called as "khadins" in Jaisalmer and *tanks* in most parts of the country.



Zing system of Leh-Ladakh

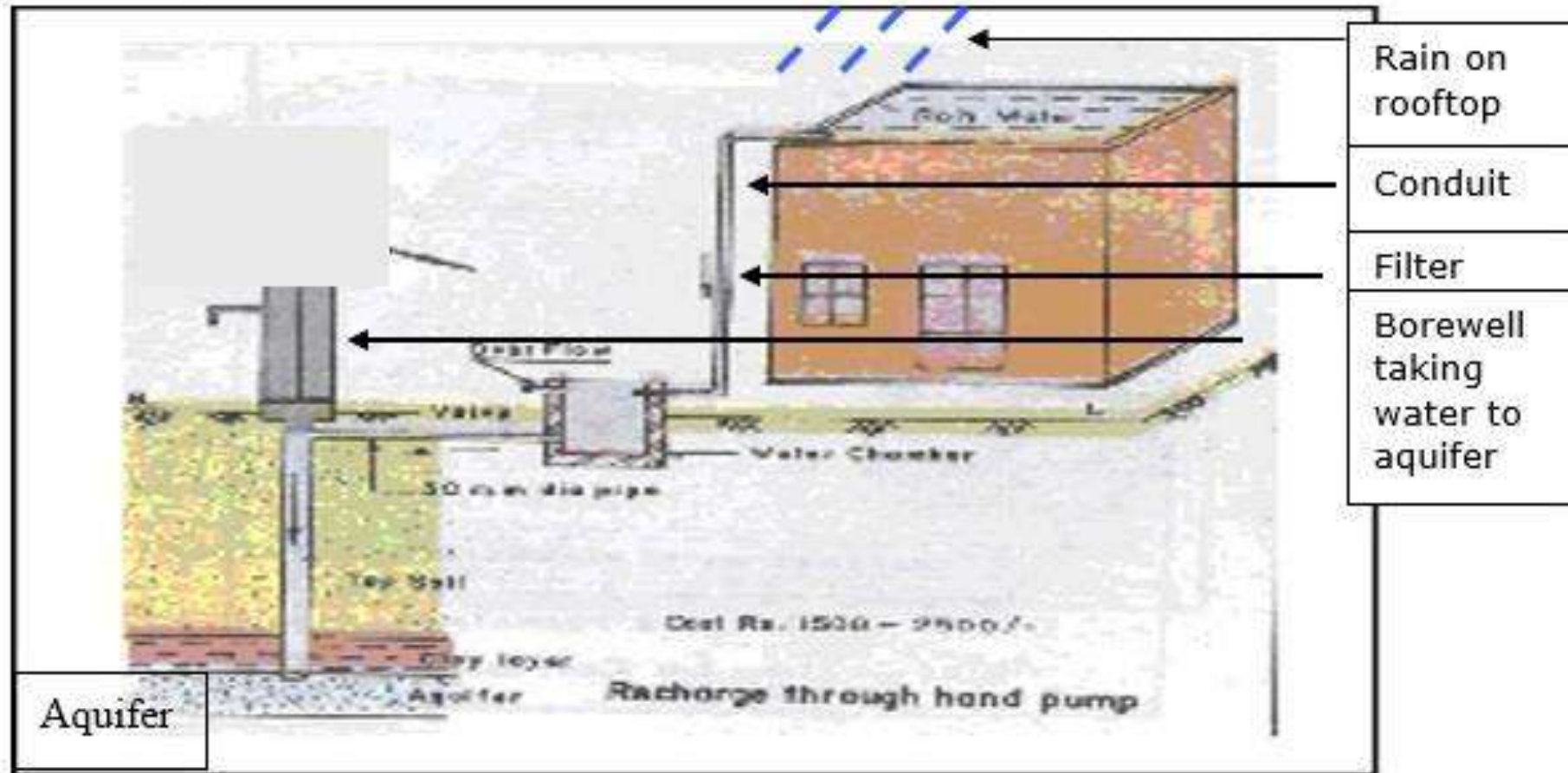
- Water harvesting structures found in Ladakh
- They are small tanks, in which collects melted glacier water
- Network of guiding channels that brings the water from the glacier to the tank
- As glaciers melt during the day, the channels fill up with a trickle that in the afternoon turns into flowing water
- The water collects towards the evening, and is used the next day
- A water official called the *Churpun* ensures that water is equitably distributed.



