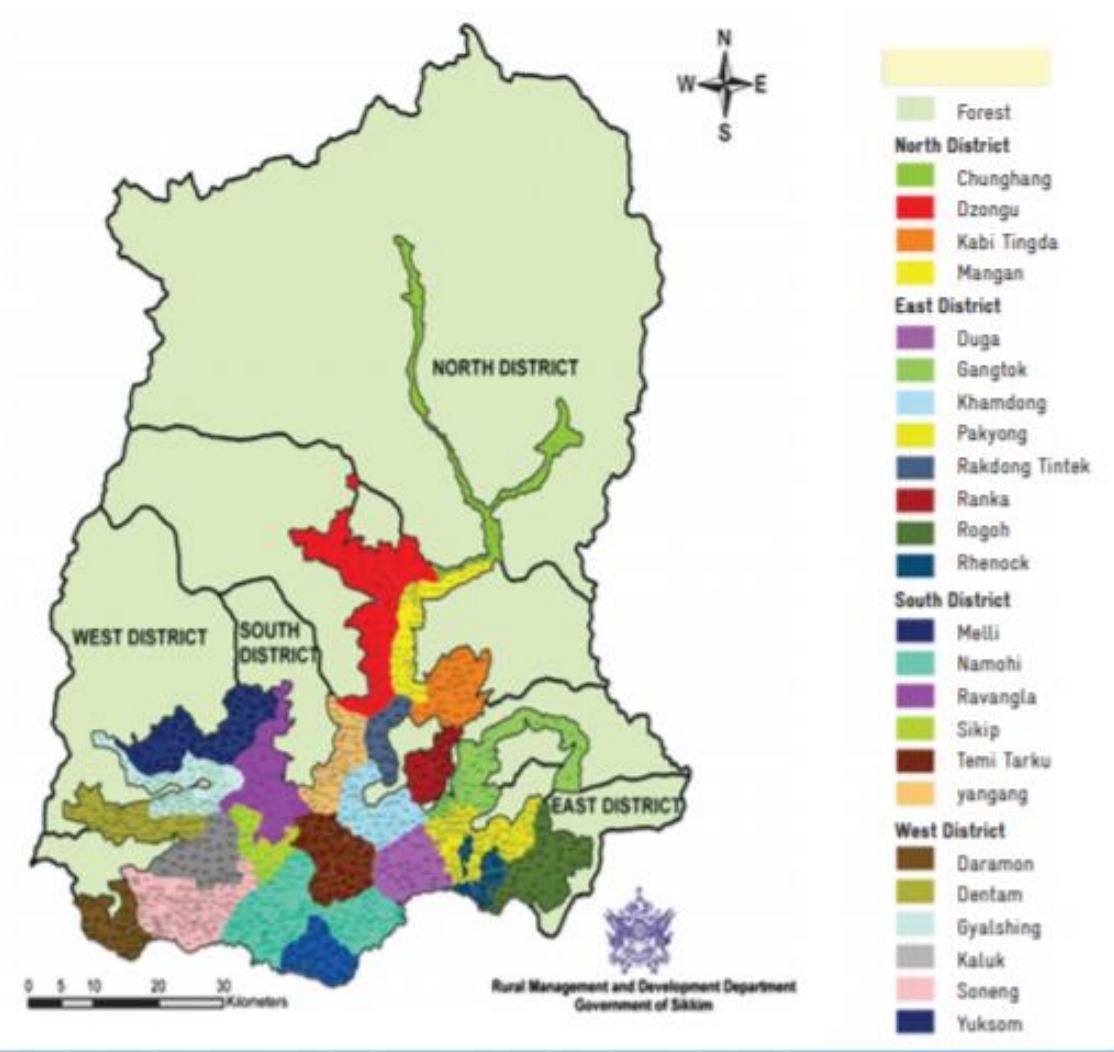


Capacity Building Strategies for Climate Change

Sikkim : Climate Change Case Study



Sikkim



Sikkim Profile

- Sikkim is a Biodiverse rich state but at the same time is not untouched by Environmental Challenges such as erratic Rain fall, rise in annual mean temperature and glacier melt.

Sikkim:Profile



Sikkim covers only 0.2% of the geographical area and is identified as one of the hotspot in the Eastern Himalayas . The state is endowed with rich floral and faunal diversity.



Forest is one of the richest natural resources of Sikkim. The total forest cover of the state is 47.62% as per the state Forest report 2017

Climatic Threats



**Changes in forest
vegetation type**



**Changes in geographic
distribution of flora and
fauna**



**Limitations of shifting
beyond extreme north
at higher altitudes**



**Changes in timing of
seasonal events**



**Changes in abundance
and habitat preference**



**Changes in species
interaction**



**Increased frequency of
disasters such as
landslides and Glacial
Lake Outburst Floods
(GLOFs)**

Impact of Climate Change



WATER RESOURCES



**AGRICULTURE
SECTOR**



**FOREST AND
BIODIVERSITY**



**RURAL AND URBAN
COMMUNITIES**



ENERGY SECTOR



Strategies for Adaptation



Spring Recharge



Grazing control:



Enhance the quality of moderately dense forest, open forests and degraded forests



