

Addressing Climate Vulnerability in Nepal through Resilient Inclusive WASH Systems (RES-WASH)

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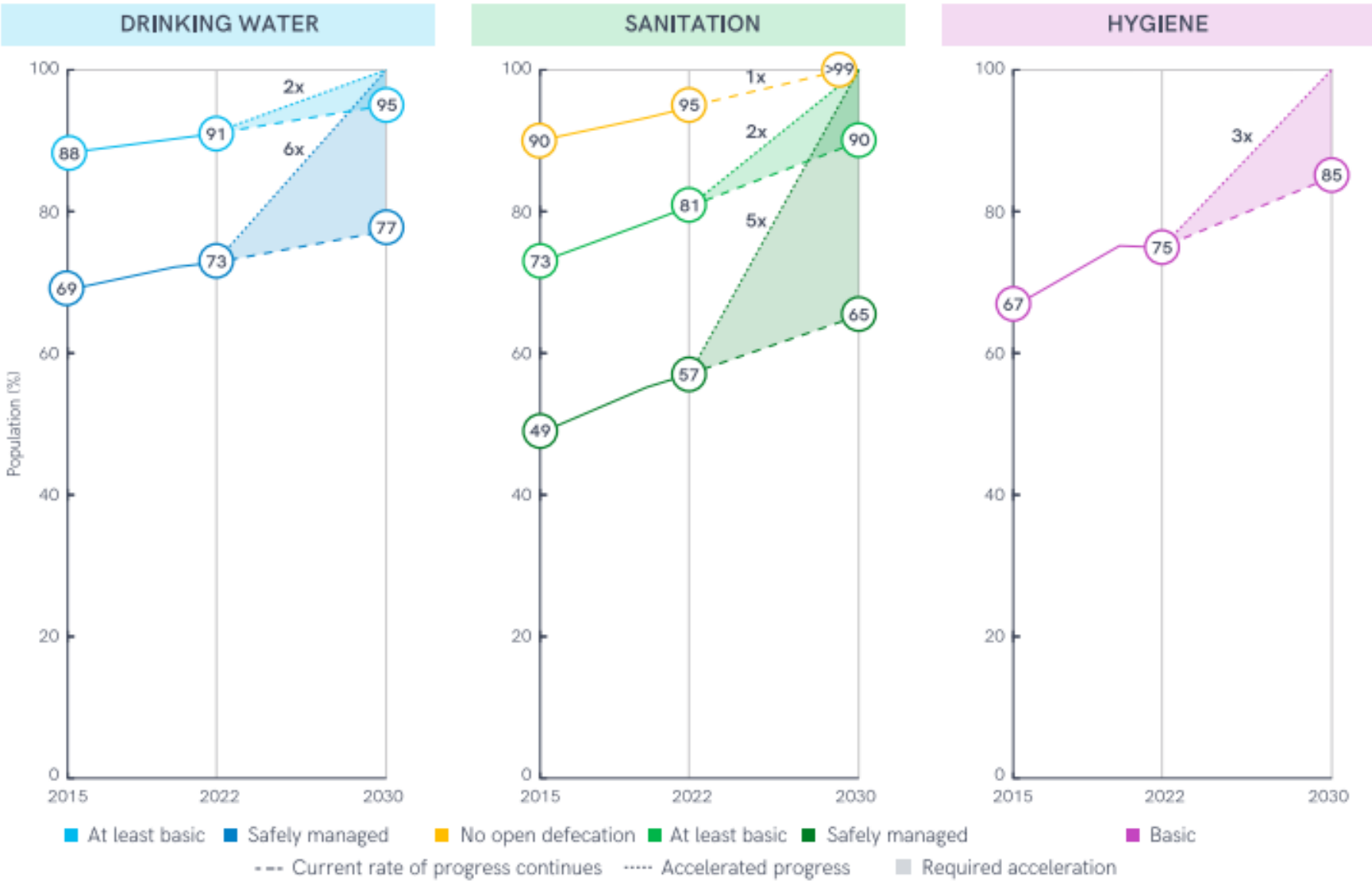
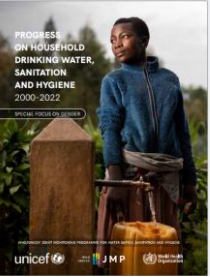
Team



Partners

Setting the scene

Globally (SDG6 status)



In NEPAL

95% access **basic** sanitation facilities

94% access to **basic** water supply

Only **25%** of the water supply is reported to be **fully functioning** and almost **40%** requires **major repairs**.

