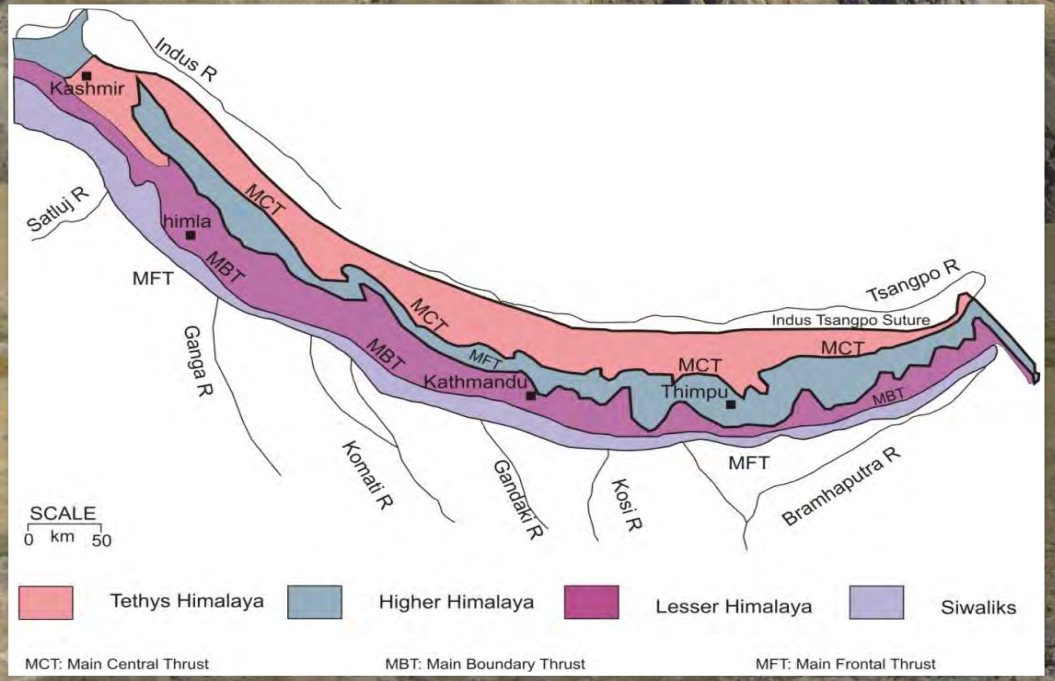
Springs
Lives & Livelihoods

Himalaya: a paradox



Around 5 million springs in India.
3 Million in IHR only
(Niti Aayog Report – 2018)

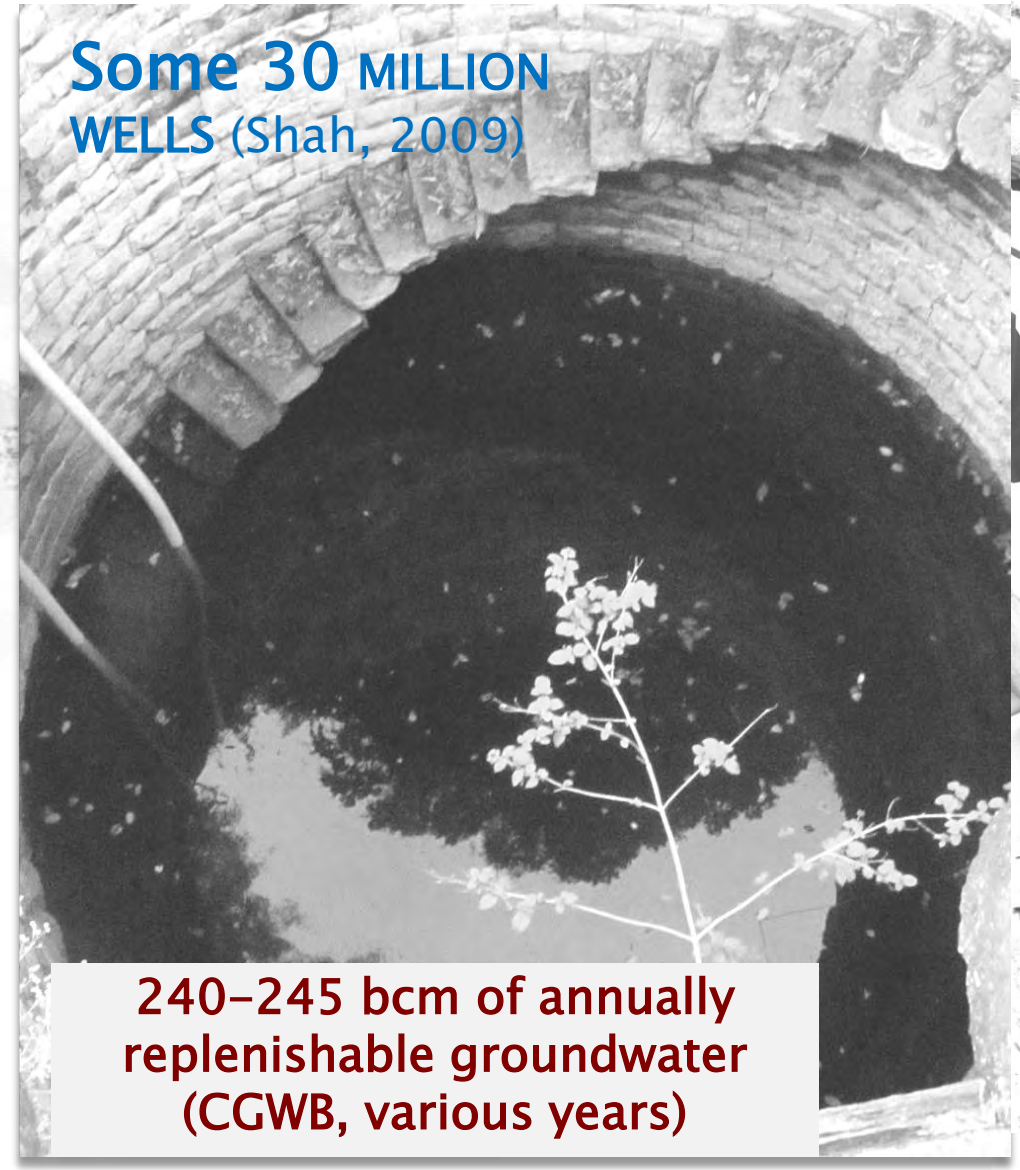
Some 50 million people live in the Indo Himalayan Region (IHR) with at least 60% depending on spring water…

