PLANNING WORKSHOP ON

Impact-Based Forecasting and Climate Services

21–24 January 2025 | Bangkok, Thailand

Operational DSSs for Impact-based Forecasting and Climate Services in South Asia Region

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WISER Weather and Climate Information Services

UK International Development Partnership | Progress | Prosperity

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RIMES

Outline

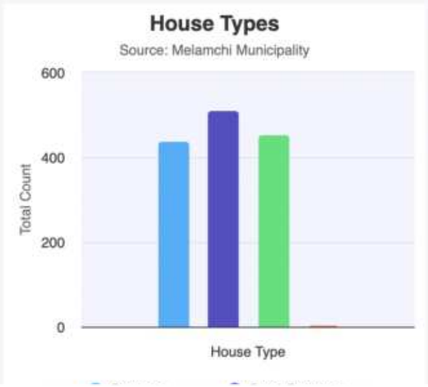
- Example DSSs from the region on IbF and CIS
- Example of Co-production of DSS and complimentary support required
- Lessons and Challenges for DSS operationalization based on experience in SAR

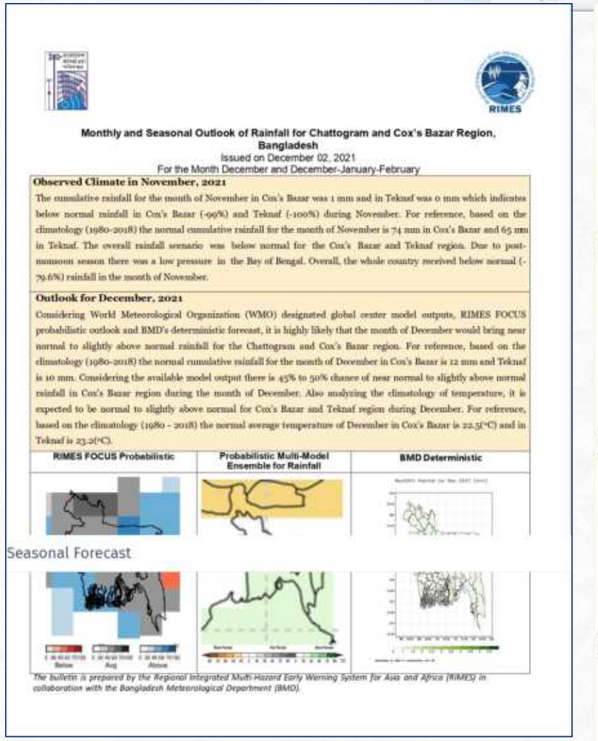
DSSs In the Region Supported by RIMES (Examples)

Sector	DSS / DSS Tool	Countries
Livestock	National Livestock Advisory System (NLAS)	Bangladesh
Agriculture	Agro-advisory System (ADVISE)	Nepal, Pakistan (Punjab, Balochistan)
	Bangladesh Agrometeorological Information System (BAMIS)	Bangladesh
	Specialized Expert System for Agrometeorological Early Warning (SESAME)	India, Bhutan, Timor Leste
Disaster Risk Management	System for Assessing Tracking and Alerting Disaster Risk Information based on Dynamic Risk Knowledge (SATARK)	India (Odisha), Nepal (linked with BIPAD portal)
	System for Multi-hazard potential impact assessment, Alert, emergency Response planning and Tracking (SMART)	India (Tamil Nadu)
	Integrated Forecast Dissemination Portal (INSTANT)	Bangladesh, Nepal, Pakistan, Sri Lanka
	Risk Anticipation for Preparedness and Informed Decision-making (RAPID)	Bangladesh
Planning	Climate-Informed Planning (CLIM-PLANNeD)	Pakistan
Health	Climate Risk Information System for Public Health (CRISH)	Timor Leste
Water Resources	DSS for Flood Forcasting and Warning Center	Bangladesh
	Flood Cautioning and Alert SysTem (FloCAST)	Nepal, Bhutan, Myanmar, Pakistan (Sindh)
Transport	National Vehicular and Transport Resilient Gateway (NAVIGATE)	Nepal

INSTANT Portal – Bangladesh, Nepal, Sri Lanka, Pakistan

Electronic Community Risk Assessment (eCRA)





Monthly and Seasonal Outlook of Rainfall for Chattogram and Cox's Bazar Region, Bangladesh

Issued on December 02, 2021

For the Month December and December-January-February

Observed Climate in November, 2021

The cumulative rainfall for the month of November in Cox's Bazar was 1 mm and in Teknaf was 0 mm which indicates below normal rainfall in Cox's Bazar (-99%) and Teknaf (-100%) during November. For reference, based on the climatology (1980-2018) the normal cumulative rainfall for the month of November is 74 mm in Cox's Bazar and 65 mm in Teknaf. The overall rainfall scenario was below normal for the Cox's Bazar and Teknaf region. Due to post-monsoon season there was a low pressure in the Bay of Bengal. Overall, the whole country received below normal (-79.6%) rainfall in the month of November.