Secure corridors to facilitate species migration



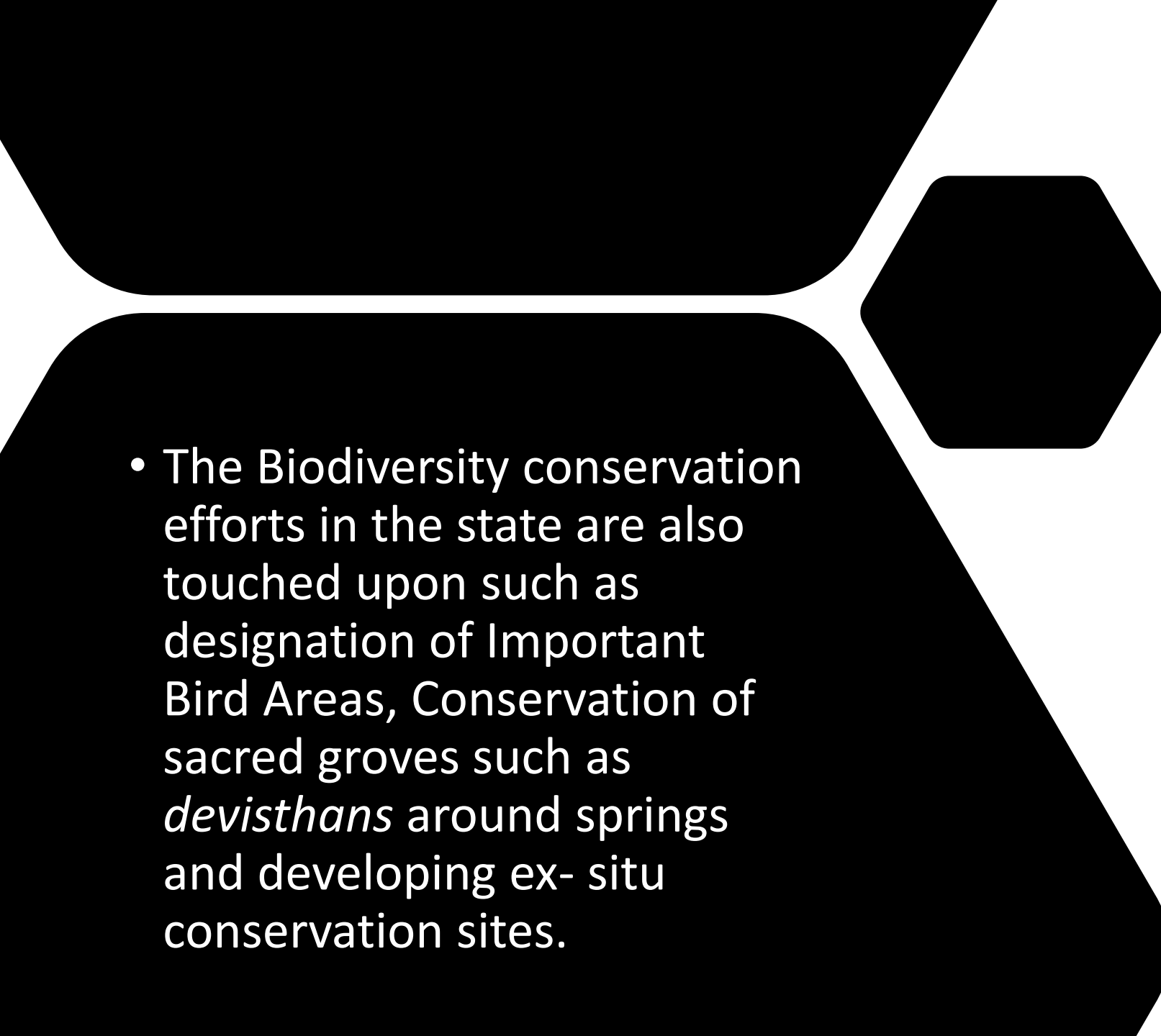
Prevent Disasters due to climate change



Help wildlife to thrive within the limits of the forests with changing climate



Conserve High Altitude Wetlands (HAWs)

- 
- The Biodiversity conservation efforts in the state are also touched upon such as designation of Important Bird Areas, Conservation of sacred groves such as *devisthans* around springs and developing ex- situ conservation sites.

Organic Farming in Sikkim-A Way Forward



Organic Farming



Agriculture is the single largest land use, covering over a third of the world's land surface. It is the main means of livelihood for more than 64% of the population of Sikkim and contributes around 17% of the State gross domestic product (GDP)



In Sikkim Himalayas a globally unique indigenous farming system is practiced and is in the process of being recognized as an associate site of the Globally Important Agriculture Heritage Programme under the United Nations Food and Agriculture Organization



The Traditional farming systems of the Sikkim Himalaya are large repositories of biological diversity.

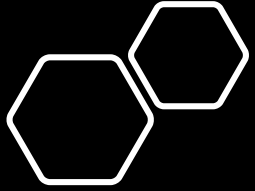
-
- It was in the year 2003, Sh. Pawan Chamling, former Chief minister, Sikkim made a historical declaration by announcing a policy to transform Sikkim into totally organic state. This dream of his was realised in on January 19, 2016 when Honourable Prime Minister of India Shri Narendra Modi declared Sikkim as the first organic state in the country. He also called the state a harbinger of organic farming, not only in India but around the world.

