Restoring Springfed Ecosytems in the Indian Himalayan Region

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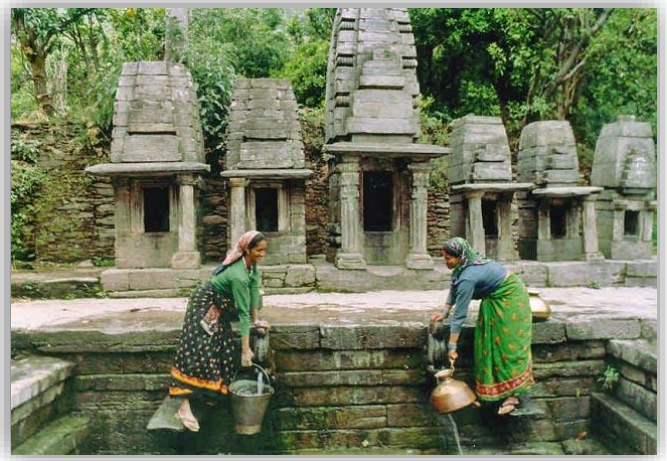
Springs : Locations or points on the ground surface, where ground water emerges onto the surface

ECOSYSTEM SERVICES

- **Provisioning services** such as water (for domestic use & irrigation), and fodder (from its catchment i.e. springshed)
- **Regulating services** such as micro-climate, runoff control, and water purification
- **Cultural services** (non-material benefits) such as spiritual, recreational (tourism), and cultural benefits
- **Supporting services** such as contribution to river base flows, biomass and soil retention maintaining life on earth



Vulnerable Springfed Ecosystems & Mountain Communities

Anthropogenic Activities and Climate Change affecting spring discharges and quality resulting in

- Reduced Water Availability
- Decreased Farm Produce
- Increased Women's Drudgery
- Water Borne Diseases

