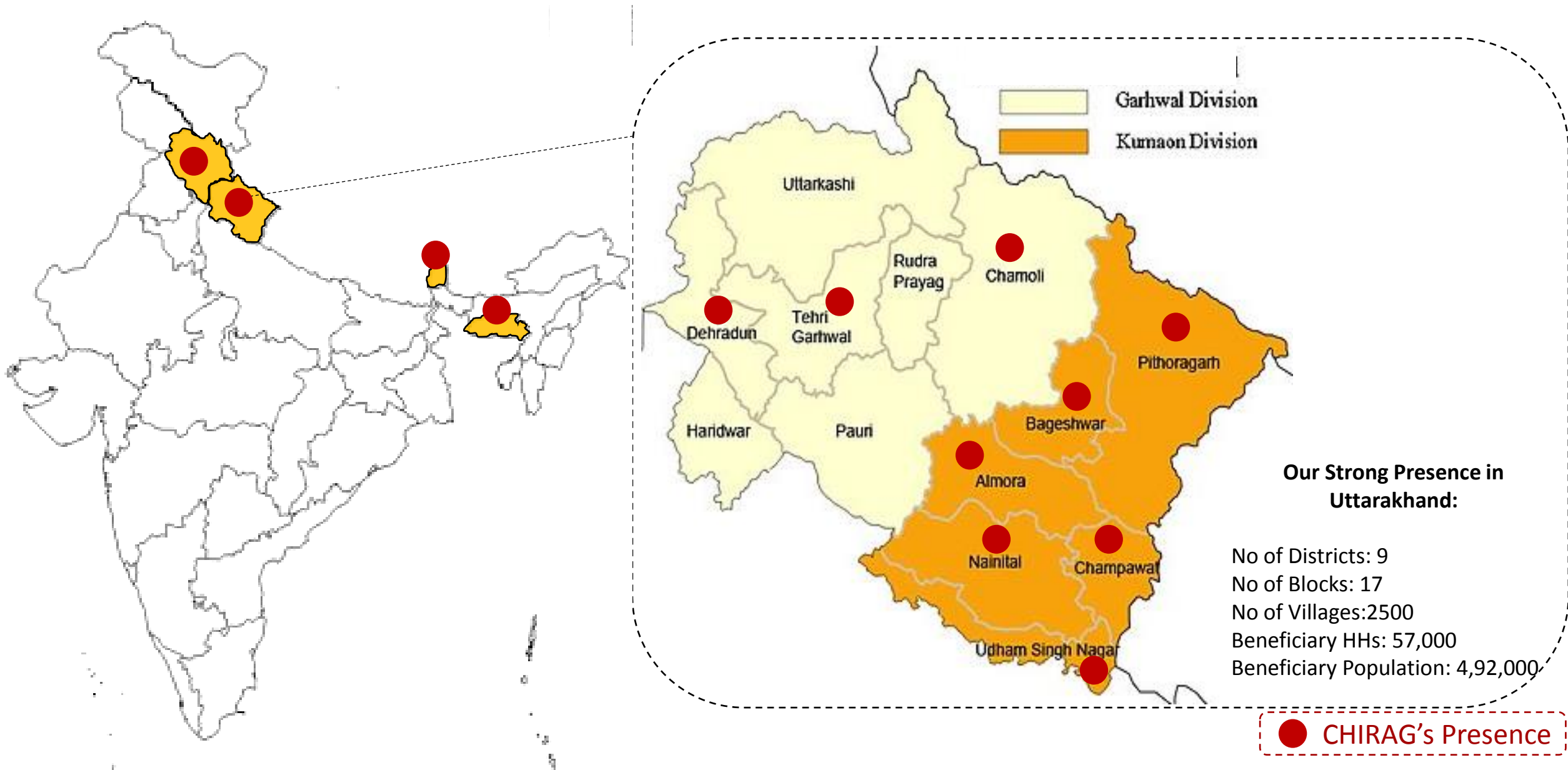


Lecture on:

**“Source Sustainability and Water Conservation in Challenging
Terrains”**

Our Geographical Presence



Themes of Work



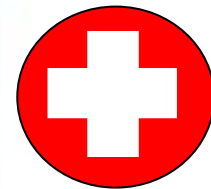
Natural Resources Management



Education



Livelihood



Healthcare



Springs-Why Critical?