-
- Sikkim is the first state in the world that is 100 % Organic: All of its farmland is certified organic. The program introduced a phase out of chemical fertilizers and pesticides, and entered a complete moratorium on the state's sale and use chemical pesticides.
-

Four principles of organic farming

- Ecology
 - Fairness
 - Health
 - Care
-

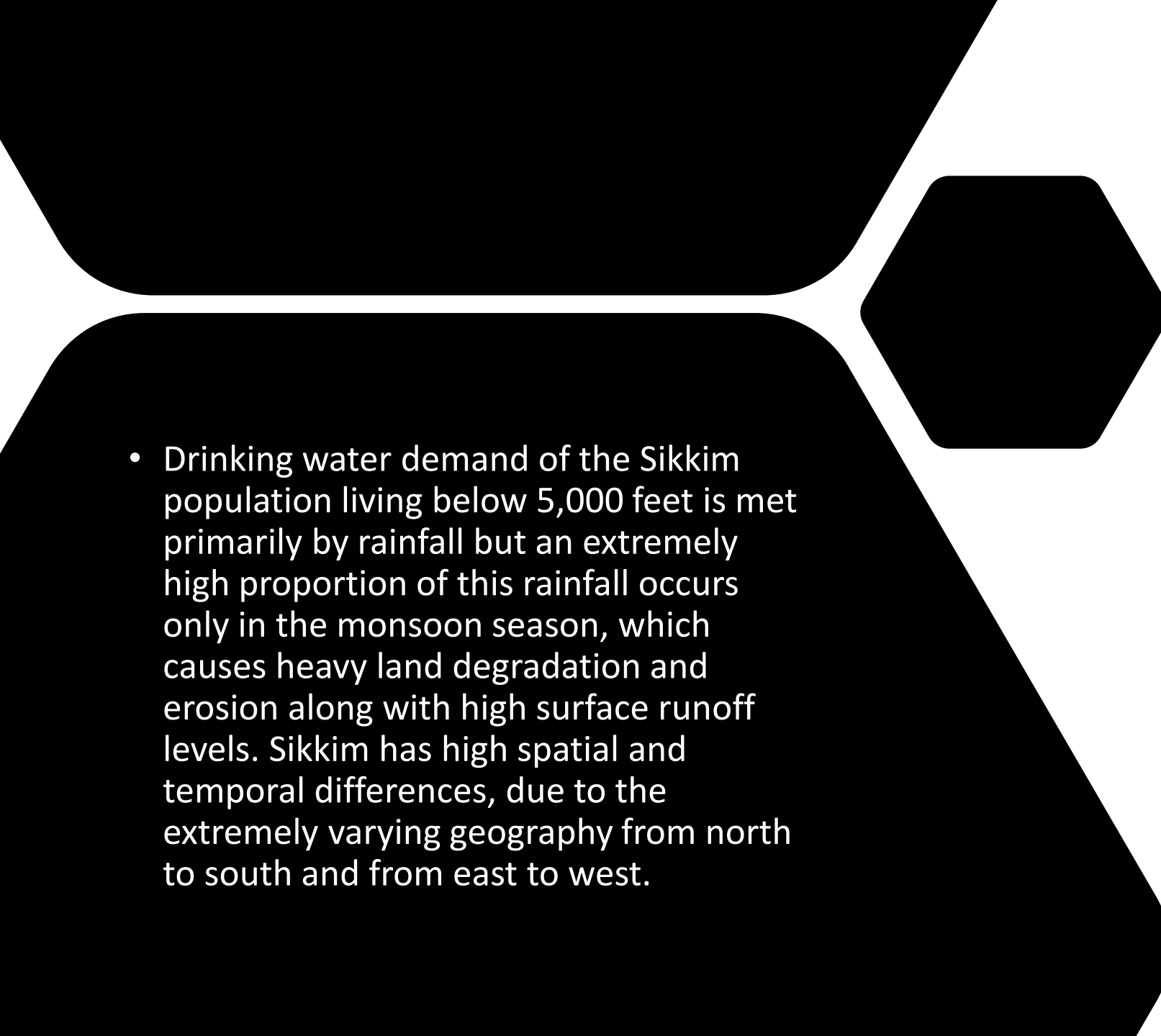


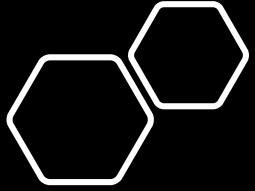


Water Sector & Climate Change

**VULNERABILITIES TO
CLIMATE CHANGE**

**POLICIES AND
PROGRAMMES FOR
WATER CONSERVATION**

- 
- Drinking water demand of the Sikkim population living below 5,000 feet is met primarily by rainfall but an extremely high proportion of this rainfall occurs only in the monsoon season, which causes heavy land degradation and erosion along with high surface runoff levels. Sikkim has high spatial and temporal differences, due to the extremely varying geography from north to south and from east to west.

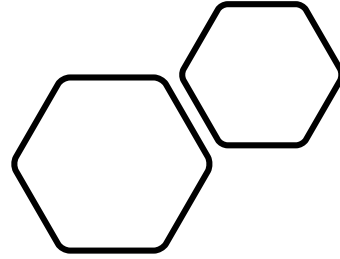


Water Resources

Sikkim is endowed with a perennial water system i.e. a large number of glaciers that feed many water bodies in the state and has a high potential for electricity generation. Nearly 90% of the Sikkim's electricity supply is from hydropower

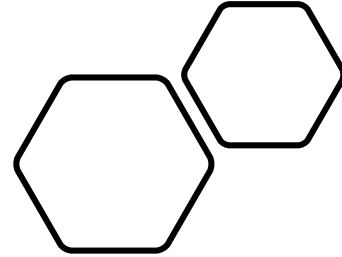
About 80 percent of the rural population depends on the Himalayan mountain springs, which is also known as **Mohaana**, **Kuaan** and **Dhara** for drinking as well as irrigation and other purposes