71% of all water contaminated with **Escherichia coli** bacteria

October floods and landslides disrupt water supply in Bajhang

Around 20,000 families are left without safe drinking water and are at risk of waterborne diseases.



October floods and landslides disrupt water supply in Bajhang
Basanta Pratap Singh

Published at : November 12, 2021 Updated at : November 12, 2021 00:26

Around 20,000 families in Bajhang have been facing a shortage of drinking water to the district since the third week of October, when floods and landslides set off by heavy rain.



वर्षाले सय खानेपानी योजनामा क्षति

विप्लव महर्जन, सल्यान

आदिवासी क्षेत्रमा विप्लव महर्जन, सल्यान

Heavy rain destroyed hundreds of water supply schemes

विप्लव महर्जन, सल्यान



बनाइकुपिन्डे नगरपालिका-२ बामेको राइरामा पनि साविक जिल्ला विकास समितिले झन्डै एक करोड रुपैयाँ खर्च गरी २०६७ सालमा निर्माण गरेको योजना पनि बाढीले तहसनहस बनाएको छ । अहिले स्थानीय खोलाको पानी त्यो पनि एक घण्टा टाढा गएर ल्याउन बाध्य छन् । बाढीले योजनाको मुहानमा क्षति पुऱ्याएको छ । पाइपलाइन पनि पहिरोले क्षति पुऱ्याएको छ ।

Setting the scene

Every child

Explore UNICEF

PRESS CENTRE

Severe flooding and landslides across South Asia, affecting more than five million children (unicef.org)

Press release

Monsoon rains bring severe flooding and landslides across South Asia, affecting more than five million children

UNICEF scaling up emergency response to support children and families affected

18 July 2019

... children's survival and development, with direct impacts including injuries and loss of property. Beyond these immediate risks, floods compromise safe water supply and damage sanitation facilities, increasing the risk of diarrhoea and other diseases, as well as impacting children's access to education. Damage to housing and infrastructure also affects children's well-being, particularly if emergency shelter is either scarce or of poor quality.

पुस, २०७७ (Sunday, December 20, 2020)

दृष्टिकोण

किन सुक्दै छन् मूल ?

Why springs are drying?