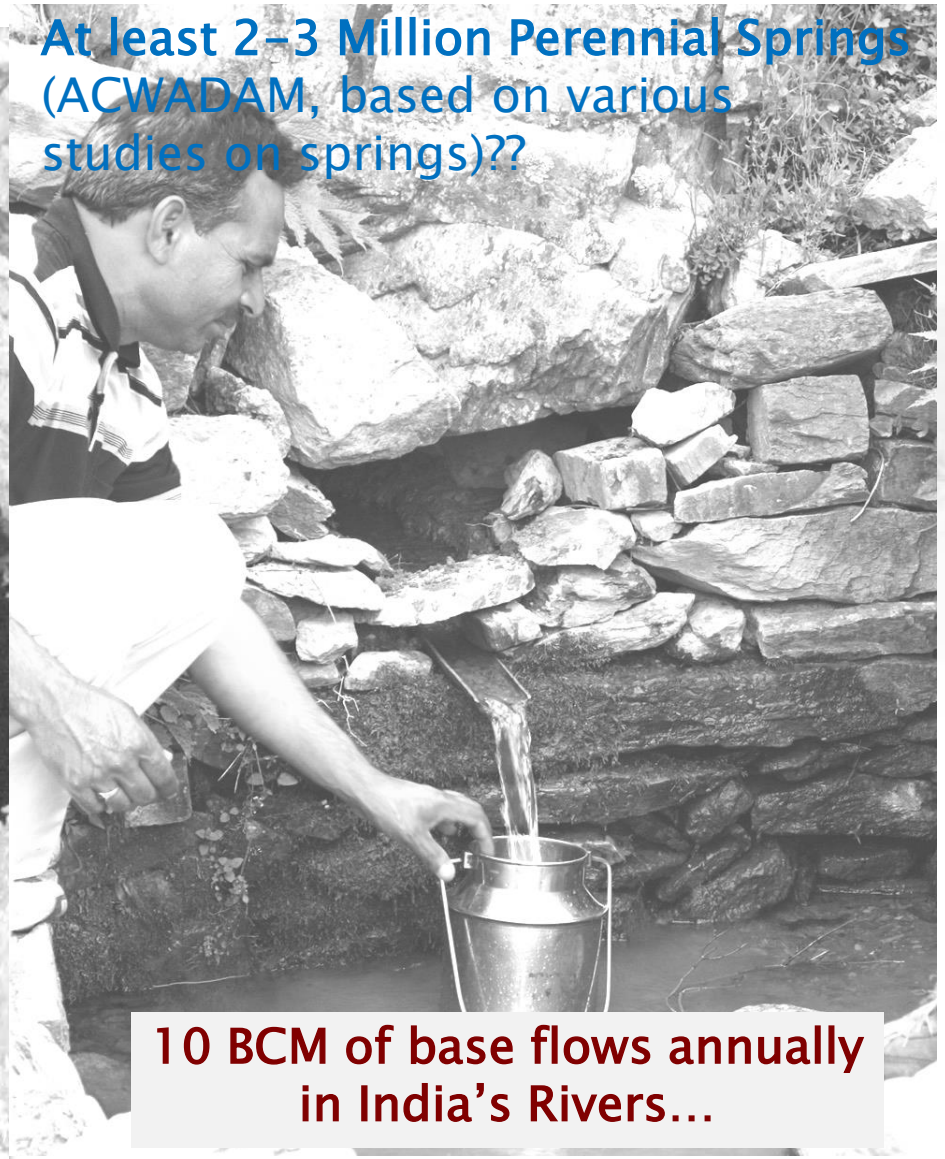
What are springs ?

Springs are areas on the ground that show groundwater outflow from the aquifers below