Estimated number of springs: 200 million



A population of 37,50,000 (includes 18,00,000+ women in Kumaon) directly depend on springs for water needs



A decrease in rainfall by 12-17% over last 100 years is adding pressure on the existing spring sources



Springs are on a decline. In Almora, out of 360, only 60 springs remain. 62% of the springs found to be contaminated



A woman/girl child walks avg. 2-3km for upto 45 mins to fetch water during the lean period (March, April, May)



Drop out rate among girls on attaining puberty is 23%- due to lack of water and sanitation.



Fetching water is labour intensive: Causes medical complications in women viz. abortions etc.

Traditional Springs

Springs are indicated by locations or points on the ground surface, where water from beneath the ground emerges on to the surface.

- Springs are commonly the points of groundwater discharge.

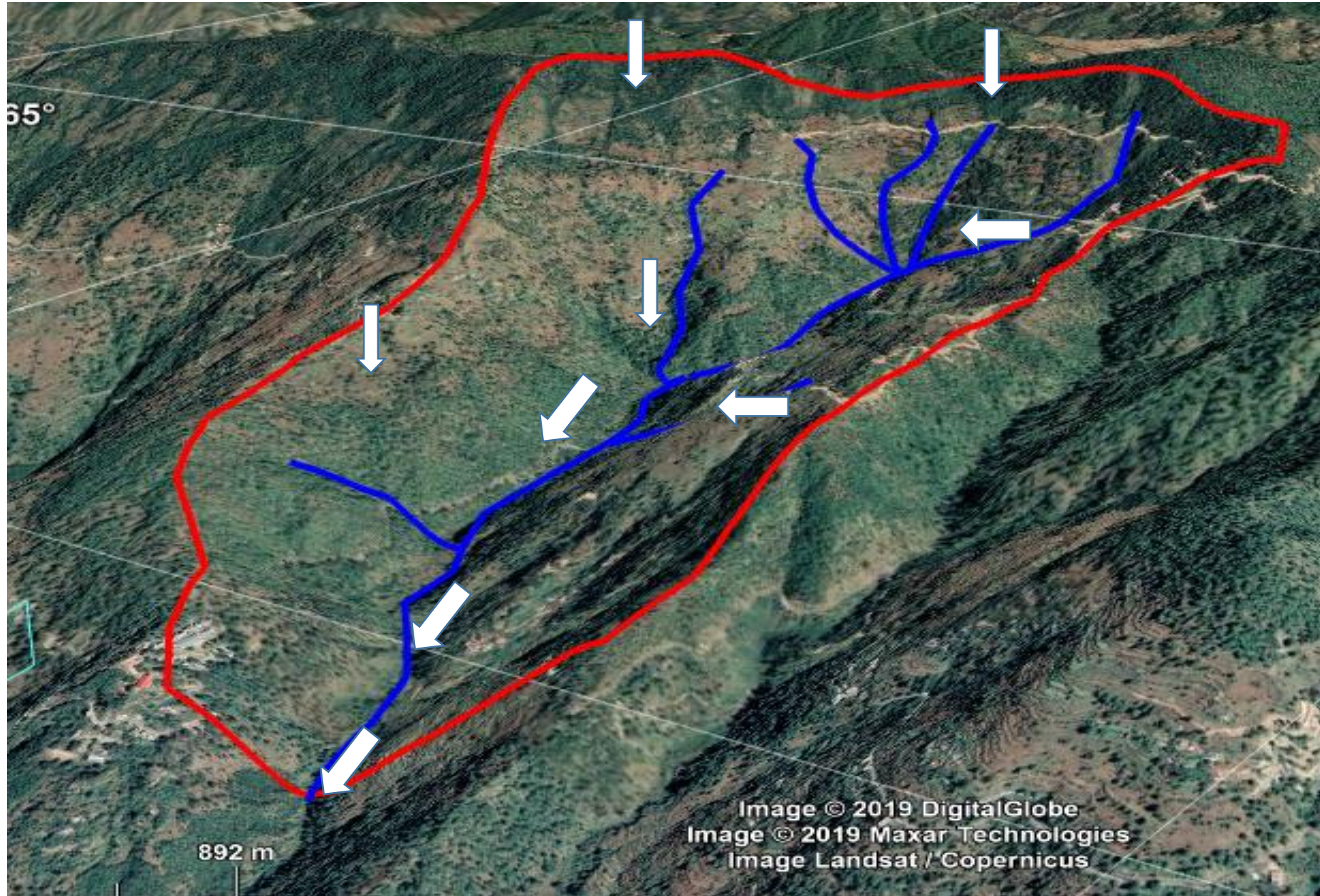


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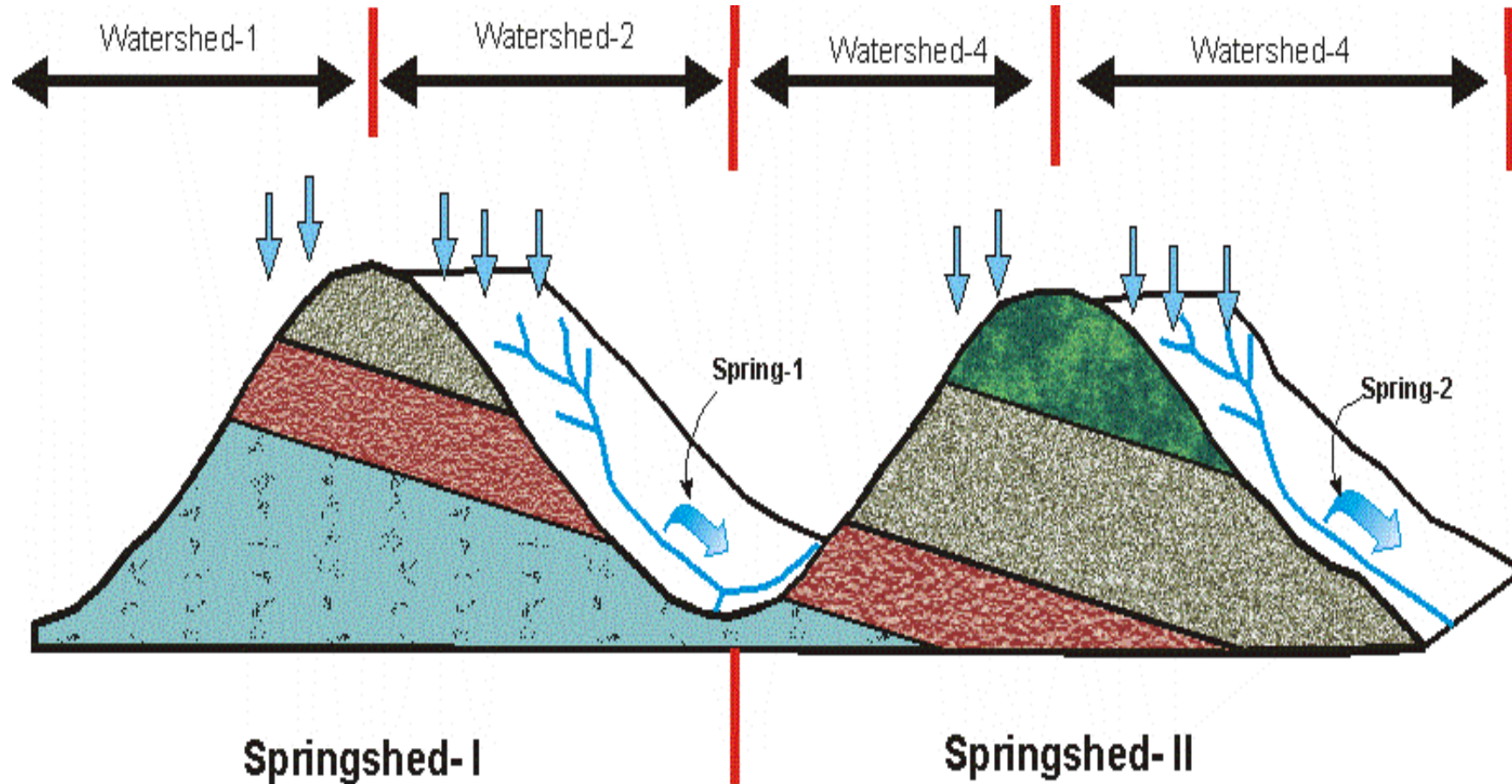