डकाल सन्तोष नेपाल



Gendered vulnerability of water access and climate change

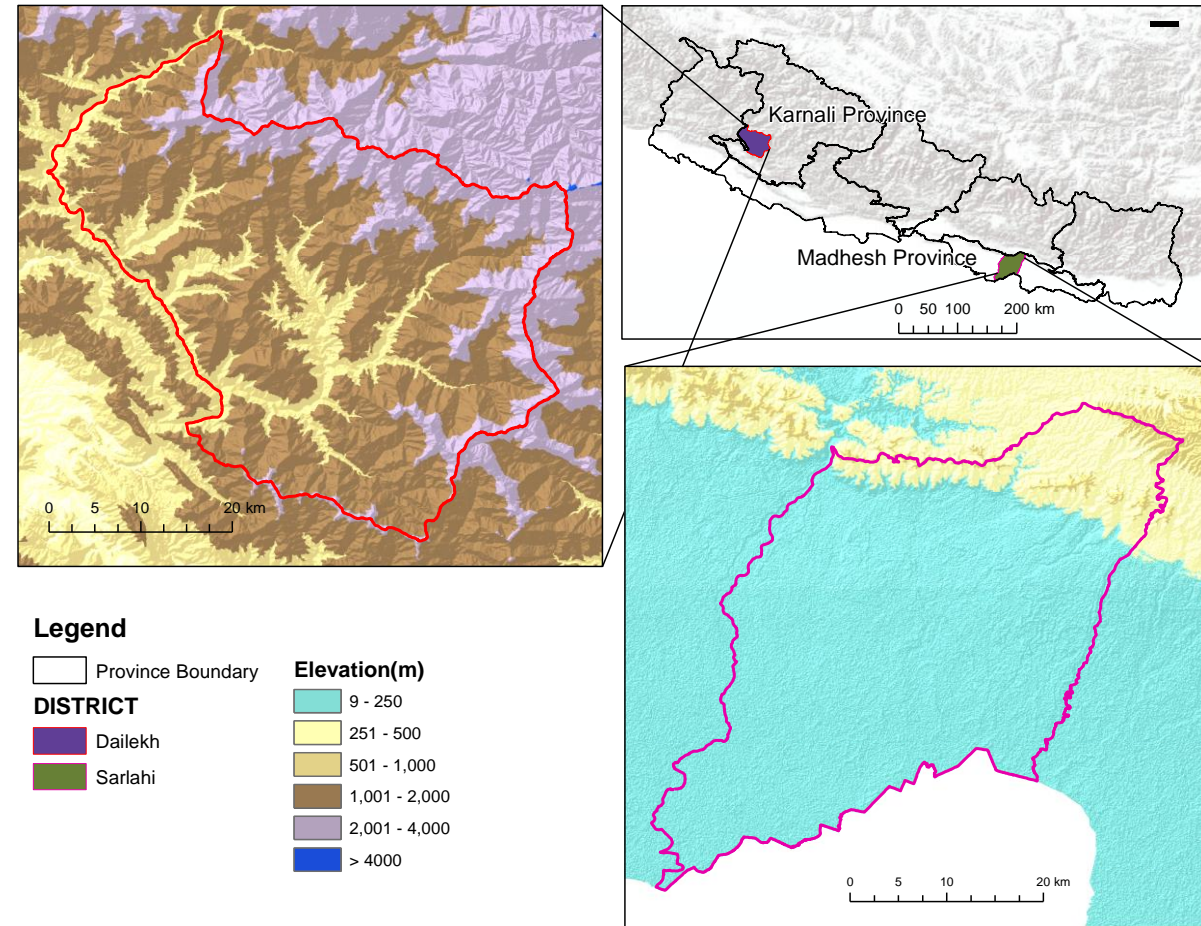
- **Over 90% women and girls** contribute to manage water in rural households
- Exacerbating **workload for women and girls** in fetching water
- **Yet, women, people with disability** and disadvantaged groups have limited access to safe and reliable water, and no voices in water planning and decision-making
- **Engineering perspectives** dominate in WASH planning and decision-making

Objectives

This research aims to improve **local expertise** on climate resilient, inclusive and sustainable WASH by producing **evidence-based data** and information, and ensuring their **outreach, accessibility and use by local stakeholders**, especially local governments in Dailekh and Sarlahi districts.

The specific objectives are:

- To assess vulnerability of WASH infrastructure and facilities from climatic and non-climatic hazards such as landslides.
- To identify the gendered and social vulnerabilities related to WASH and climate change experienced by diverse groups of women, girls, PwD and marginalized communities.
- To improve knowledge and capacity for effective WASH systems, programs and institutional mechanisms that are more inclusive and climate resilient.



Project component and approach

1

Vulnerability and risk assessment

What are the vulnerabilities and risks to WASH resources and infrastructure in a changing climate context?

2

Gender and social vulnerabilities

What are gendered and social vulnerabilities related to WASH experienced by marginalized women, girls, people with disabilities?

3

Capacity building

What strategies are needed to strengthen the institutional capacity of WASH service providers and local communities in achieving inclusive climate-resilient WASH ?

Multi stakeholder partnership approach

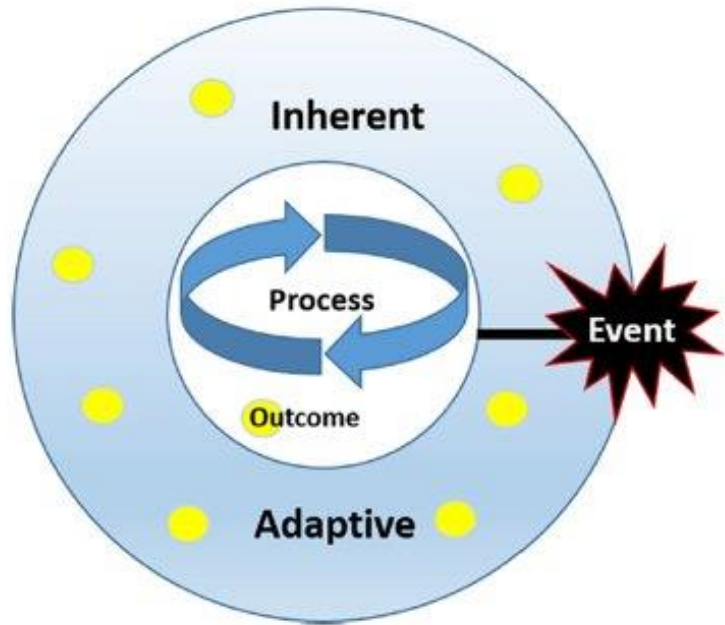
National Association of Rural Municipalities in Nepal (NARMIN)