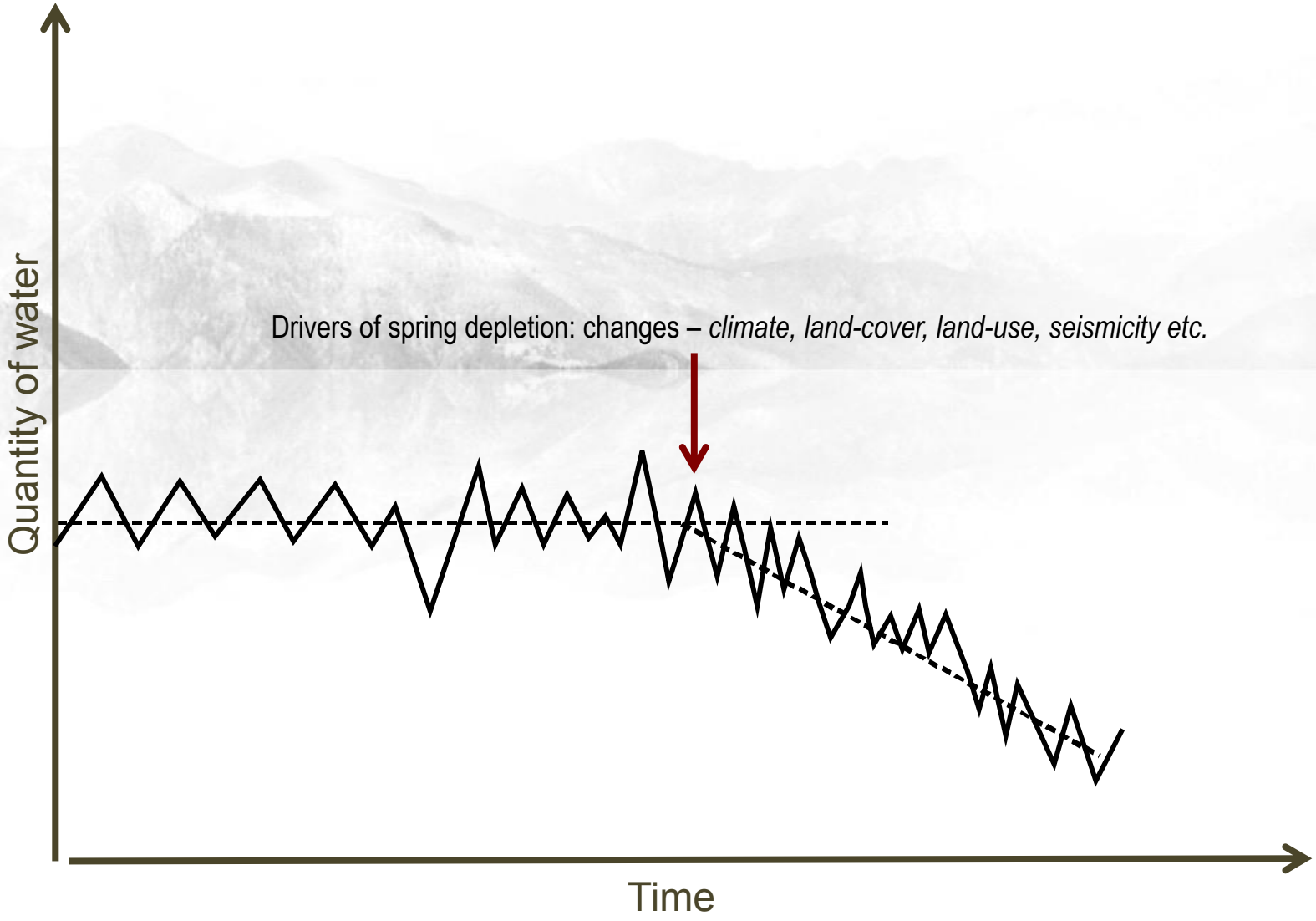
Points of groundwater discharge

Springs: a blind spot in the larger context of national water management (e.g. India…)