DHAARA

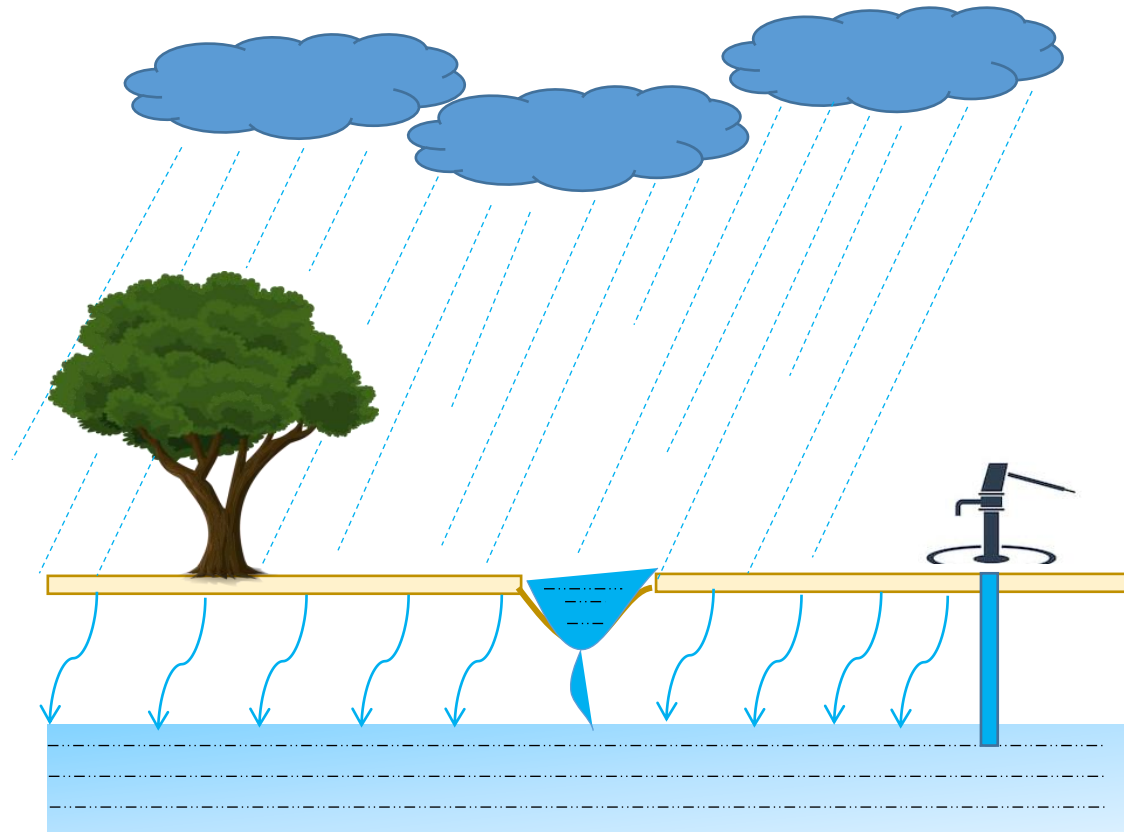
Watershed Approach



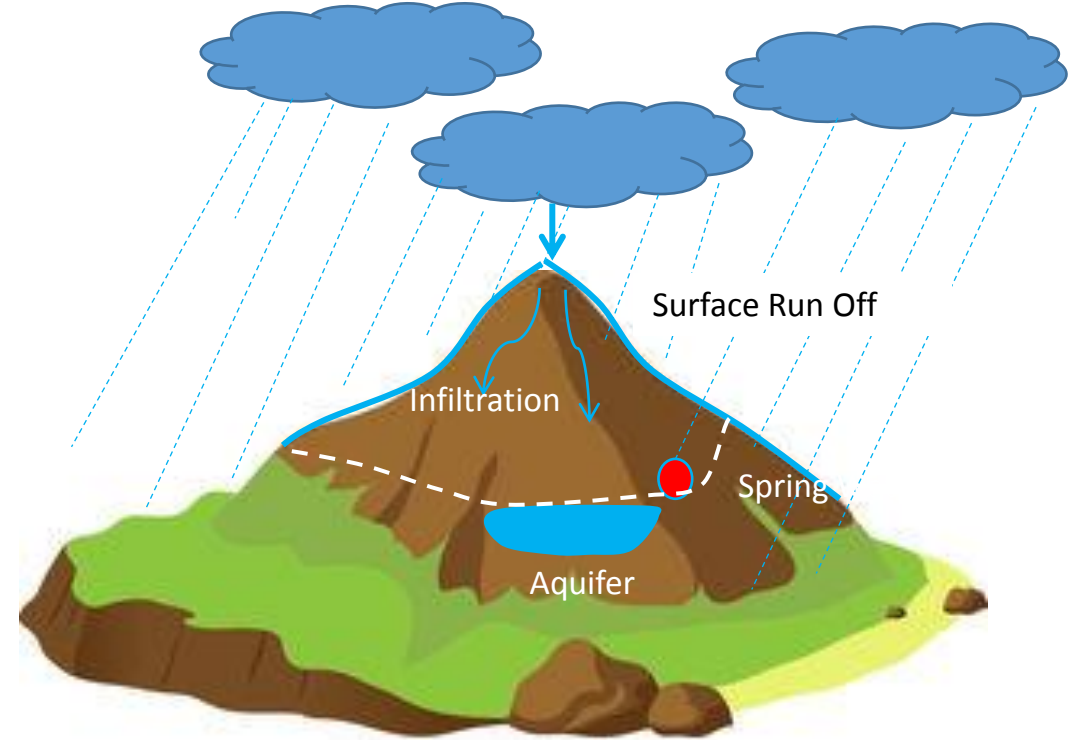
Springshed Approach --Valley to Valley



Science behind the Springs



Ground Water Geology in Plains



Ground Water Geology in Hills

Springshed Management-How we do it. . .



~ Feasibility Study Of Springs



~ Discharge, Rainfall & Water Quality Data Collection



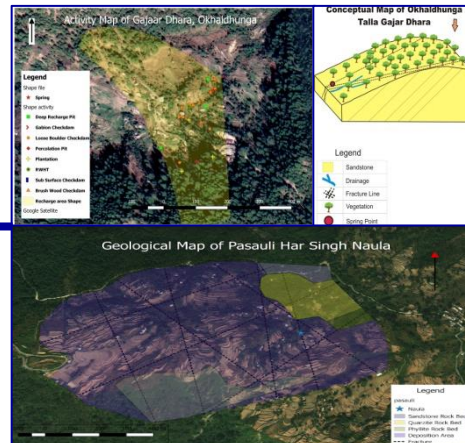
~ Spring Selection



~ Validation of User Demand



~ Implementation of Spring Recharge Treatment Plans



~ Preparation of Maps and Treatment plan



~ Mapping the Geo-tagged inputs to the spring catchment



~ Traverse Mapping & Geological Survey

Building Water Scientists For Future



Training, Awareness Campaigns and Mentoring at Educational Institutions to create a fearless and healthy atmosphere for learning among the children