Vulnerabilities of Climate Change in water sector



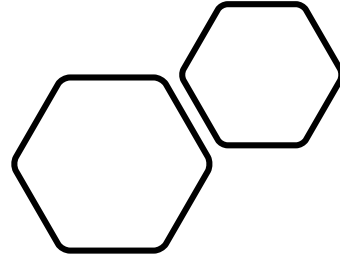
- Water is one of the most important sectors where climate change (increased temperatures, evaporation-transpiration, spatial variability in rainfall, increased severity of heavy rainfall and drought events) can have a significant effect, which in turn has cascading impacts on other sectors

Policies and Programmes of water Conservation In Sikkim

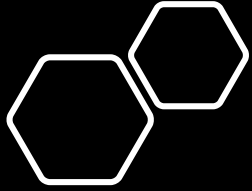


- Some of the elaborated ones are Jal Jeevan Mission, *Dhara Vikas*, Mahatma Gandhi Narega Scheme, Rainwater harvesting , Accelerated Irrigation Benefit Programme , Rationalisation of Minor Irrigation Statistics

Disaster Profile of Sikkim



- The continuous northward drift of the Indian plate towards the Eurasian plate is responsible for the seismic activities in the Himalayan region. Sikkim lies in seismic zone IV and is highly vulnerable to earthquakes. The state has faced several catastrophic disasters such as earthquakes, flash floods, landslides, forest fire, avalanches and chemical hazards.



Mainstreaming of DRR

- Used by policy makers and social scientists to highlight crosscutting and neglected issues. The main objective of mainstreaming is to highlight those issues that is not a concern of an exclusive department but is equally important to all sectors. DRR is not only the responsibility of SSDMA but it the onus of every government line department

The Importance Of Disaster Risk Reduction Lies in



**MINIMIZE THE ADVERSE
EFFECTS**



**REDUCE THE
COST**



**BENEFITING THE
VULNERABLE**



Photograph: © SEEDS/ Imran Ahmed

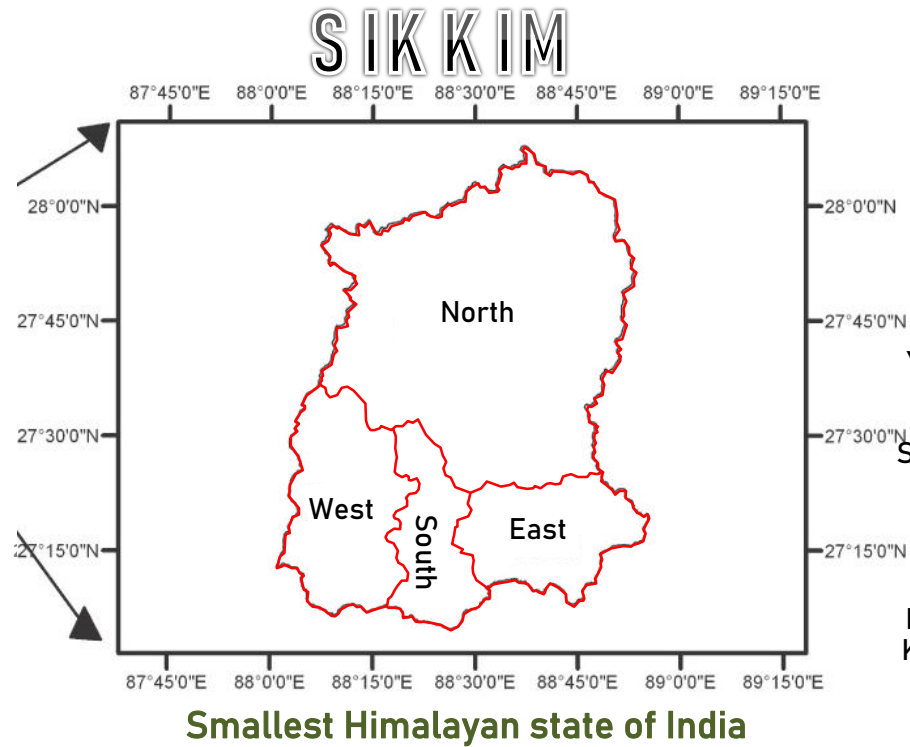
Children's safety, driven by school and community safety, can be a flagship approach to change perceptions and create momentum

Planning for Real: a
community risk assessment
and reduction exercise is best
carried out in the community