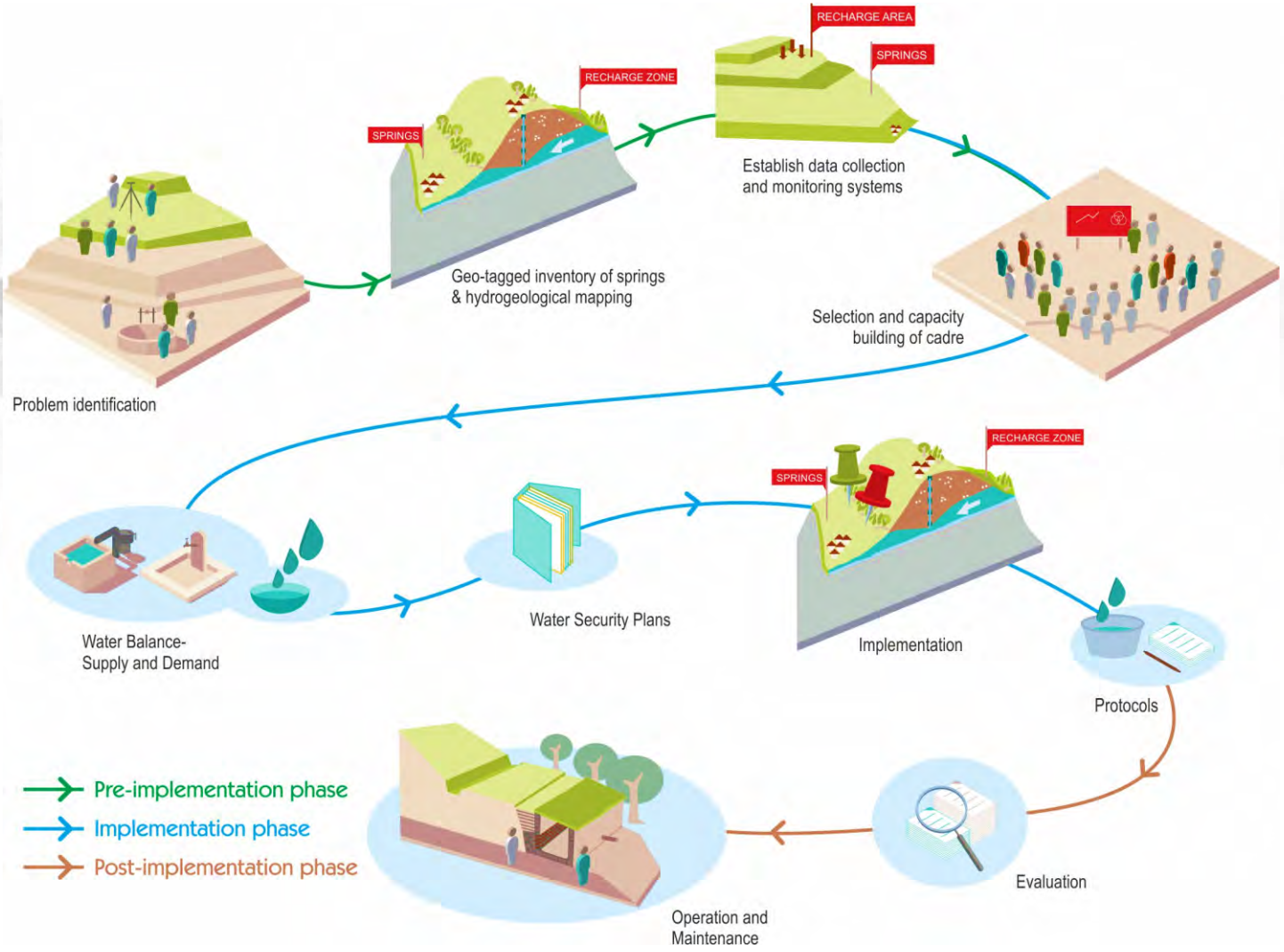


Spring discharge: multiple dimensions…

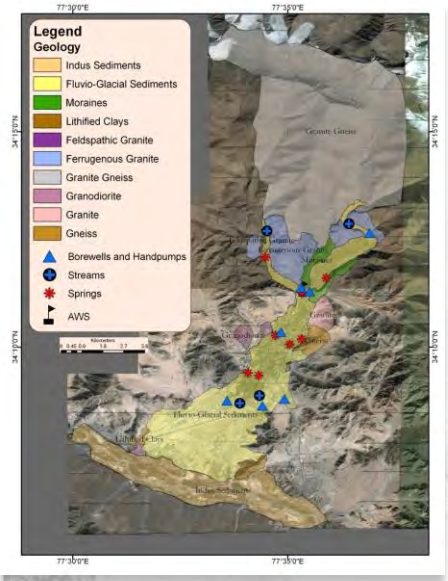


Eight step methodology

Integrating science/social science, research and implementation

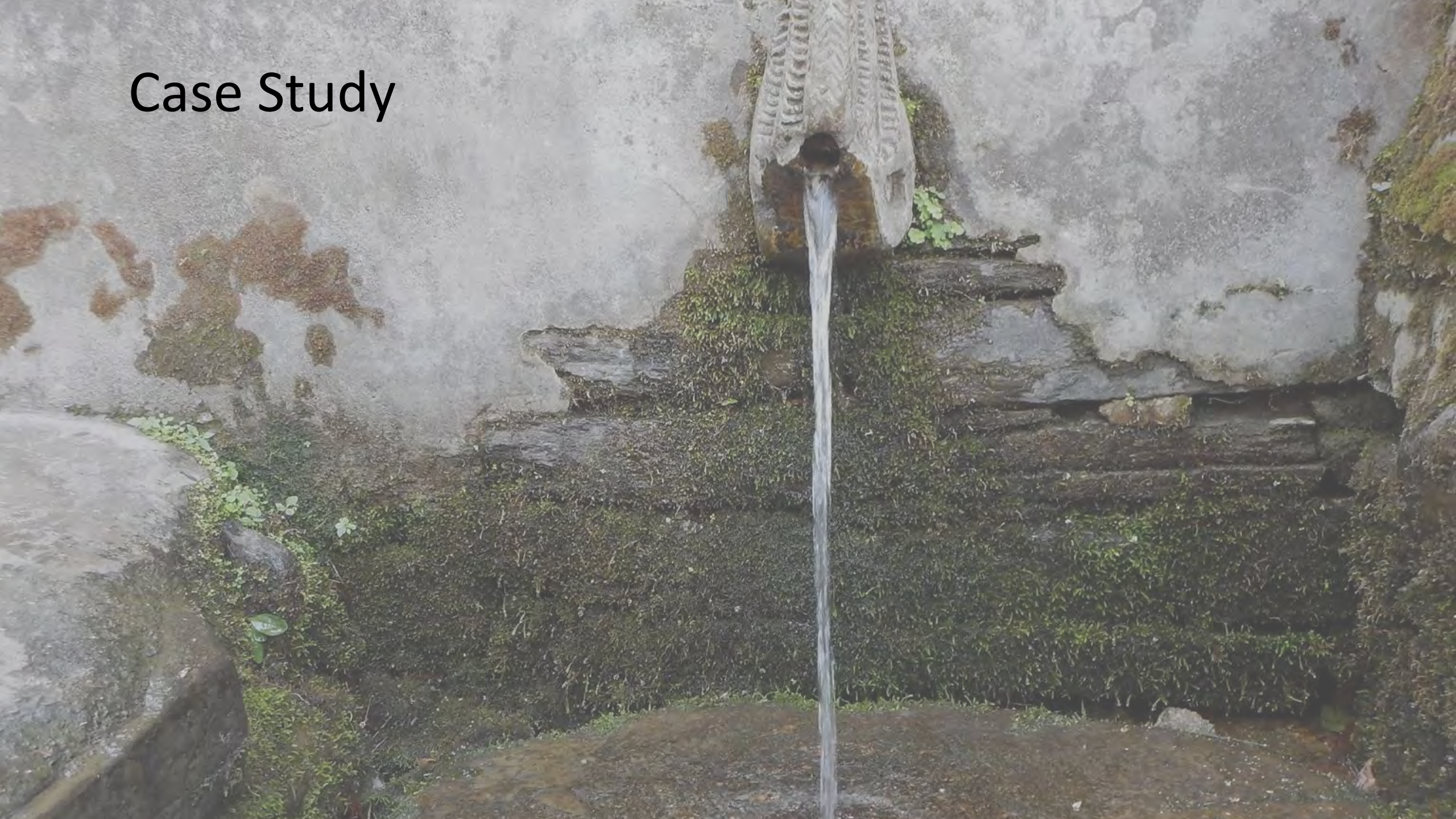


Springshed management: the scientific process- 8 Step methology

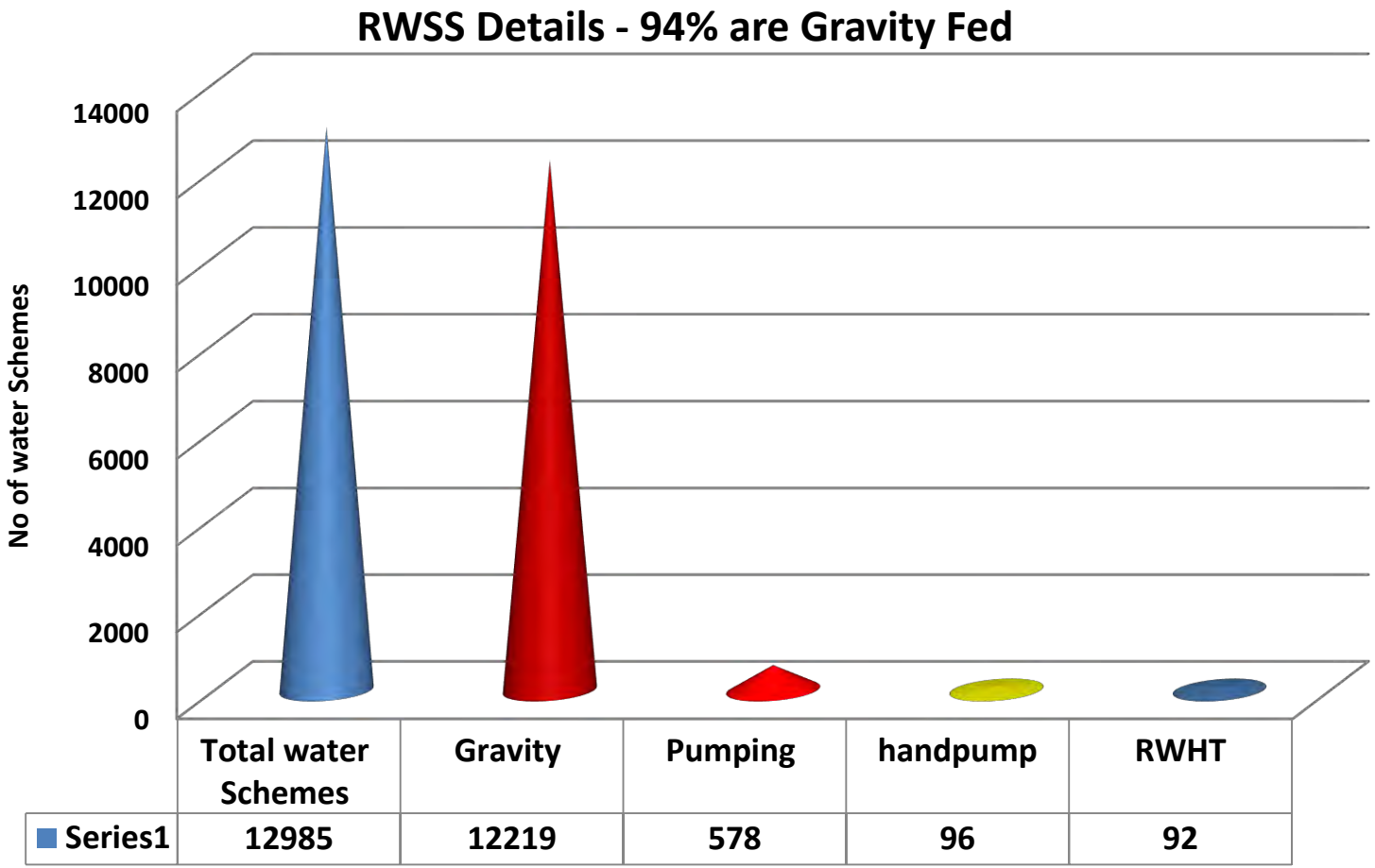


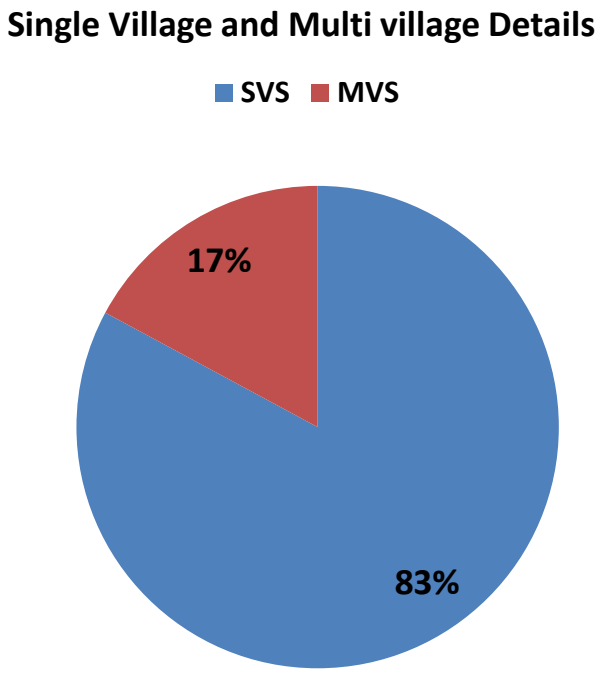
STEPS		SUB-STEPS	LEADS TO	
I.	Comprehensive mapping of springs and springsheds	1.1: Collect background information of identified area 1.2: Reconnaissance survey 1.3: Map springs and collect data 1.4: Delineate springshed area	Delineation of water tower	Comprehensive map of springs
II.	Setting up a data monitoring system	2.1: Data collection (why, who, where, what, how) 2.2: Data storage and management 2.3: Data analysis (software development, app development) — Hydrograph/basic software 2.4: Share data with community	Setting up of raingauge station	Hydrometeorological data in Excel