J&K: 18,000 water recharge pits, 850 water harvesting tanks constructed in Kulgam

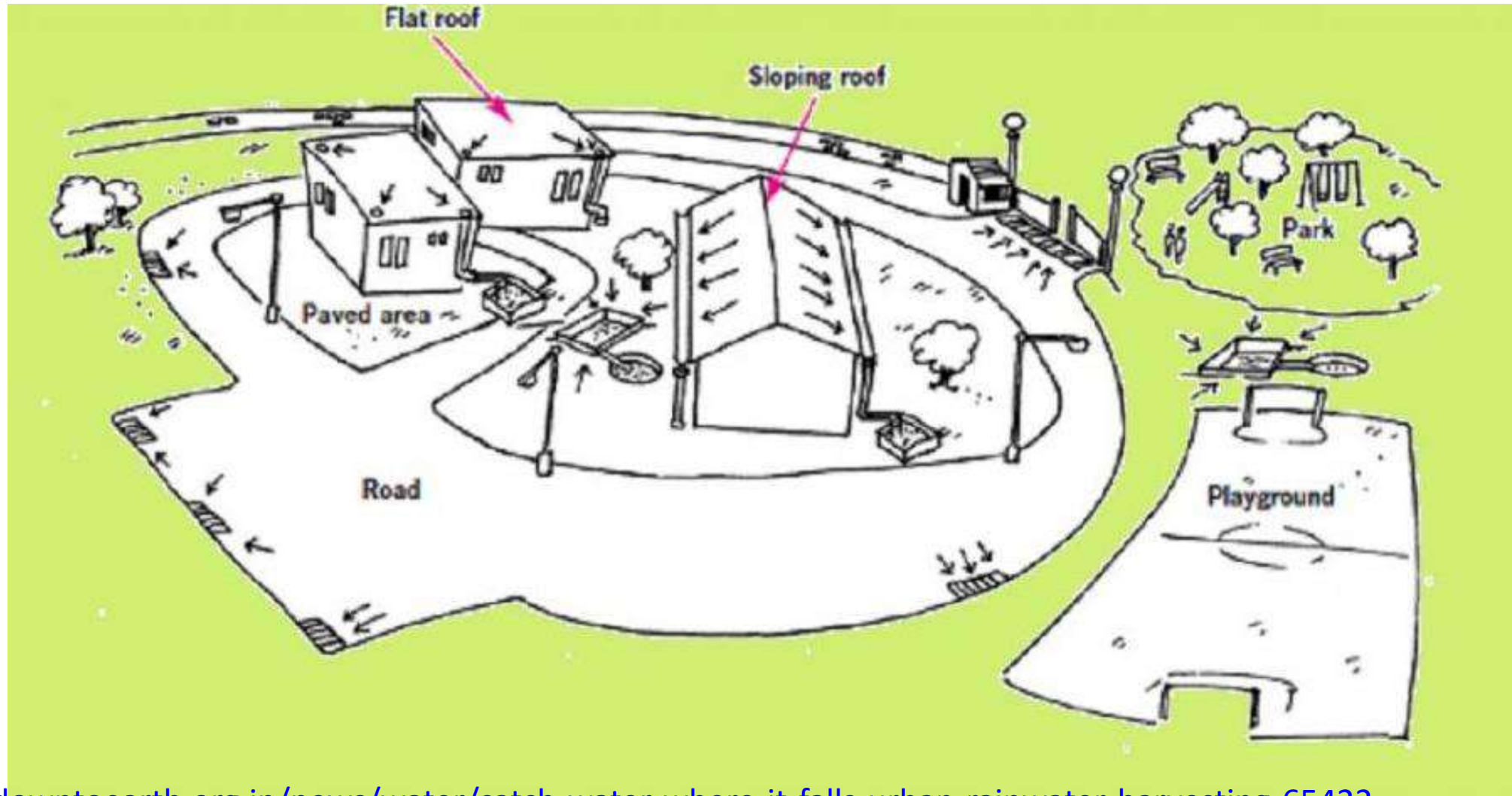
District Development Commissioner, Showkat Aijaz Bhat was apprised about the construction of tanks in a meeting chaired by him to review the performance of Integrated Watershed Management Programme (IWMP).