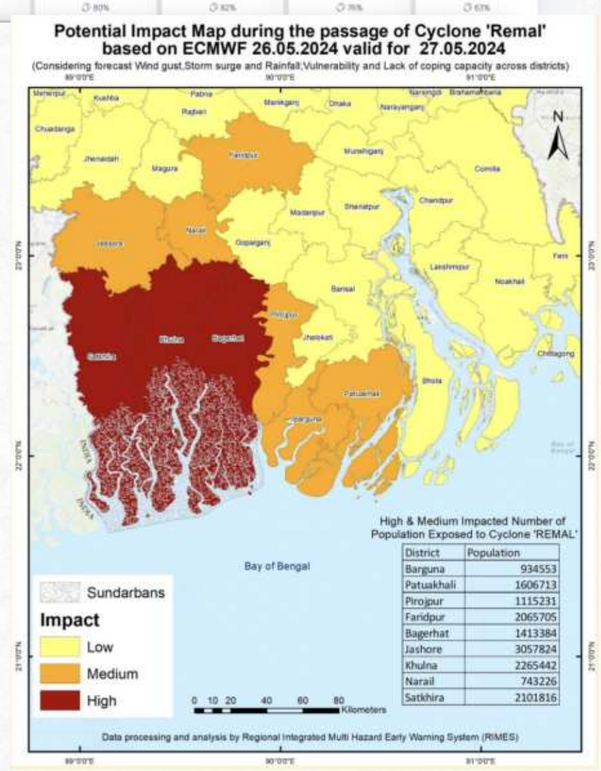
Outlook for December, 2021

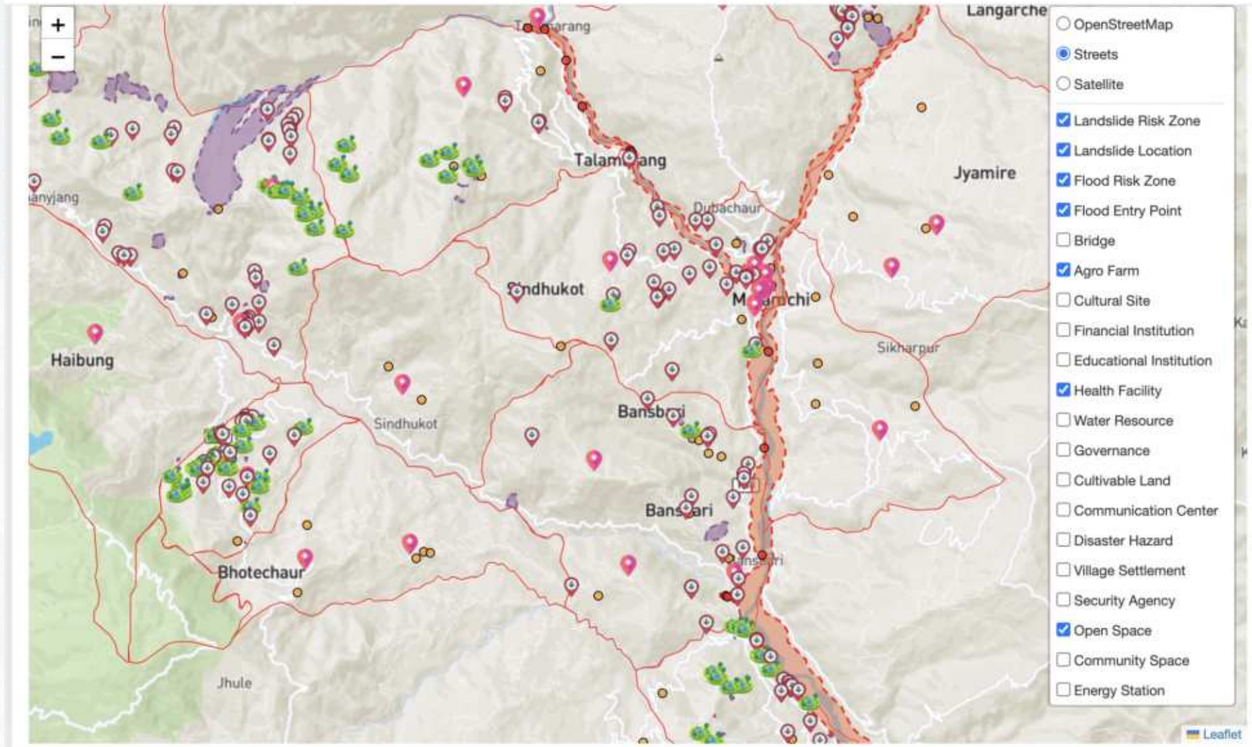
Considering World Meteorological Organization (WMO) designated global center model outputs, RIMES FOCUS probabilistic outlook and BMD's deterministic forecast, it is highly likely that the month of December would bring near normal to slightly above normal rainfall for the Chattogram and Cox's Bazar region. For reference, based on the climatology (1980-2018) the normal cumulative rainfall for the month of December in Cox's Bazar is 12 mm and Teknaf is 10 mm. Considering the available model output there is 45% to 50% chance of near normal to slightly above normal rainfall in Cox's Bazar region during the month of December. Also analyzing the climatology of temperature, it is expected to be normal to slightly above normal for Cox's Bazar and Teknaf region during December. For reference, based on the climatology (1980 - 2018) the normal average temperature of December in Cox's Bazar is 23.5(°C) and in Teknaf is 23.2(°C).