Bagmati welfare society Nepal (BWSN)

Everest Club (EC)

Global Institute for Interdisciplinary Studies (GIIS)

Approach: Resilience



- Resilience as outcome and/or as process
- Resilience as a policy tool



Howard et al., 2021

npj | Clean Water www.nature.com/npjcleanwater

ARTICLE OPEN Check for updates

The how tough is WASH framework for assessing the climate resilience of water and sanitation

Guy Howard¹, Anisha Nijhawan¹, Adrian Flint², Manish Baidya³, Maria Pregolato⁴, Anish Ghimire⁵, Moti Poudel², Eunice Lo⁶, Subodh Sharma³, Bizatu Mengustu³, Dinku Mekbib Ayele³, Abraham Geremew³ and Tadesse Wondim^{5,6}

Climate change presents a major threat to water and sanitation services. There is an urgent need to understand and improve

Approach: Gender and social vulnerabilities

Working district

Activities

Sarlahi

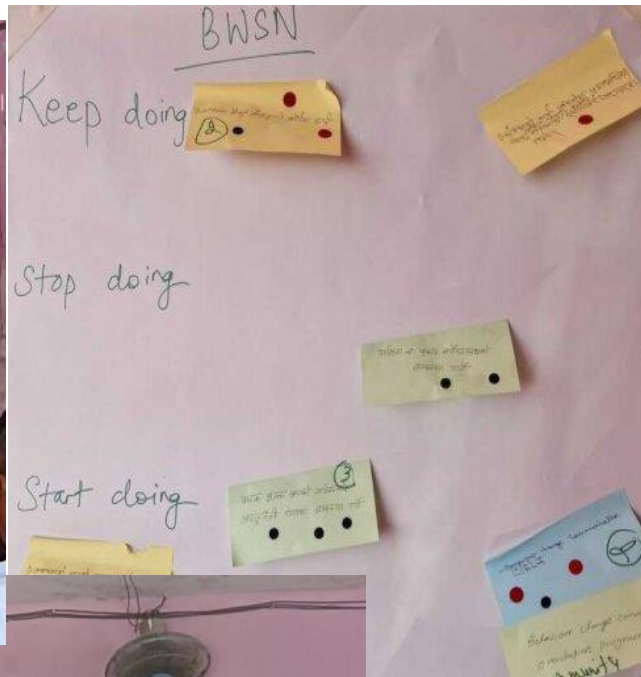
- 04 Community Resource Mapping (CRM)
- 14 Focus Group Discussions (FGDs)
- 13 Key Informant Interviews (KIIs)
- A quick stroll in a Mushahar community settlement
- Participant observation

Dailekh

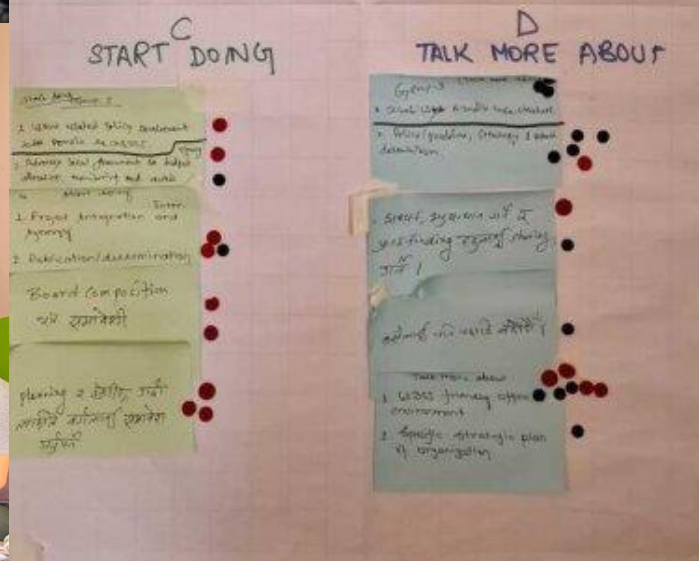
- 04 Community Resource Mapping
- 12 FGDs
- 22 KIIs
- A visit to Pipalkot village in Aathabis
- A visit to the dumping site in Dungeshwor
- A visit to water sprouts near Karnali in Aathabis
- Participant observation