Rainwater harvesting

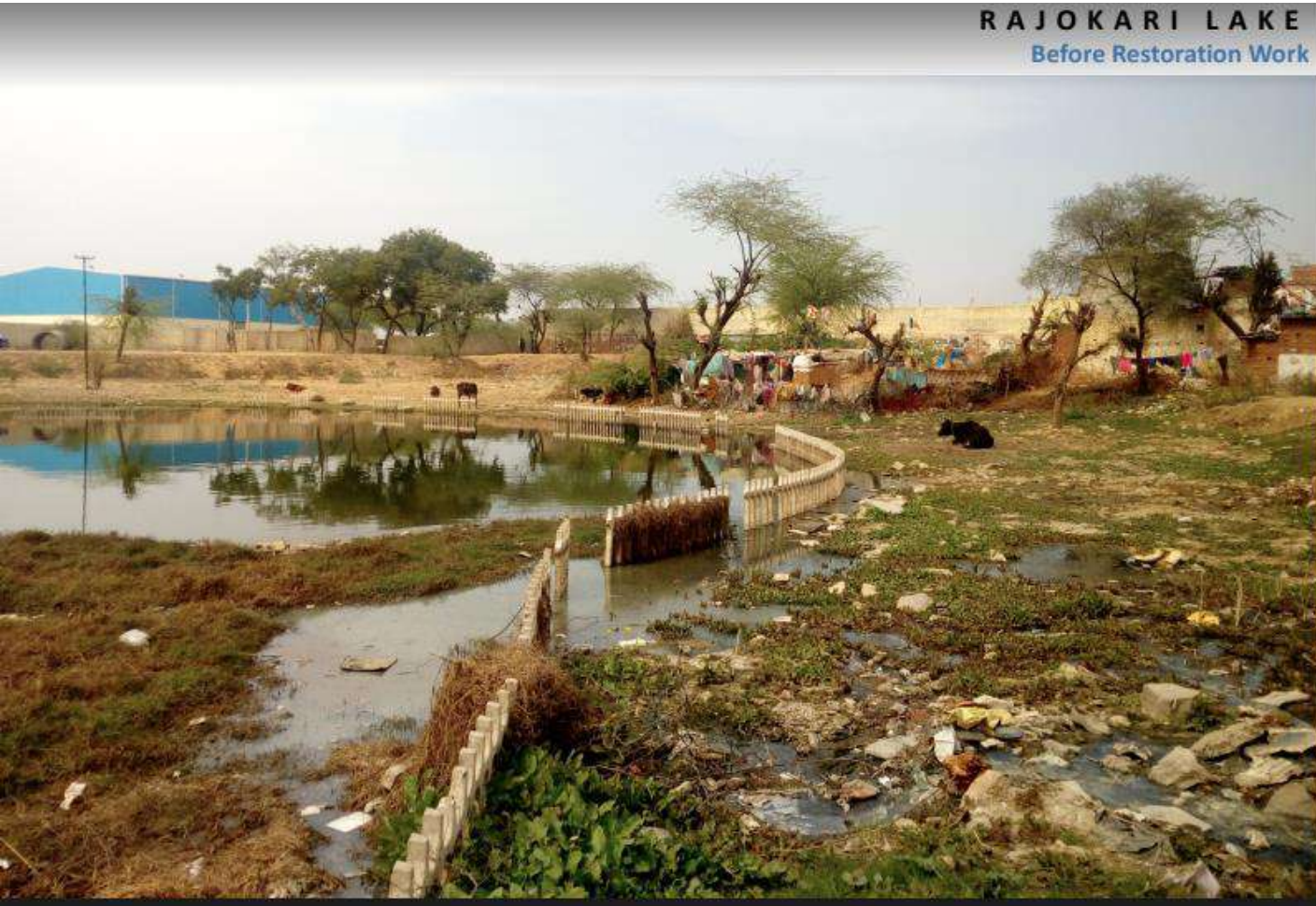


The catchments

- The catchment is a structure or land area that is used to collect rainwater and drain run-off.
- Can be either paved (roofs, courtyards, roads, etc) or unpaved (lawns, playgrounds, open spaces, etc).



Delhi –Pond Rejuvenation







Diversion Bunds



Tie Ridging



Contour Farming



Farm Ponds

https://nwa.mah.nic.in/sdmc/rwh/02_methods.htm



Use of Abandoned dugwells



Gabion Check Dam

Action:

How can NYK Youth fellows contribute?