Study Area

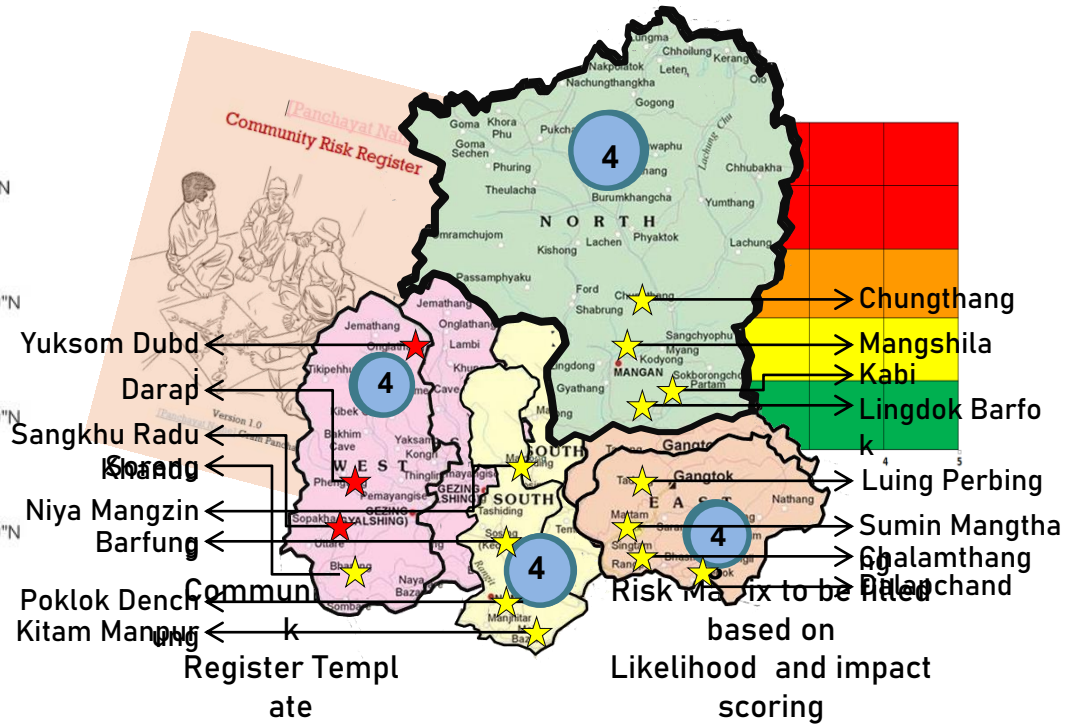
The study state of the project is:



Community Risk Register

Total No. of GPUs = 173

No. of GPUs in study area = ★ CRR Completed
16 ★ CRR Remaining



Sikkim



Organic Produces



CRR of East District

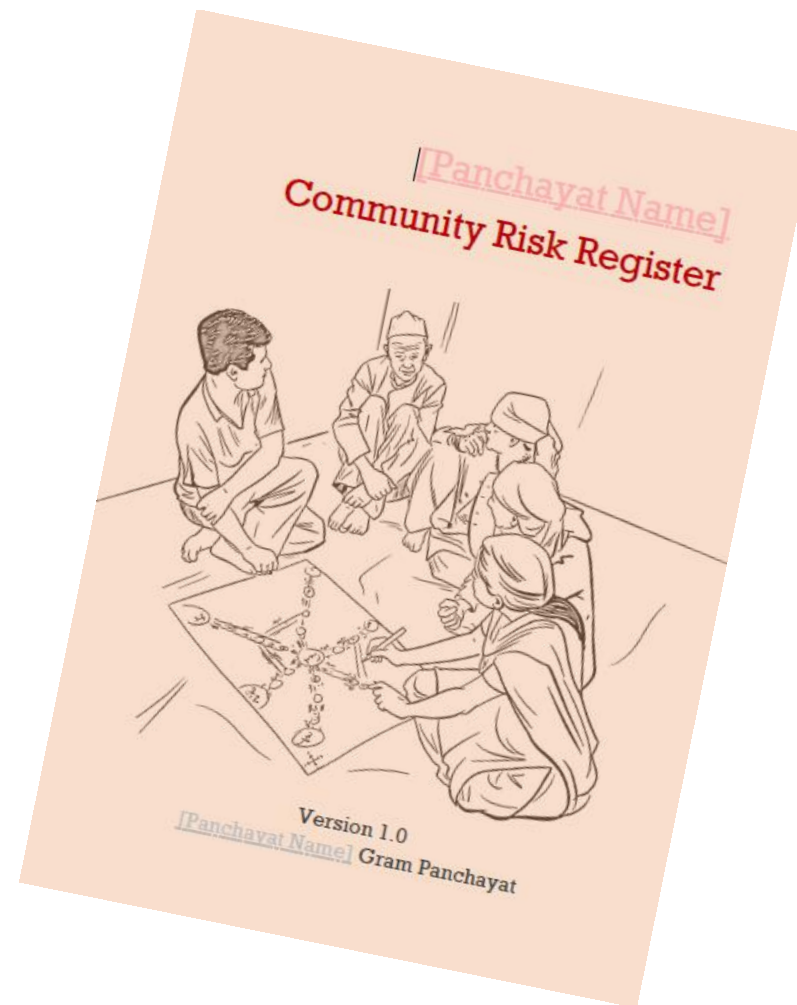
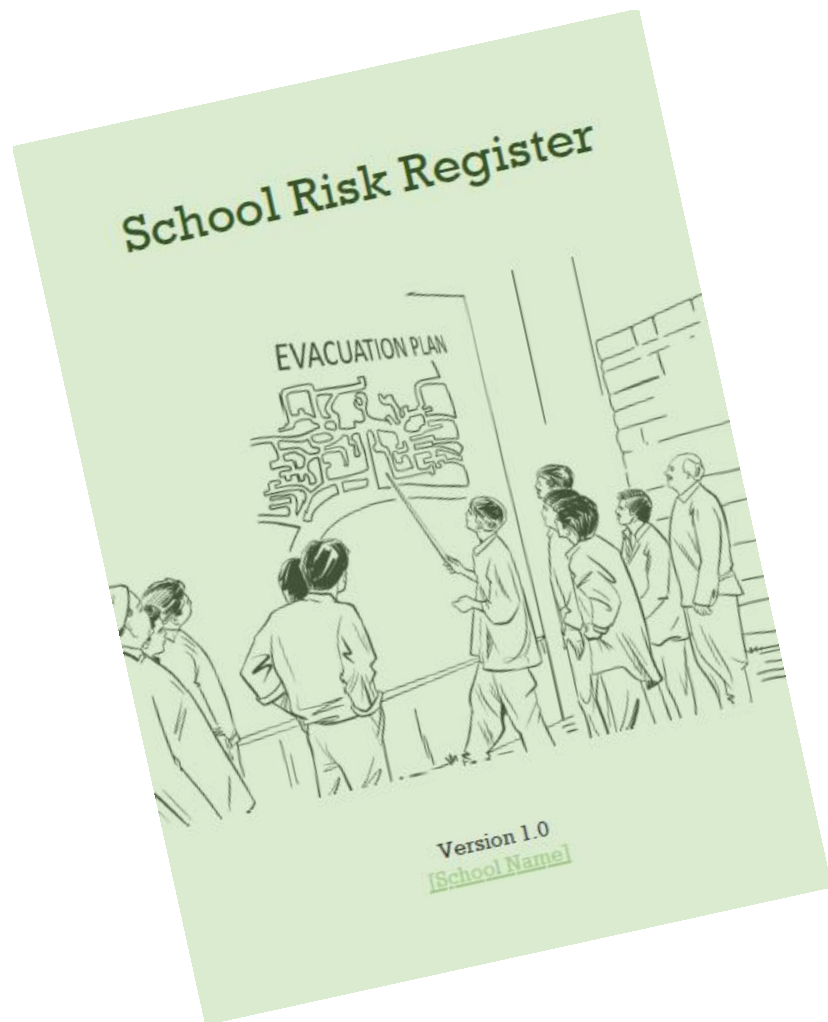