Essential to Revive, Protect and Manage Springfed Ecosystems

SDG Goals

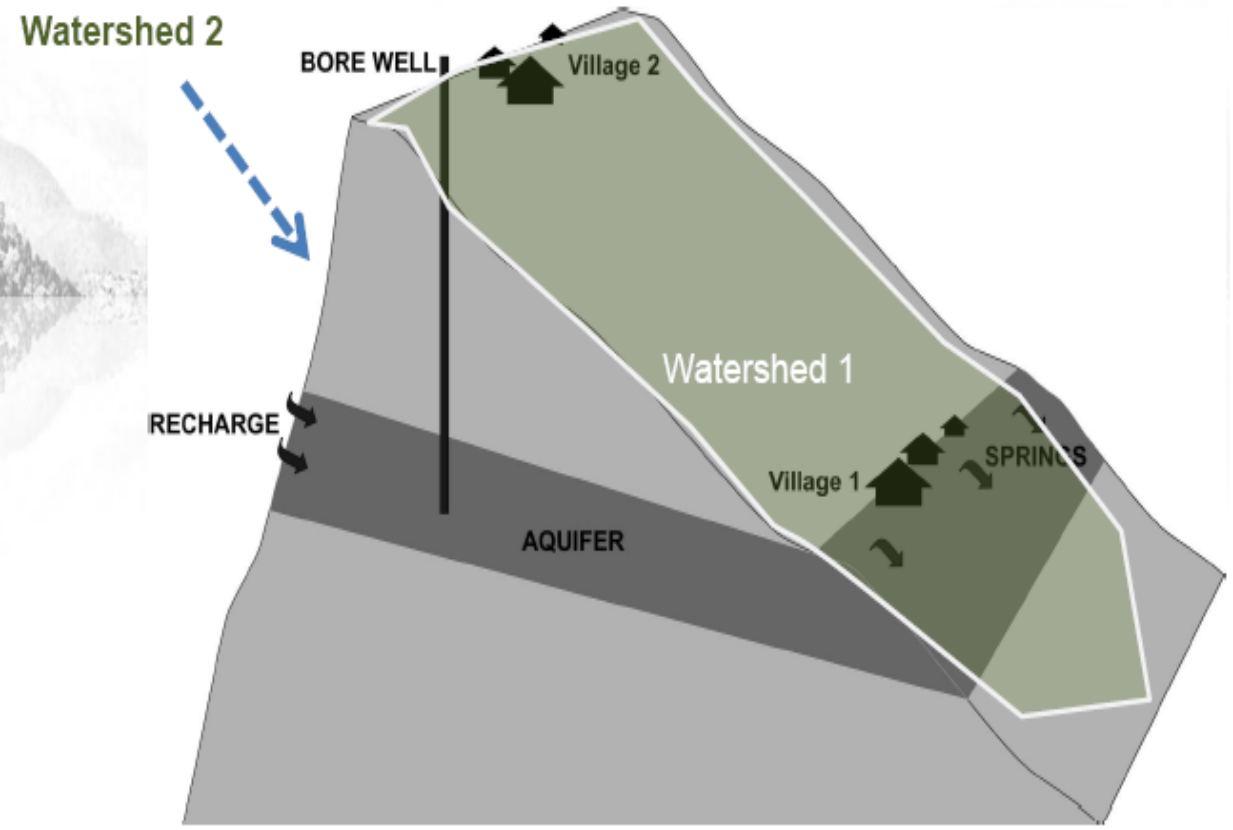
1: No Poverty

2: Zero Hunger

6: Clean Water and Sanitation

15: Life on Land

Principles of Participatory Springfed Ecosystems' Management



- Common pool resource
- Local governance
- Equitable water usage
- Integration of traditional knowledge & modern science
- Regeneration through engineering, vegetative and social measures
- Demand management
- Multi-stakeholder institutional framework

Need to shift from "source based planning" to "resource based planning"

Participatory Springshed Management: 8-Step Methodology

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 rain gauge station	 Hydrometeorological data in Excel
III Understanding social and governance aspects	3.1: Analyze existing institutions and systems of management using: questionnaire survey, focus 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

Participatory Springshed Mgt: 8-Step Methodology (Contd.)

STEPS	SUB-STEPS	LEADS TO	
V Creating a conceptual hydrogeological layout of springshed	5.1: Create a hydrogeological 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 labor	 Recharge structures
VIII Measuring the impact of spring revival	8.1: Impact study 8.2: Continuous monitoring	 Before	 After

Institutional Framework : Strengthening Partnerships

NON-GOVERNMENT ORGANISATIONS/ PRACTITIONERS

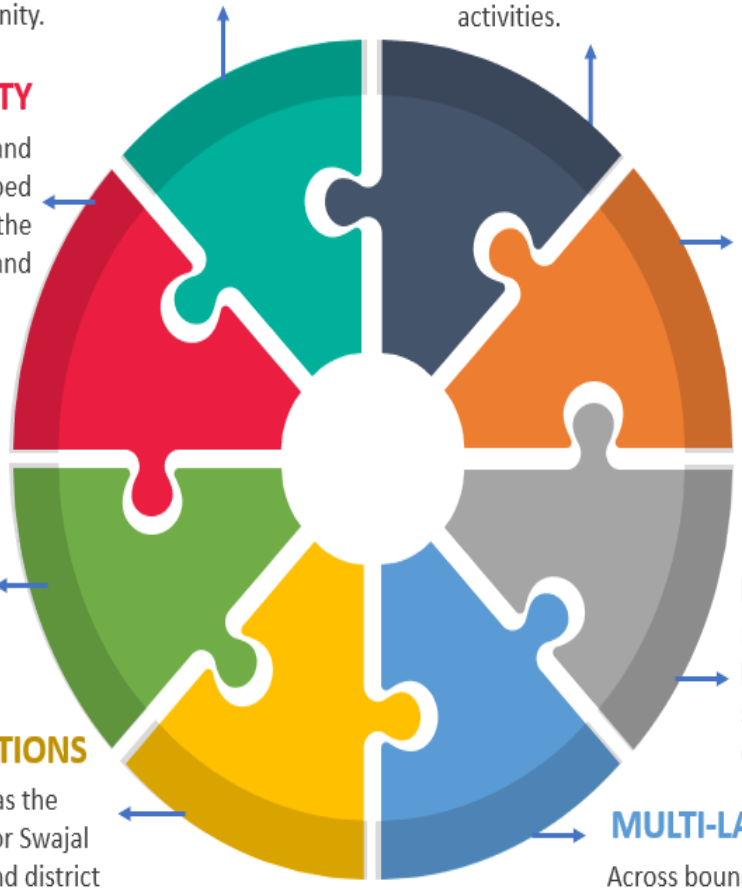
The Springs Initiative partners provide technical know-how on springshed management and inputs to the program design, implementation, capacity building, data analysis, and impact evaluation for all stakeholders from Government, multi-lateral agencies to local community.

STATE GOVERNMENTS

Springshed management programmes are executed by the State by training its officials and enabling convergence among various departments responsible for both resource (e.g. Dept. of Land Resources, Soil & Water Conservation Dept. and Forest Dept.) and supply side (e.g. Public Health Engineering Dept.) activities.

LOCAL COMMUNITY

Communities are the custodians of springs and traditional management practices. When equipped with a knowledge of hydrogeology they manage the springs effectively and implement demand management practices where required.