Community Empowerment for Sustainability



Formation Of Village level Institutions



Training the Institutions



Field Based Training cum exposure Visit



Community Mobilization



Liaising with Govt. Officials- Block level Meeting



Workshop

Community Empowerment for Sustainability

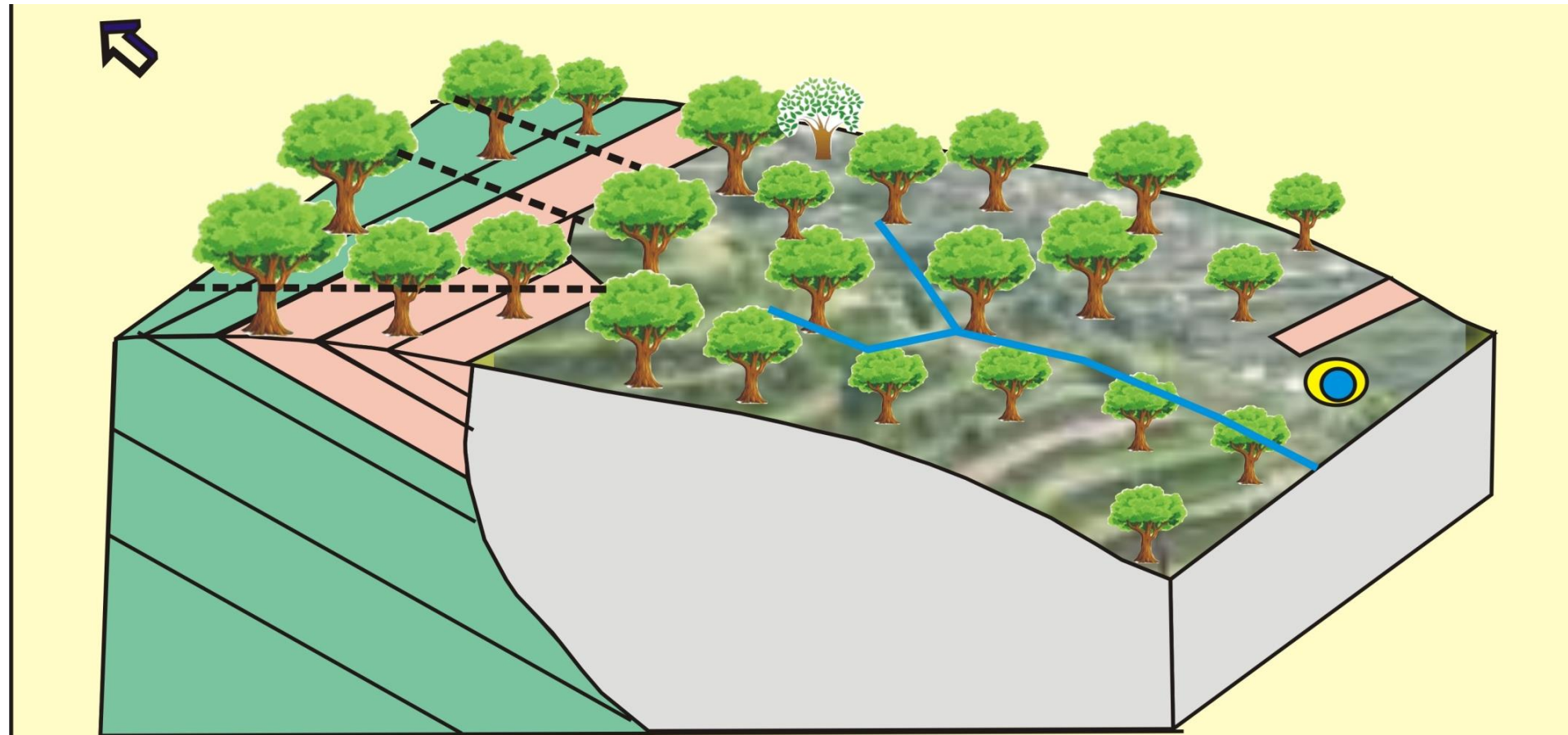


Hydrogeological Mapping by Key Resource Person




Preparation of Recharge Area Map by Key Resource Person

Conceptual Model of a Spring shed



Legend

	Phyllite Rock
	Gneiss Rock
	Fracture Line

	Deposition
	Vegetation
	Drainage
	Spring Point



Plantation / Protection



Brushwood



Dry Stone Check Dam



Gabion Check Dam



Sub Surface Check dam



Khaal and Ponds



Percolation Pit



Contour Trench

Impact monitoring by communities



Rainfall data Monitoring



Spring Discharge Monitoring



Spring Discharge Monitoring



Water Quality Testing



Hydrogeological Survey Mapping



Cadre of Water Scientists at School

Impact monitoring by communities



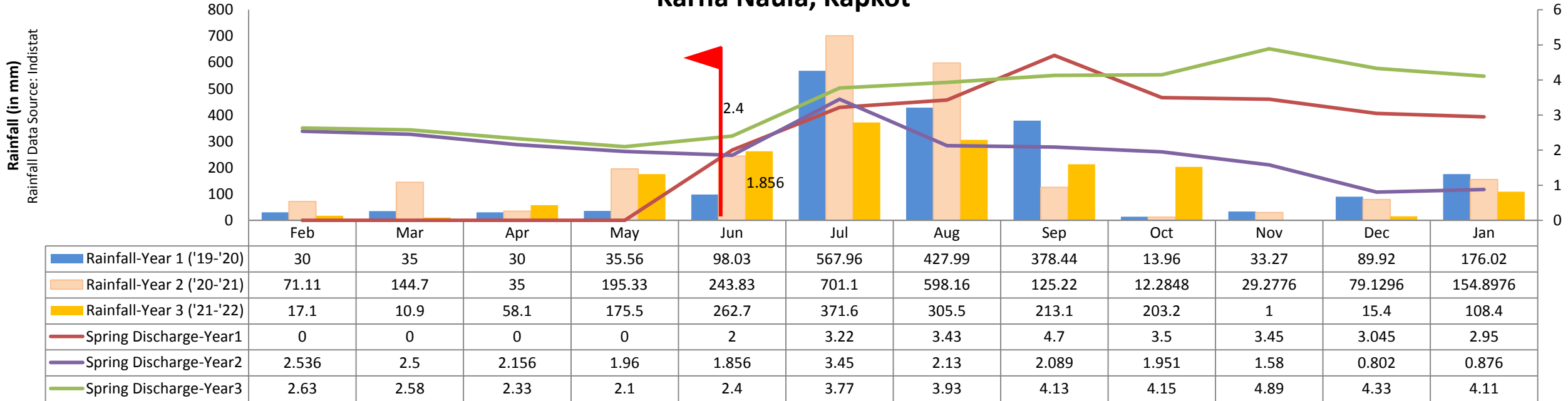
AWS- CHIRAG Campus



Data collection Manual Weather Station

Evaluating the Impact

Karna Naula, Kapkot



32,28,40,800 litres water/year discharge enhanced by treatment of springs



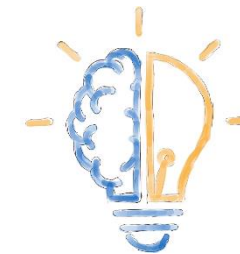
2,51,70,000 litres water/year harvested from the rains



250 ha of vegetation cover is promoted through the tree plantations, Direct Seed Sowing



366 Village level institutions- 'Water User Group' are active for management of water resources



1,14,375 hours of training imparted to 34,315 personnel from the communities for capacity building



Rs 42,48,835 voluntarily raised by the 'Water User Committees' towards operations and future maintenance of springs

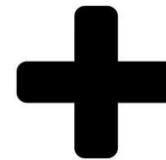
Project Impact



30 hours of time saved by women per day during the lean period in the springs treated