III.	Understanding social and governance aspects	3.1: Analyse existing institutions and systems of management using: questionnaire survey, focused group discussions, key informant interviews, and communication and dialogue with community and public policy makers	Management of spring by the local community	Questionnaire survey tool
IV.	Hydrogeological mapping	4.1: Obtain geological map of the area 4.2: Observe geology during transect walk: latitude, longitude, elevation, spring location, geological observations and measurements 4.3: Create a base map using Google Earth/Toposheet	Excel format of hydrogeological data	Google-based base map
V.	Creating a conceptual hydrogeological layout of springshed	5.1: Create a geological map based on the transect walk 5.2: Draft cross-sectional layout	Geological map of spring and springshed	Cross-sectional layout
VI.	Classifying spring types, identify mountain aquifer and recharge areas	6.1: Identify spring and aquifer types 6.2: Delineate recharge area	Example of spring types	Outline of recharge area
VII.	Developing springshed management protocols	7.1: Hydrogeological inventory for springsheds 7.2: Negotiable and non-negotiable land use and land cover change 7.3: Institutional mechanism 7.4: Conservation and intervention, measures of recharge and discharge area 7.5: Develop operational and maintenance guidelines	Revival activities using voluntary labour	Recharge structures
VIII.	Measuring the impact of spring revival	8.1: Impact study 8.2: Continuous monitoring	Before	After

Case Study



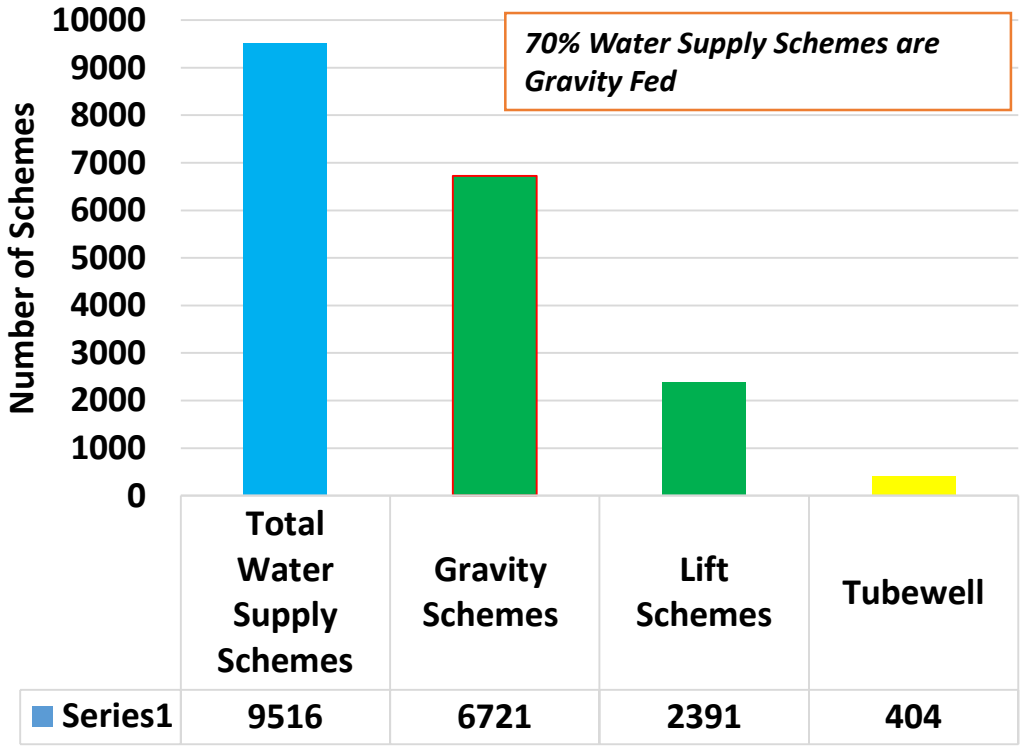
Springs – Lifeline of Water Schemes (Total Habitation UA - 39,309)