Co-creation workshop



Co-creation workshop

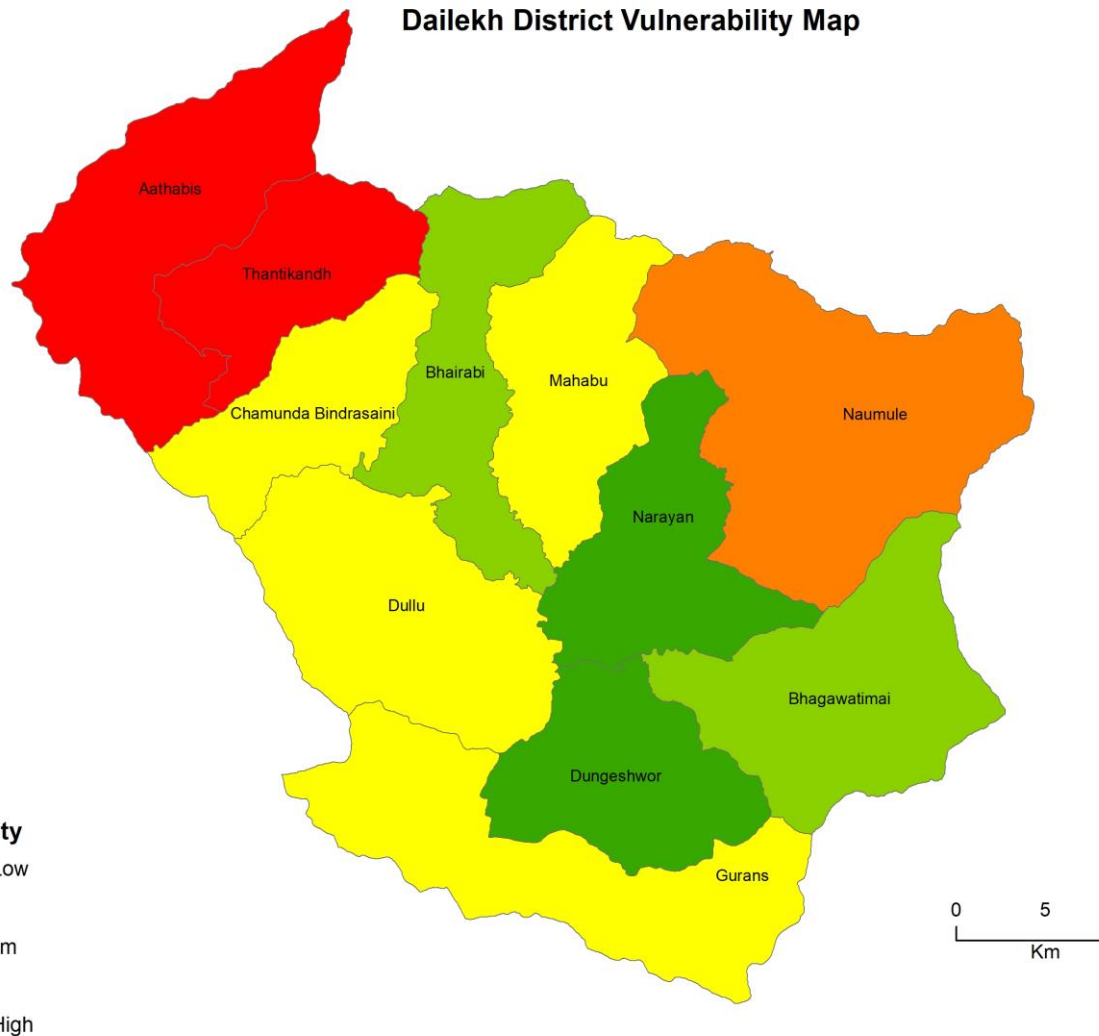


Vulnerability