RIMES FOCUS Probabilistic	Probabilistic Multi-Model Ensemble for Rainfall	BMD Deterministic

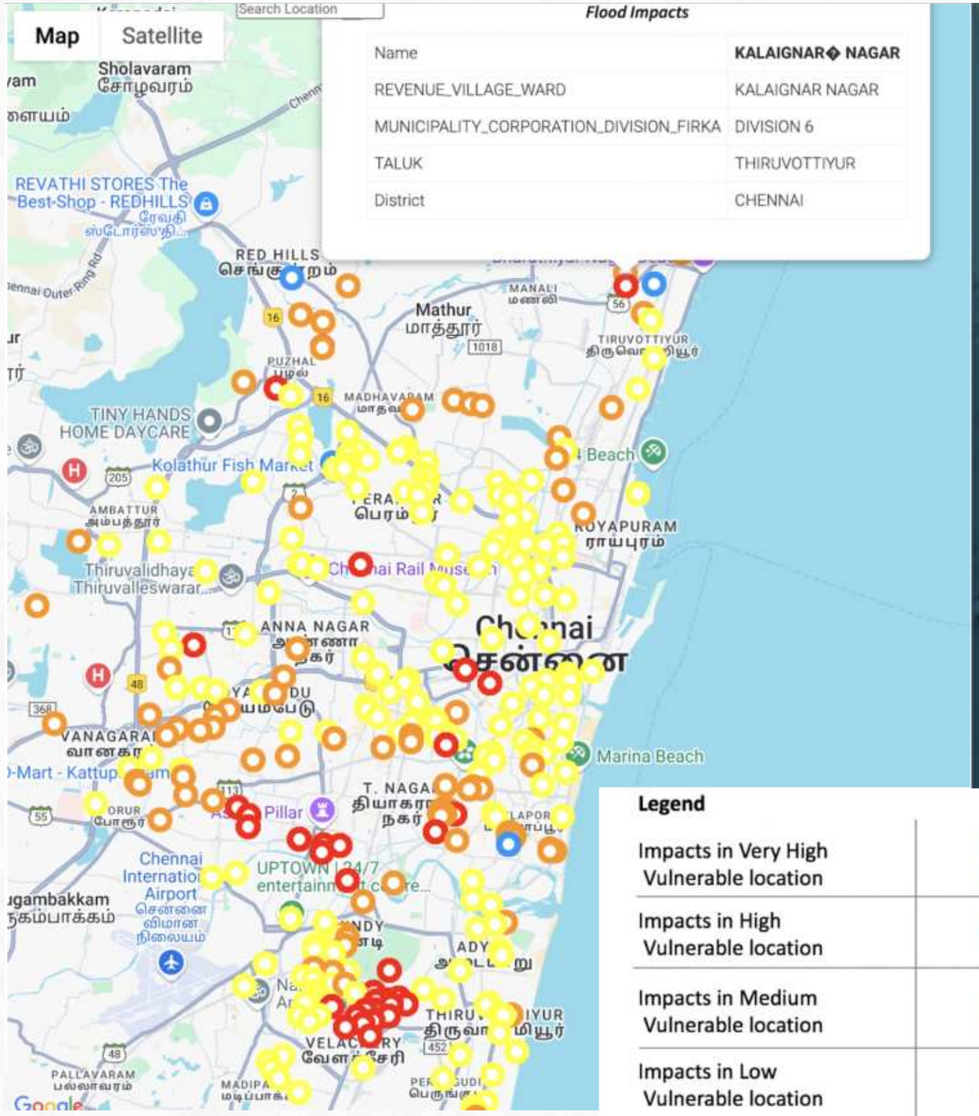
Seasonal Forecast

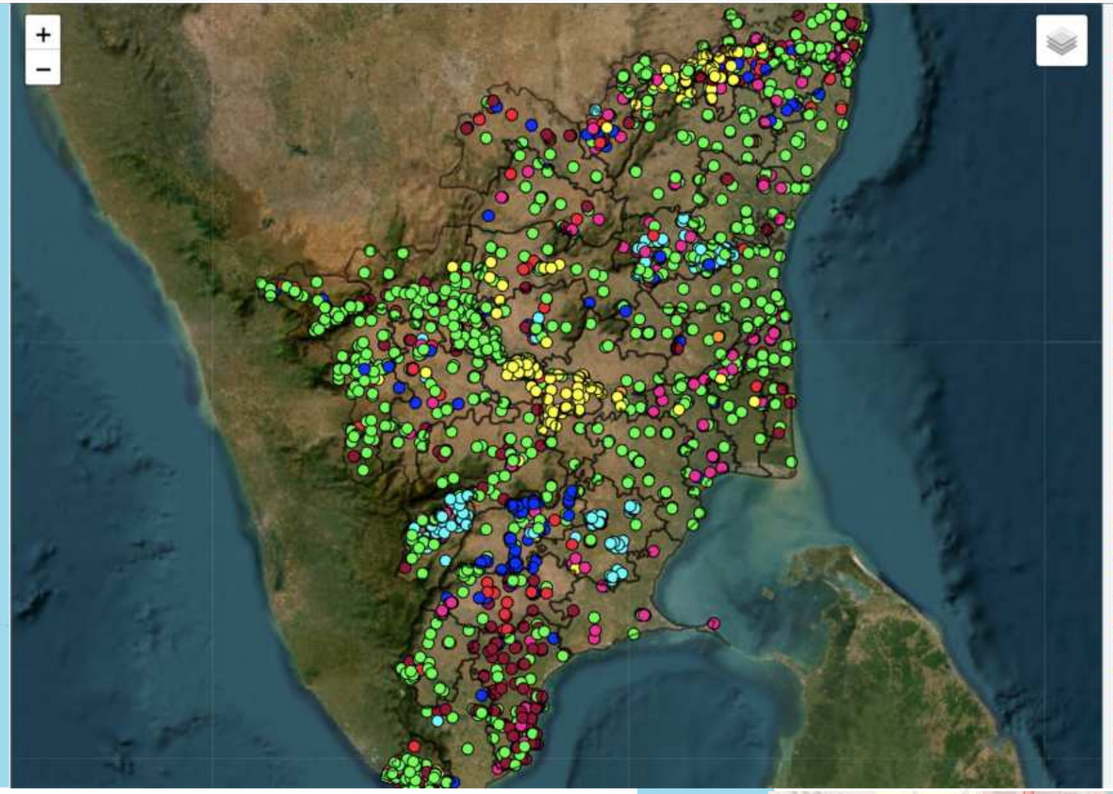
The Bulletin is prepared by the Regional Integrated Multi-Hazard Early Warning System for Asia and Africa (RIMES) in collaboration with