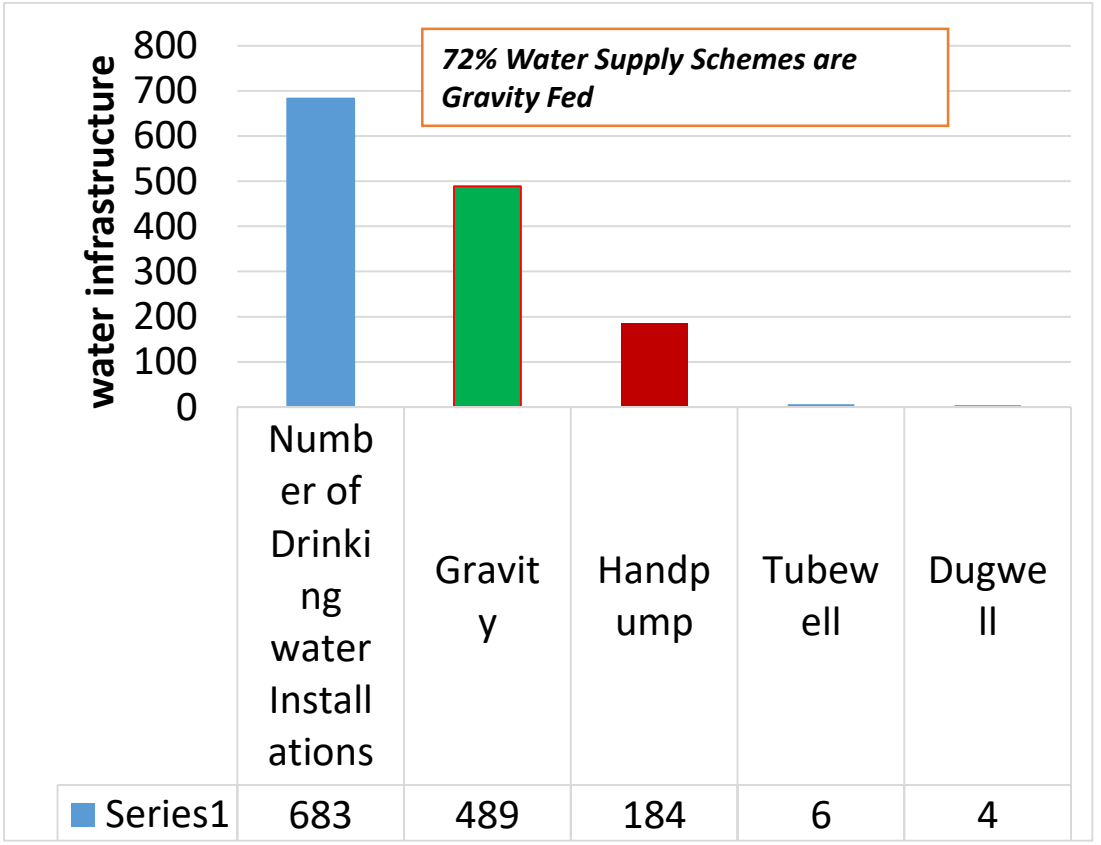


Spring contribution in HP and Leh

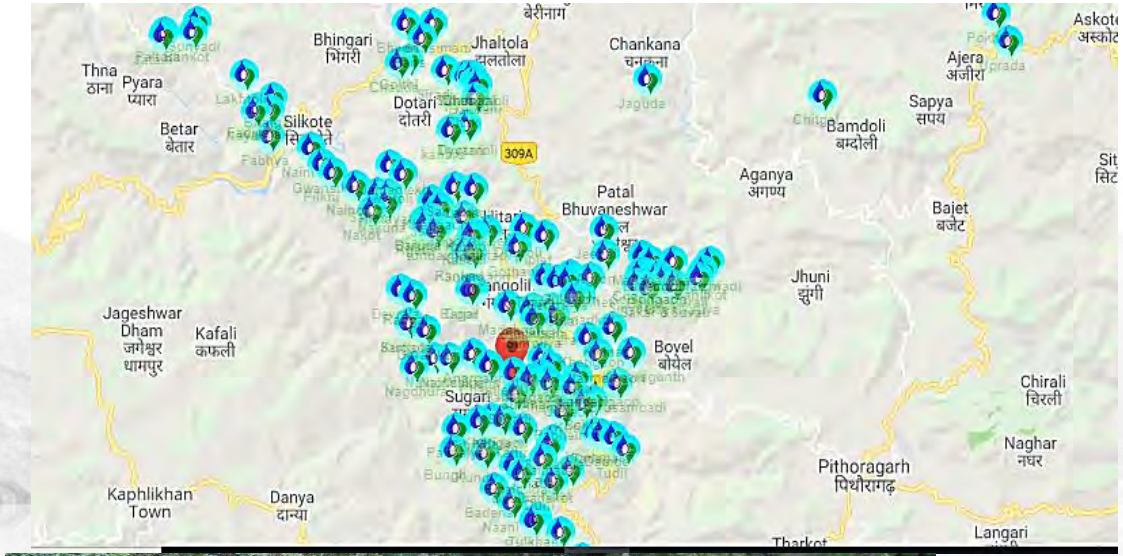
Status of Water Supply Schemes in Himachal Pradesh (Total Habitation HP- 54208)



Status of drinking water supply schemes in Ladakh (UT) (Number of Villages -243)