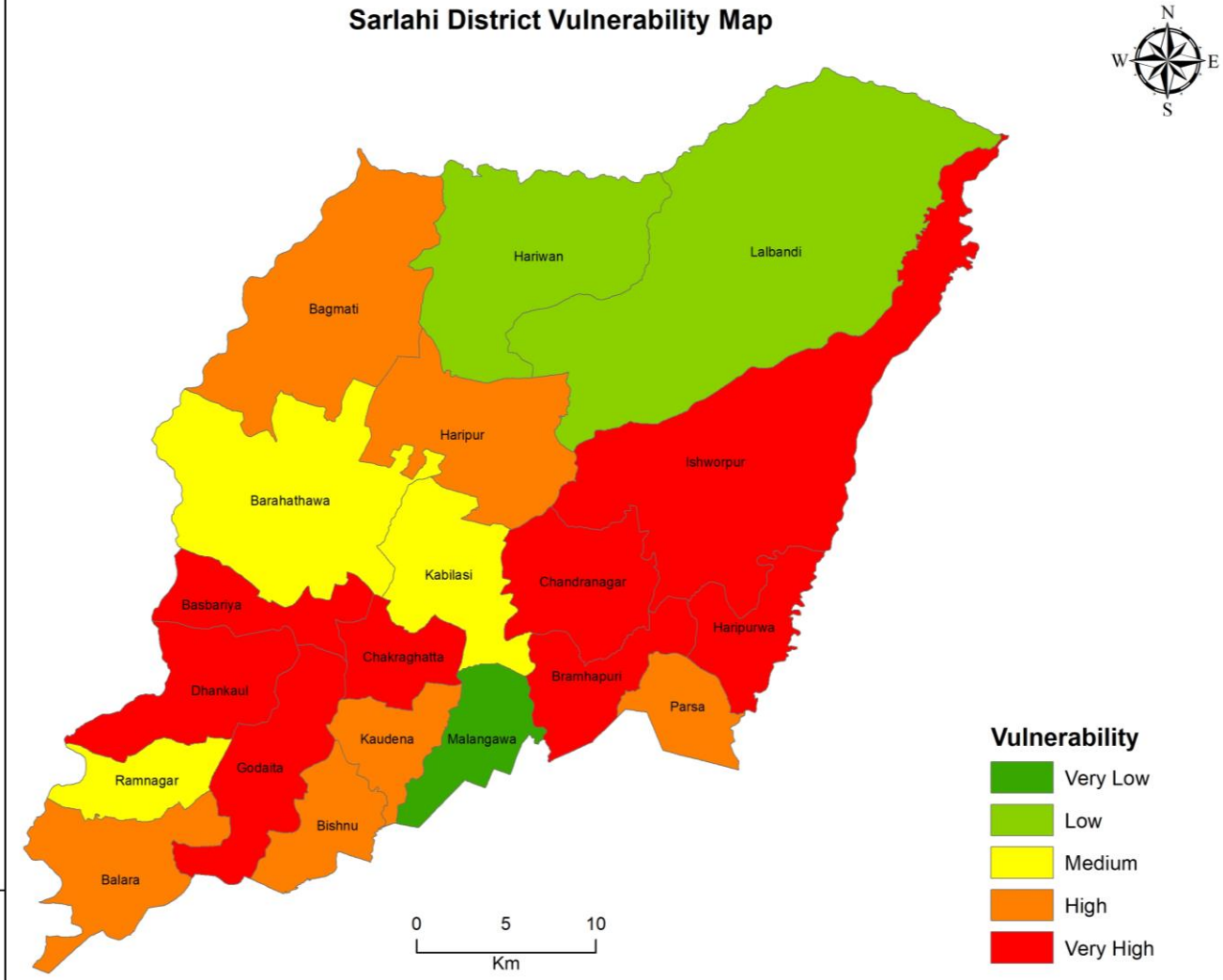
$$\text{Vulnerability} = \text{Sensitivity} * (1 - \text{Adaptive capacity})$$