Maghey Mela, 2018



Maghey Mela, 2019





...leading to strategic impacts.

Annual Outcomes/ Results

Objective 3: Identify key policy interventions required for redesigning development for a sustainable future

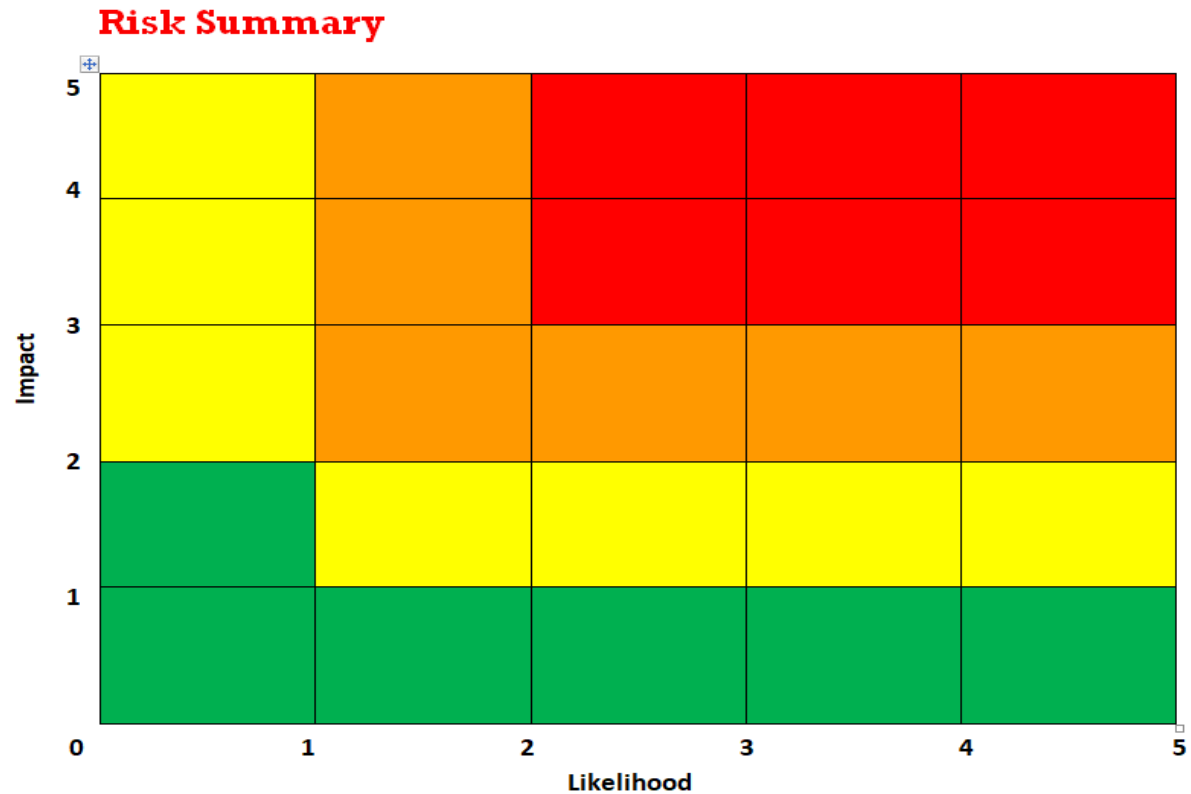
Community Risk Registers



SRR



School and Community Risk Reduction by taking DRR science to the people



Risk assessment informs Risk Reduction Planning

Strong Governance

Responsive
Governance is key
to building capacity
of institutions from
the national, state
down to community
levels