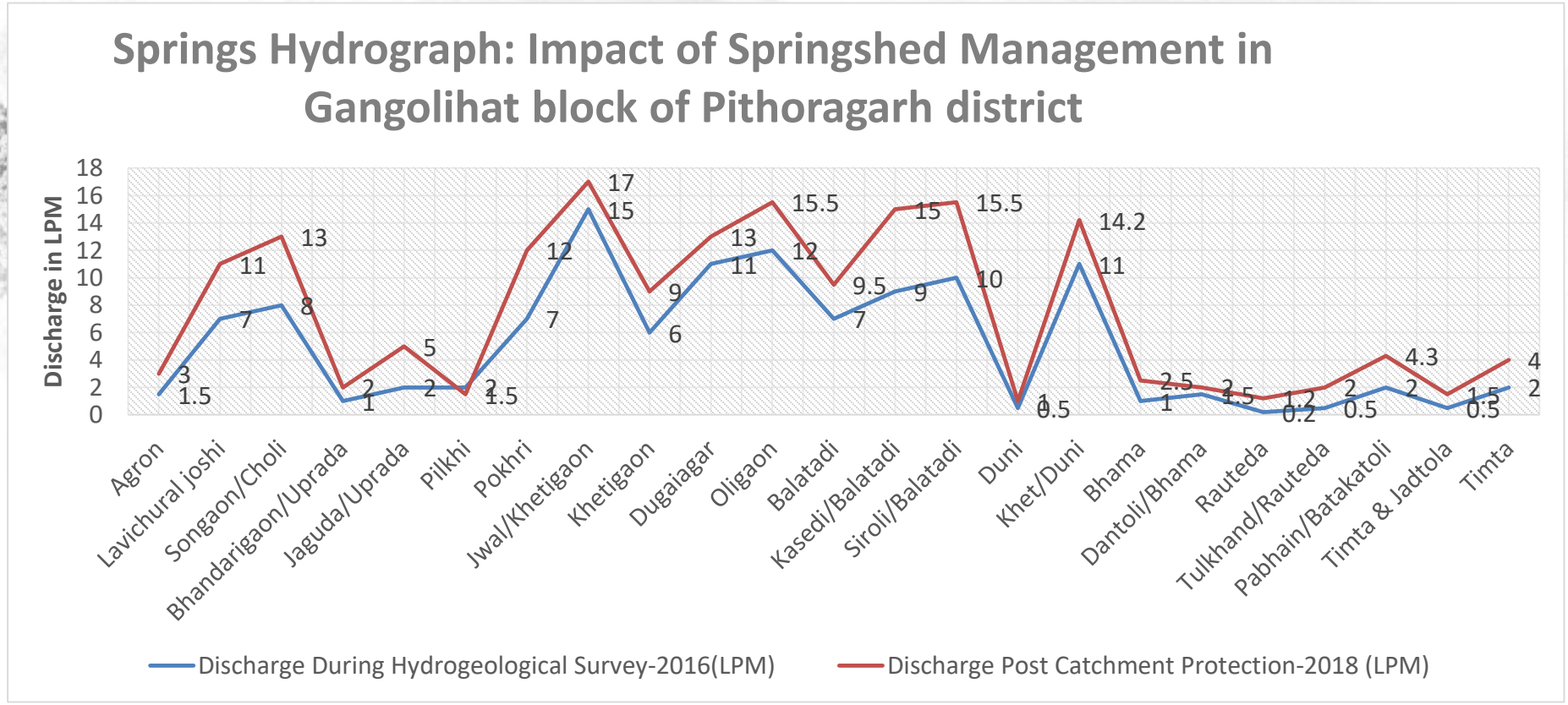

Legends
Recharge Area
Treatment Area
Staggered Contour Trenches
Vegetative Plantation
Kinsu Spring


Thna ठाना
Pyara प्यारा
Betar बेतार
Silkote सिलकोटे
Bhingari भिंगरी
Jhaltola झलतोला
Dotari दोतरी
309A
Chankana चनकना
Ajera अजीरा
Sapya सपय
Bamdoli बमदोली
Aganya अगण्य
Patal Bhuvaneshwar
Bajet बजेट
Jhuni झुंगी
Jageshwar Dham जगेश्वर धामपुर
Kafali कफली
Bovel बोयेल
Sugari
Chirali चिरली
Naghar नघर
Pithoragarh पिथौरागढ़
Kaphlikhan Town
Danya दान्या
Langari

Spring Inventorization

Catchment treatment

Spring shed implementation work in 200 villages and mapping in 450 villages



Outcome:

- 48% Increase in lean discharge
- Base year May 2016
- Assessment year: May 2018
- Average treatment: 7 hectare

Revival of Devrani water Resource in Uprada village of Gangolihat block of Pithoragarh

Co – Created with GP and Forest department

Pre – Condition

Post catchment work in 4 Hectare

Springshed Management Consortium (SMC) - Uttarakhand

- State level Springshed Management Consortium (SMC) established in Uttarakhand where the Tata Trusts act as a nodal agency (under chairmanship of Forest Department)
- Implementation of multi-stakeholder partnership with various civil society organisations undertaken

Case Study : State wide Springshed Management program through Springshed Management Consortium (SMC)in Uttarakhand

Photo 24: Springshed Management Consortium's meeting in Dehradun, Uttarakhand

In Uttarakhand, it is essential to revive and rejuvenate springs in the state considering their importance for biodiversity and meeting the water requirements of the people (more than 94% rural water supply is driven through spring fed systems). With 71% of the state's geographical area categorized as forest area, the recharge zones of most of the springs are located in forest areas. The forest department is undertaking elaborate measures for groundwater recharge and aquifer management which is essential for spring-shed management. Considering the importance of springs in local context whilst, referring the NITI Aayog's recommendation Springshed Management Consortium had constituted on 2nd November, 2018 in Uttarakhand to take springshed initiative at state level. The SMC is headed by the Principal Chief Conservator of Forests (PCCF), Uttarakhand. The consortium has 18 members which included civil society organizations, line department and experts of the fields. Coordinator Water and Sanitation from Himmotthan Society is Member Secretary and responsible for taking forward the SMC objective in a planned manner. Springshed Management Consortium has analysed Spring data and identified most vulnerable springs of Uttarakhand in 11 hill district. Detail Hydrogeological surveys of these springsheds were conducted and Detail Technical Reports (DTR) has been prepared. Recharge works of these springsheds are in progress. Different capacity building trainings are also being conducted in different districts/ forest divisions.

Convergence Model

- Integration through MNERGA schemes for implementation
- Collaborate for selection of villages, implementation & support through institutional structure

Rural Dev. Dept

Community

Partner Org.

Land Resources/ Forest Dept.

- Participate in community and village development activities
- Contribute locally available resource s

- Capacity building of community Institutions and local stakeholders
- Bring scientific knowledge / best practices
- Technology support to government
- Facilitation of convergence among line departments

- Technical handholding by development of Detailed Technical Reports (DTR)
- Supervise the project implementation and monitoring
- Fund support

THANK YOU