$$\text{Vulnerability} = f(\text{Sensitivity}, \text{Adaptive capacity})$$

Dailekh District Vulnerability Map



Sarlahi District Vulnerability Map



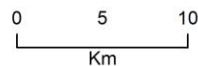
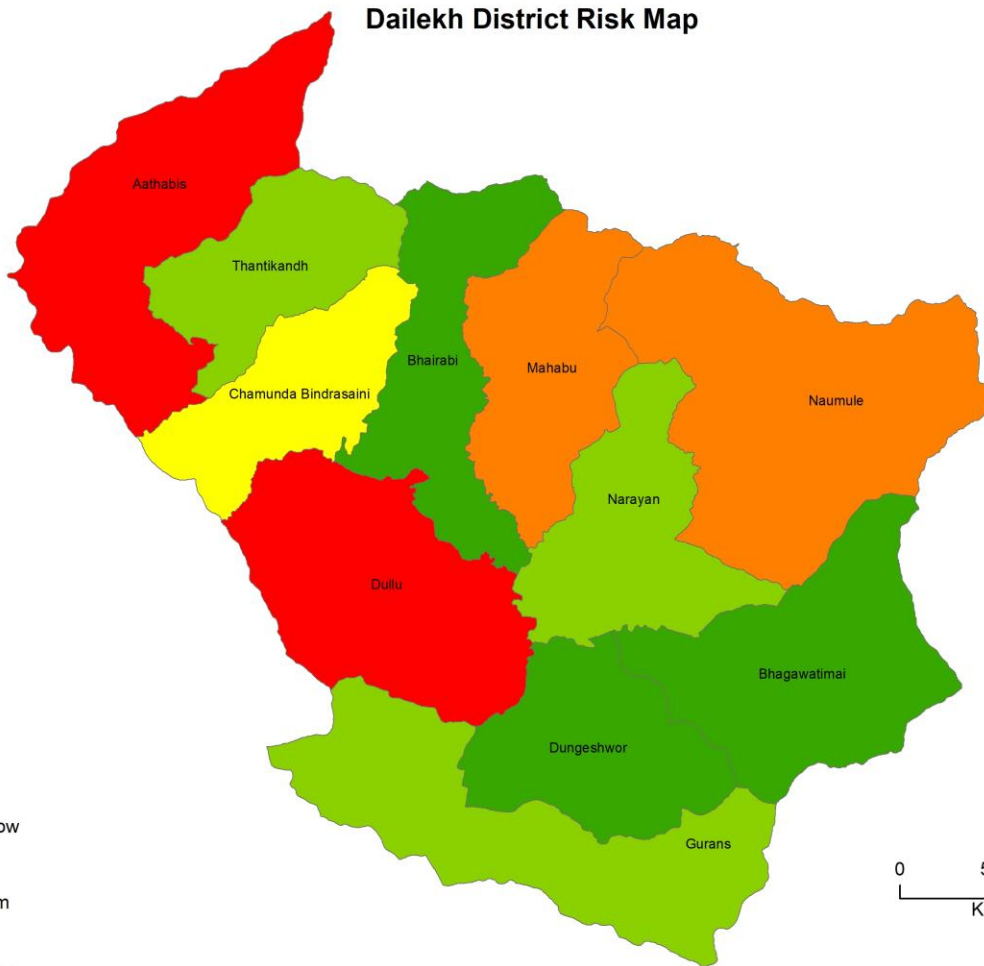
Normalized Score	Class	Normalized Score	Class
0.0 - 0.2	Very Low	0.6-0.8	High
0.2- 0.4	Low	0.8-1.0	Very High
0.4 - 0.6	Medium		

