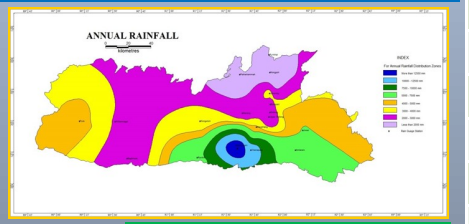
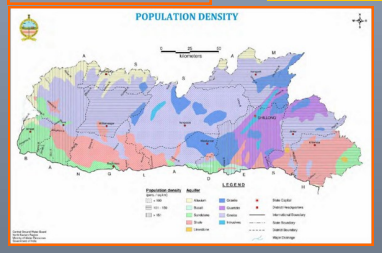
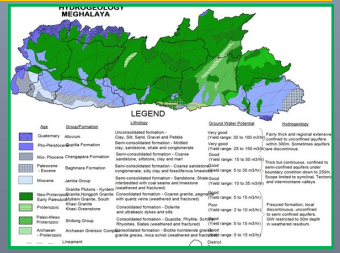
Criteria for selection and prioritisation of spring-sheds

- Dependence of large number of people on selected spring for drinking water and agriculture
- Non-availability of other major surface or sub-surface source of water
- High poverty index of the area with subsistence livelihood
- Non-availability of other major surface or sub-surface source of water
- High poverty index of the area with subsistence livelihood
- Area having small sized land holdings, rain-fed farming practices, higher incidence of pests and diseases, low crop productivity, heavy dependence of community on natural resources
- High incidence of resource scarcity but low incidence of social conflicts
- Willingness of the community and local leadership to participate in the spring-shed development program
- Joint watershed management committees are in place
- Topographical and bio-physical suitability of the area for spring-shed development
- Perennial or sub-perennial flow of water in the springs. Dormant springs with low possibility of recharge will be avoided

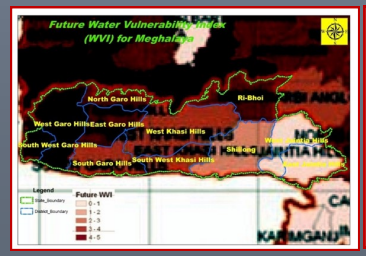
Source: Aquifers Systems in Meghalaya- Govt. of India Ministry of Water Resources, Central Ground Water Board, North Eastern

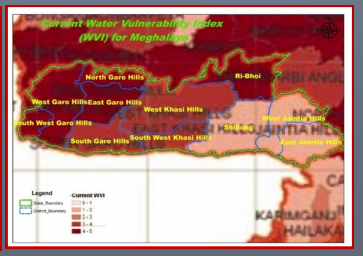






Composite climate vulnerability Index





District –wise distribution of Spring-sheds based on their vulnerability

DISTRICT	Model I	Model II	Model III
East Khasi Hills	30	10	10
West Khasi Hills	20	10	10
South West Khasi Hills	20	10	10
Ri-Bhoi	10	8	10
East Jaintia Hills	10	8	10
West Jaintia Hills	12	8	10
East Garo Hills	10	5	6
West Garo Hills	10	8	6
South Garo Hills	-	10	5
South West Garo Hills	-	10	5
North Garo Hills	-	10	5
TOTAL	122	97	87
Total No of spring-sheds		306	

Model wise distribution of different activities

Activity	Model I	Model II	Model III
Afforestation (in ha)	3	2	3
Structural measures			
Contour trenches (in nos.)	300	200	100
Dug-out (in nos.)	55	40	25
Check dams (in nos.)	3	2	
Spring chambers (in nos.)	1	1	1

The Activities which will be implemented will have the following outputs

- 306 water security plans
- 64700 trenches
- 12765 dugouts
- 560 check dams
- 306 spring chambers
- Afforestation of 827 ha of forest

Department of Science &Technology
Centre for Excellence
NMSHE NATIONAL MISSION FOR SUSTAINING THE HIMALAYAN ECOSYSTEM

सत्यमेव जयते

MEGHALAYA CLIMATE CHANGE CENTRE

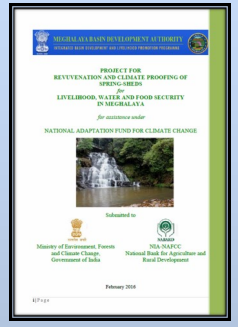
Reach us at:
Meghalaya Climate Change Centre,
Meghalaya Basin Development Authority,
Nongrim Hills, Shillong.