- **Public awareness and sensitization**

- Posters, banners and other publicity material
- Street plays, songs and Slogans
- Awareness on Traditional Water Wisdom using Folk Performers
Bahurupiya, Acrobats

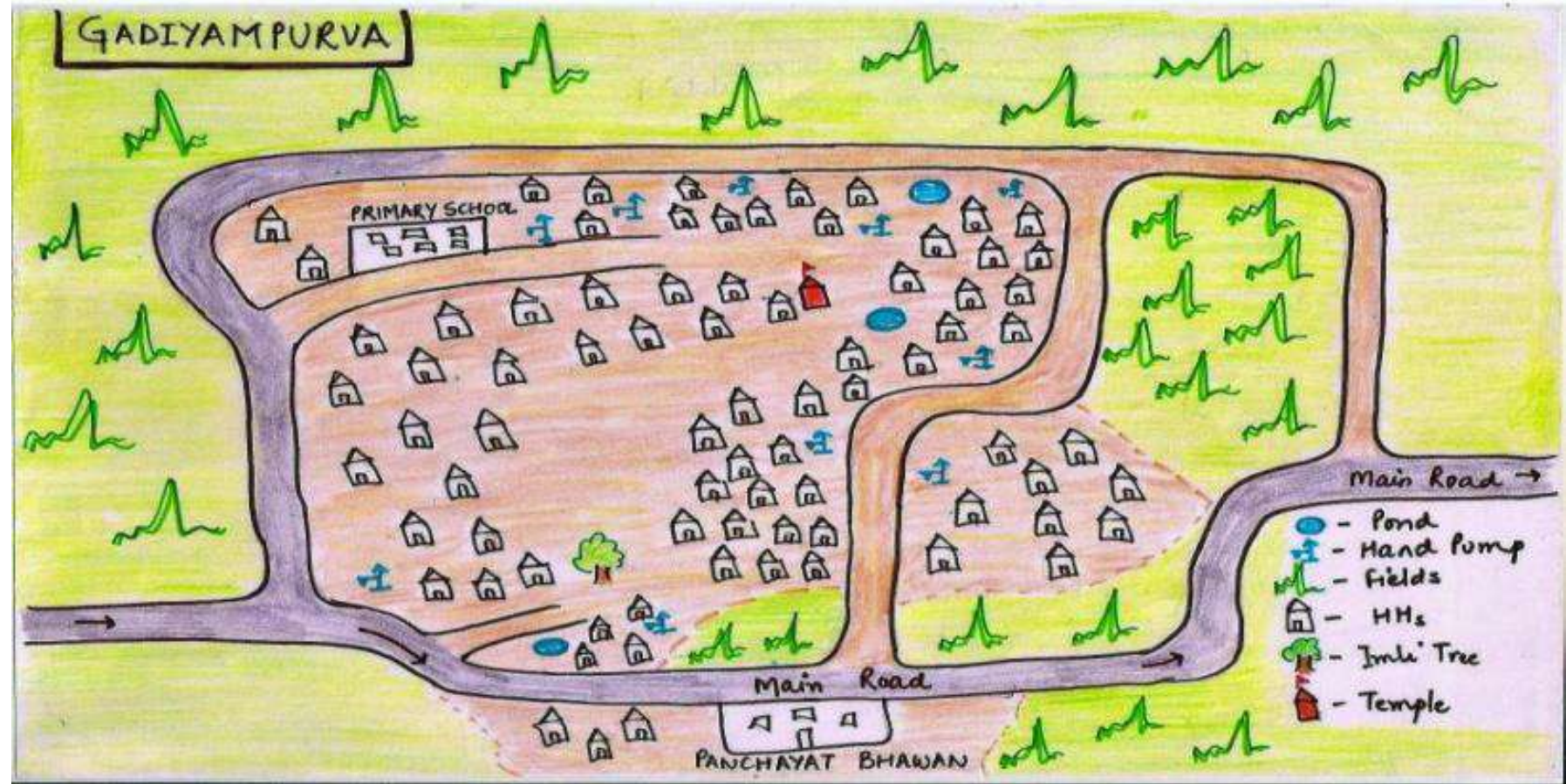
<https://www.youtube.com/watch?v=JEkPS5m8rBY>