Risk

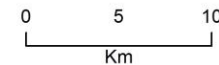
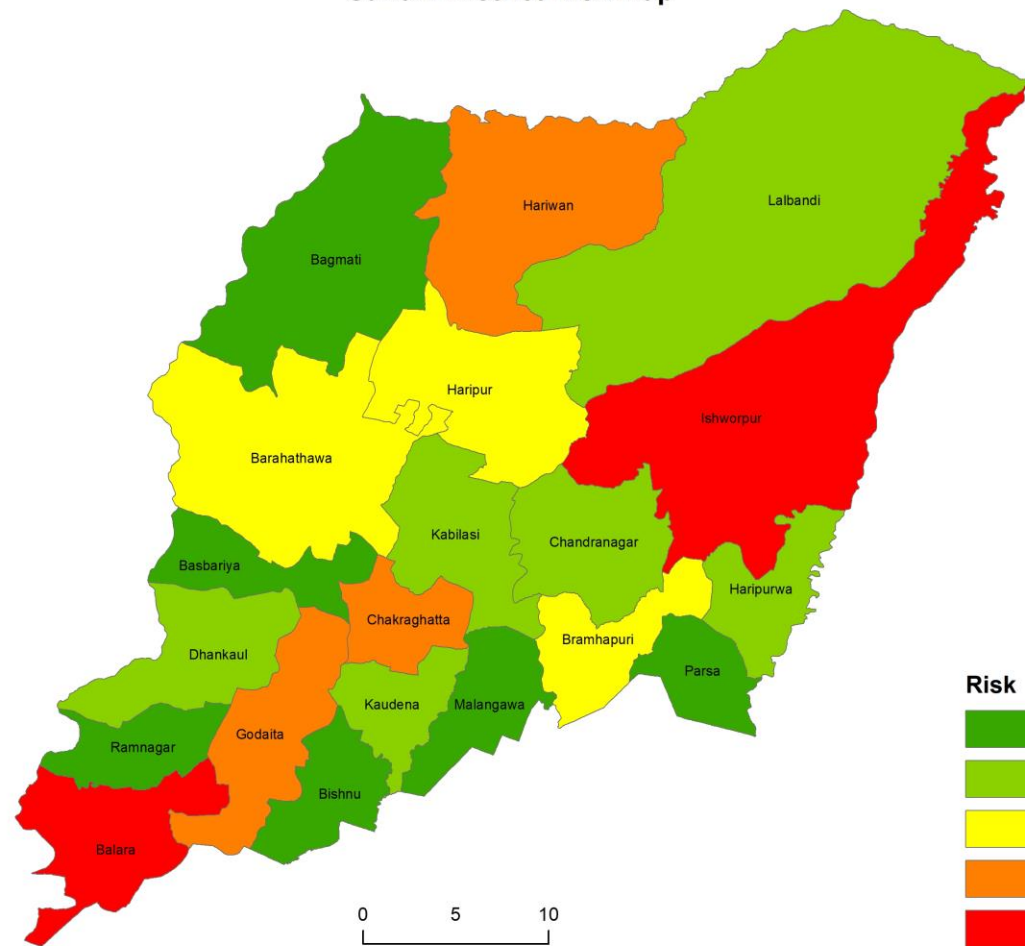
$$\text{Risk} = \text{Hazard} * \text{Vulnerability} * \text{Exposure}$$

$$\text{Risk} = f(\text{Hazard}, \text{Vulnerability}, \text{Exposure})$$

Dailekh District Risk Map



Sarlahi District Risk Map



Risk

- Very Low
- Low
- Medium
- High
- Very High

Risk

- Very Low
- Low
- Medium
- High
- Very High

Normalized Score	Class	Normalized Score	Class
0.0 - 0.2	Very Low	0.6-0.8	High
0.2- 0.4	Low	0.8-1.0	Very High
0.4 - 0.6	Medium		

Municipality Level Vulnerability Assessment

Karnali

Dailekh

Exposure Indicator

Select Indicator

Composite Values

Risk

Raw Data

- Select Component
- Exposure Indicator
- Sensitivity Indicator
- Adaptive Capacity Indicator
- Hazard Indicator



- Category
- Very High
 - High
 - Medium
 - Low
 - Very Low

Chamunda Bindrasaini
0.46

<https://mesandhya.github.io/mapdash/>

Results

- Unsustainable interventions: donor reliance, lack of ownership by local government and communities.
- Skewed focus on drinking water and not on sanitation and hygiene in the WASH sector.
- Occurrences of disasters like inundations have become a way of life in many marginalized communities.
- Soil erosion, landslides, drying up of sources, and lack of conservation pose significant risks to water sources
- Lack of a proper database on water sources in the district.
- Two Palikas in Dailekh and Seven Palikas in Sarlahi are highly vulnerable
- Two Palikas fall in high risk zone in Dailekh and Sarlahi



Key message

Climate resilient WASH system can be achieved through stakeholder collaboration, preparation of plans and capacity development of each stakeholders.

Meet the Research Team



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Acknowledgement: Donor and Partners



Thank You



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