Email us: cccmegh@gmail.com

REJUVENATION AND CLIMATE PROOFING OF SPRING-SHEDS FOR LIVELIHOOD, WATER AND FOOD SECURITY IN MEGHALAYA

A Project Approved Under NAFCC

Meghalaya is one of the few Indian States to receive assistance under the National Adaptation Fund for Climate Change (NAFCC)



One of many living root bridges under threat due to spring impairment

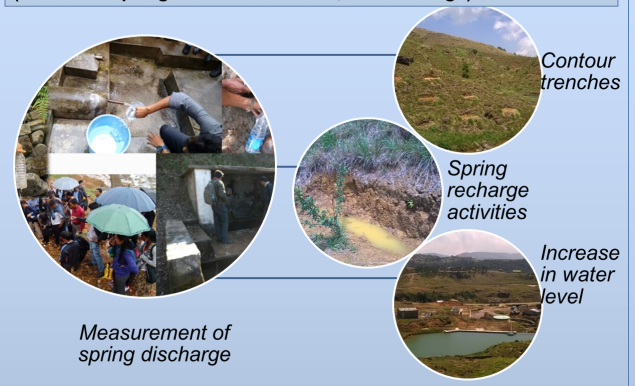
The project aims to revive impaired springs through spring-shed development works in a landscape approach to maintain base-flow of springs to ensure water security for the stakeholders through the scientific and participatory management techniques, and reduce vulnerability of dependent communities & ensure livelihood security in the face of climate change

Background

- Springs are the main source of water for household and irrigation purposes for more than 6000 villages (78%)
- About a quarter of the villagers depend exclusively on springs for drinking water (census 2011 estimate)
- The State has over 60,000 springs
- A sample survey of 714 springs (MINR, 2015) on random basis has revealed that over 54% of the springs have either dried or water discharge from them has significantly reduced (< 50%)
- Meghalaya is highly vulnerable to climate change, despite heavy rainfall, many areas are water-stressed due to increasing demand-supply gap leading to increasing use of ground water and high runoff
- Ground water data shows that the depletion rate between pre and post monsoon period is about 40-80% depending on the landscape.
- Changing land use, quarrying, mining and climate change are perceived to be the main causes for the deteriorating state of springs and ground water regime
- Impaired springs have caused wide spread water stress in the rural landscape, adversely affecting agriculture, live stock and other allied livelihood activities of the people and causing hardship and drudgery

Components	Activities
Inventorisation of spring sheds and prioritization	Spring-shed/Hydrogeological mapping Social profile mapping
	Spring monitoring (to estimate flow, recharge area, transmissivity) through a landscape approach
	Data analysis and finalization of spring-sheds for structural measures
Spring rejuvenation structural measures	Construction of check dams, trenches, dug-out ponds
	Afforestation measures
	Village water security plan
Livelihood interventions	Fodder development
	Agro-silivi and horticultural interventions
	Livestock promotion
Capacity building	Creation of modules and developing a cadre of para- hydrogeologists
	Crop-water planning & crop calendar development, post-harvest management
	IEC materials for spring management and water budgeting, spring monitoring, sanitation issues
Project management	Spring MIS creation & reporting
	M&E for mapping the climate benefit
	Policy briefs and documentation of project learning
	Supporting third party MRV

Effectiveness of the Proposed Interventions from the State (Location: Spring-shed at Wah Shari, Sohra Village)



The classification of the spring-sheds viz.;
Model - I for Highly Vulnerable
Model - II for Moderately Vulnerable and
Model - III for Vulnerable

In 11 districts of Meghalaya in two steps;

Step I : Interventions to be done in the identified spring-sheds based on the vulnerability assessment

Step II: Spring-shed development works

306 vulnerable spring-sheds would be **prioritised** for interventions in locations most vulnerable to climate