An average of 5.88 km less distance less travelled by women per day in villages with water distribution



10% Reduction in water borne diseases through:
Awareness, chlorination,
treatment



Rs 2,45,50,800 of livelihood generated for the local communities

Project Impact- Social

- Water governance through women led Jal samitis.
- Conflict resolution between neighboring villages.
- Awareness campaigns in schools and creation of bal samitis.
- Training of Key Resources Persons (KRPs) and creation of community hydrogeologists.



Strategy for Sustainability

Need Assessment & Identification of Area

Undertake Projects with Peoples Participation (Institution Building)

Focus on Marginalized Groups

Capacity Building & Ownership Development

Handing over with Handholding



Challenges

- Working in VP and Civil rather than RF and PL.
- Spring in one village and catchment area in the other .
- Lack of Spring Inventories: Contribution of springs to the river systems remains 'Eclipsed'
- Restricted Participation: The process is complex to understand and a long-term
- Challenge to simplify the scientific approach for interpretation of the communities.
- Social inclusivity: Common pattern in hills show male population migrating in search of livelihood while women are involved in the drudgery of fetching water
- Poor village level institutions: Need 'Apolitical' institutions for conservation of Natural Resources
- Incentivizing youth for action.

Way Ahead



- Enabling Institutional stability: Identifying and address the bottle necks at local/policy level
- Need to treat communities as ‘Partners’
- Capacity building, Handholding and Empowerment
- Better Planning and coordination at the execution level of Govt. initiatives
- Robust Monitoring and evaluation for scale up

Thank You!