Investing for Resilience



Photograph: © SEEDS/ Imran Ahmed

When understanding turns into action, pathways of resilience open up

Enhancing Preparedness



CLIMATE SCHOOL

A CAPACITY BUILDING INITIATIVE



Climate School, Gangtok



Concept of the initiative

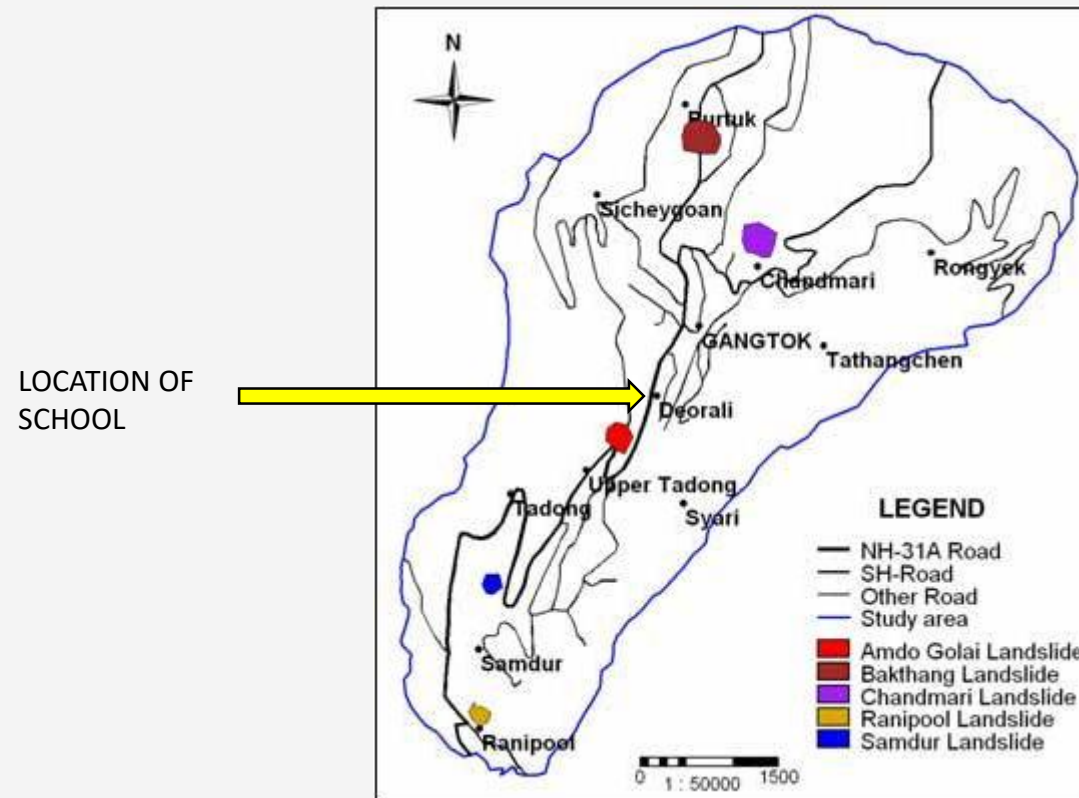
- “Climate School” is established in Government Junior High School, Upper Syari, Deorali, Gangtok.
- This endeavour is intended to ignite a spark in the young minds which can be a fertile scientific ground and can probably transform them into green ambassadors of future.
- The identified Climate School records the daily weather data.

Recording of Data



The identified Climate School records the daily weather data.

The measuring and recording of the data, is carried out by the school students who have been trained by IIPA to take readings and maintain the instruments under the mentorship of a nodal teacher.



(Map by Geospatial World)

Recording of Data



Climate School

As Climate has a huge influence on complex disasters, measuring of climatic parameters and establishing their linkages with disasters can be done in order to sharpen the knowledge of complex disasters.

The climate school aims to record daily weather data through the students for six parameters.

1. Maximum and Minimum Temperature: Thermometer
2. Humidity :Hygrometer
3. Wind direction: Wind Vane
4. Wind speed: Anemometer
5. Rainfall: Rain Gauge
6. Atmospheric Pressure: Barometer

When schools, communities and experts come together:

Setting up weather stations and learning about disasters and climate

Weather Watch

SCHOOL NAME: _____

Today's Weather | DATE: _____



Max. Temp. °C

Min. Temp. °C



Rainfall

mm



Humidity

%



Wind Direction



Wind Speed

km/hr



Atmospheric Pressure

mm Hg

Monthly Average Weather | MONTH: _____
YEAR: _____



Max. Temp. °C

Min. Temp. °C



Wind Direction



Rainfall

mm



Wind Speed

km/hr



Humidity

%



Atmospheric Pressure

mm Hg

An Initiative under

Capacity Building Strategies for Managing
Complex Disasters in the Face of Climate Change

Sponsored by



Project Lead



Project Partner



Photo Story

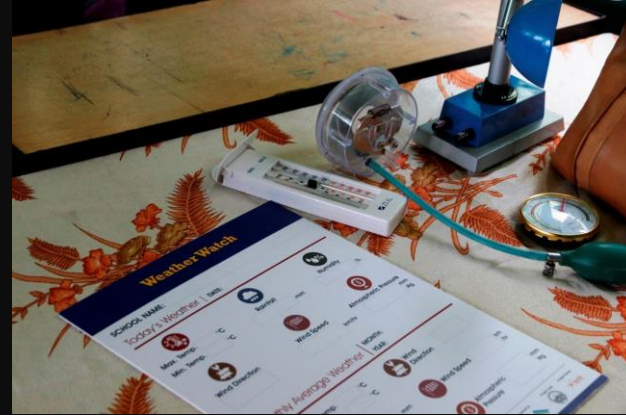
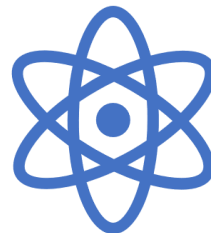


Photo Story





The climate school has brought about learning of the weather and climatic conditions to a more practical based learning. The students having being taught about it in the course curriculum have the theoretical knowledge but practical application of the data recording by the students has triggered an interest in many students towards climate science.