GOVERNMENT OF INDIA

The Ministry of Water Resources, River Development & Ganga Rejuvenation is a key decision maker in the creation of a national programme on spring water management. Springs Initiative partners partner with CGWB to provide training to Govt. officials, nodal agencies and communities to orient them on principles of managing springs. The Ministry of Tribal Affairs, Ministry of Environment, Forest & Climate Change, etc., usually have jurisdiction and play a critical stakeholder role in protecting recharge areas of springs and hence need to be onboard.

LOCAL GOVERNANCE INSTITUTIONS (GRAM PANCHAYATS)

Adopt water security plans, formalise and roll out management protocols and resolve conflicts. Gram Panchayats also ensure that government funds are used for reticulation, restoration and recharge activities.

PHILANTHROPIC ORGANISATIONS

Philanthropic organisations often cover capacity building costs for springshed management. In some cases, they also fund the entire lifecycle of springshed management work in a village.

BLOCK AND DISTRICT ADMINISTRATIONS

Convergence with government programmes such as the Integrated Watershed Management Plan (IWMP) or Swajal programme (Uttarakhand) happens at the block and district level. Cadres of the Block and District are also trained in springshed management.

MULTI-LATERAL AGENCIES, GOVERNMENTS

Across boundaries that share mountain ranges and therefore transboundary springshed management is critical for such areas.

Source: Arghyam and Springs Initiative 2019

Capacity Building for Participatory Springshed Management

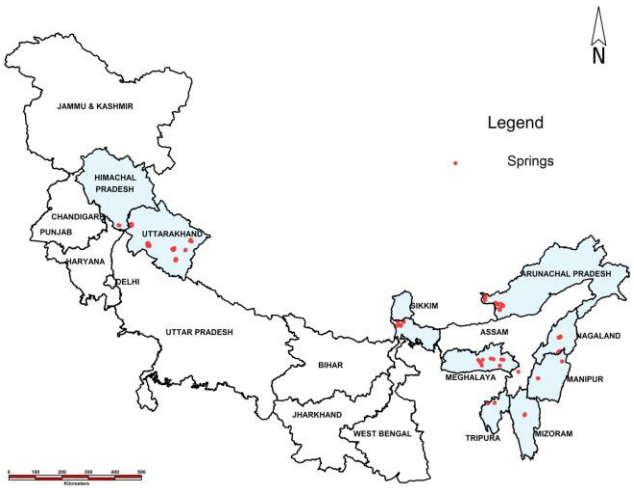
- Awareness generation and capacity building of different stakeholders
- Strengthening local communities and institutions
- Capacity building of PRIs and *Van Panchayats*
- Demystification of hydro-geology of springs
- Cadre of para hydro-geologists, especially women
- Active involvement of women's groups in springshed management
- Monitoring and evaluation of treatment measures by para hydro-geologists
- Development of IEC materials, especially in local languages

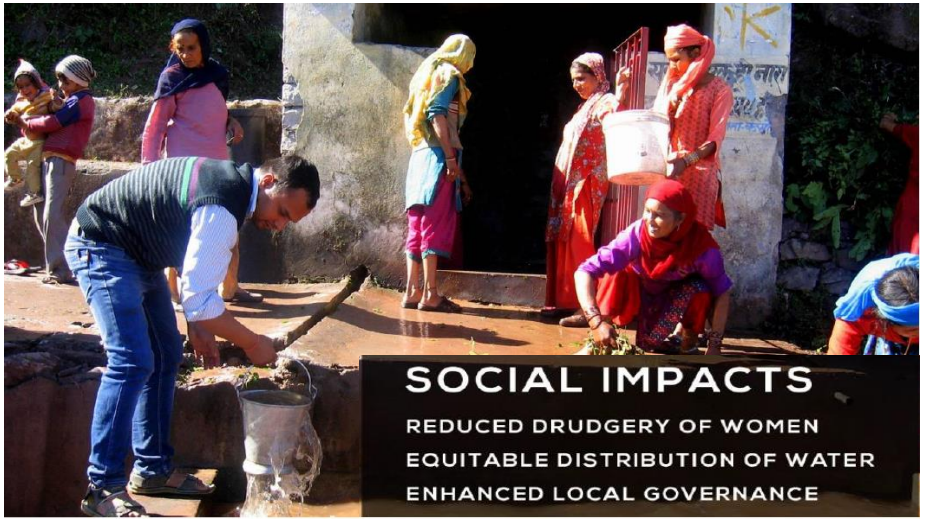
PSI's Outreach and Experiences in Springshed Management

STATES
10

VILLAGES
250+

INVESTMENT
~4
CRORES





Restoring Springfed ecosystems is a way of climate change adaptation by building local resilience within the concerned communities

Thank You

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