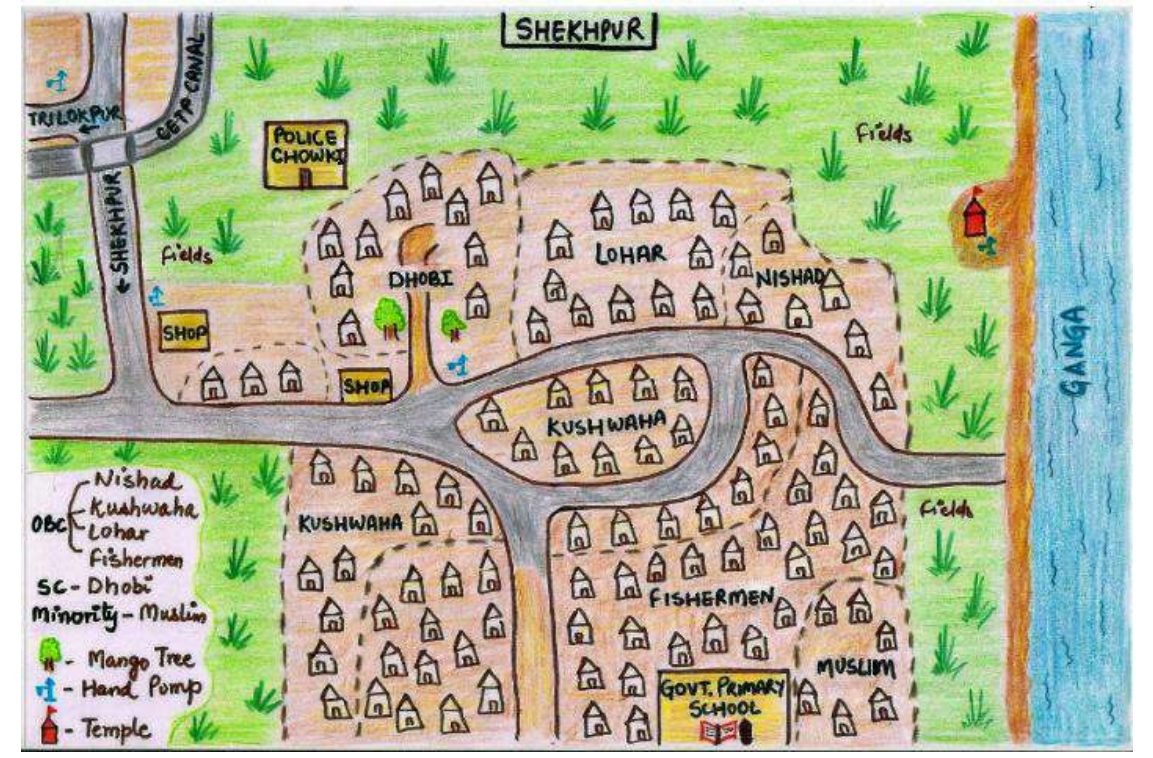
- Walking the tight rope for water

<https://www.youtube.com/watch?v=4qgbJ0vfn-Y>

Resource Mapping - Major Water Repositories with GPS points – Geotag app

- Traditional water bodies
- Man-made reservoirs
- Lakes and rivers
- Springs
- Forests, fields
- Wetlands





Documentation

- Government schemes to promote water conservation –RWH and revival of traditional ponds
- Basic Data on the village visited (Google forms) <https://forms.gle/HXardnSM1zGNx7Cv8>
 - Name of the state, district and village
 - Name and contact number of the youth fellow
 - Name and contact of Sarpanch
 - Number of Houses
 - Population
 - Public buildings – School, Panchayat office, Community Center, Primary health care center
 - Average rainfall
 - Soil type (Sandy, Loamy, Clayey, Mixed)
 - Topography (Plain/ Hilly)
 - Number of ponds/lakes/wetlands/well/government borewells and condition (clean, silted, filled with garbage)
 - Water User Association /Jal Samiti/Pani Panchayat/ Other groups details if present

Establishing an Information Center



- **Jal Shakti Kendra/ Water Knowledge Center**
 - One stop information hub on water conservation (**A helpline number**)
 - Who to approach for Rainwater harvesting?
 - What will be the cost?
 - How much water can I harvest ?
 - Any support from the government?
 - Any information manual?
 - How do I maintain the structure? etc



IDEAS

+ ACTION

= CHANGE