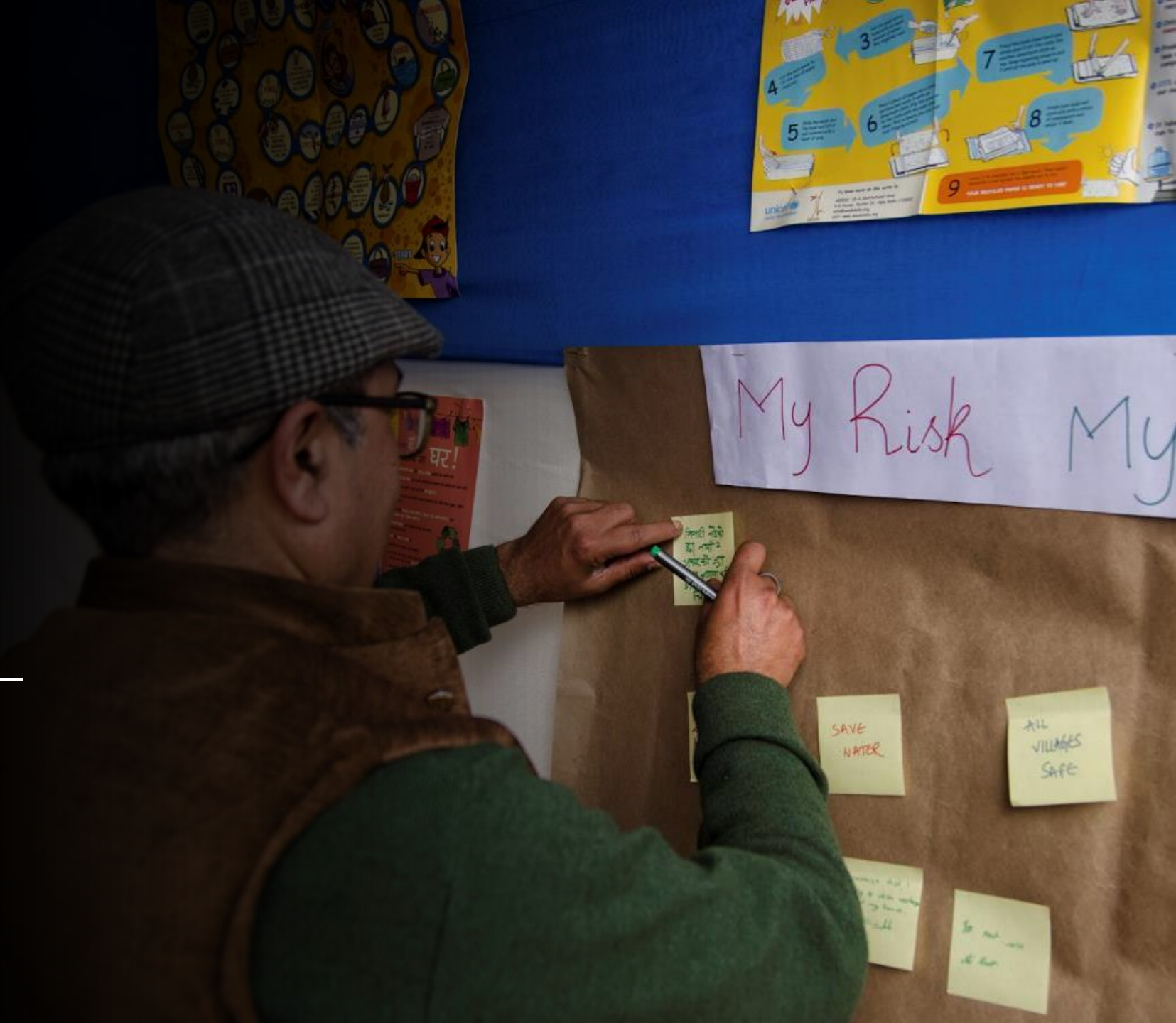


The science teacher, who is also the teacher in-charge, states ***“it is very helpful in the learning process of the children eases the understanding of these parameters which otherwise are difficult to grasp the concept.”***



The aim of the climate school was to sensitize the school children about the effects of climate parameters and to instil a curiosity in the young minds to know about the various facets of climate science.

“My Risk My Commitment”:
proactive approach a
driver of disaster and
climate resilience in
our context





राष्ट्रीय लोक प्रशासन
दिल्ली
CORPORATION
AL BODY

CHATURV

I.V. SUBBARAO



QUIZ

1. Name a sector which is vulnerable to Climate Change in Sikkim
(a) Biodiversity (b) forest (c) both (d) service sector
2. Sacred Groves are also known as
(a) Devsthans (b) Palm Groves (c) bunds (d) altars
3. What is the contribution of GDP due to agriculture in Sikkim
(a) 17% of the State GDP (b) 69% (c) 80% (d) 22%
4. When was Sikkim declared as Organic State
(a) 2016 (b) 2014 (c) 2000 (d) 1967
5. Sikkim lies in which seismic zone
(a) IV (b) II (c) III (d) V



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THANK YOU