the Bangladesh Meteorological Department (BMD).





SATARK (Odisha) TN-SMART (Tamil Nadu) DSS





ABSTRACT DETAILS

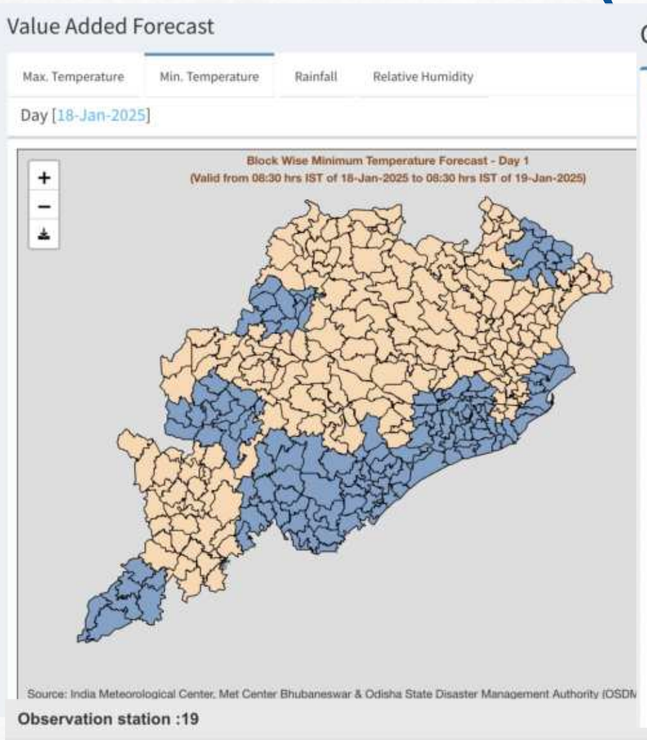
- Gas cutters
- Electric Drill
- Power Saw
- Hydraulic Spreaders
- Search Light
- Electric Generator
- Truck with Aerial Lift
- Bulldozers
- Lorry (Heavy Load)
- JCB
- Cranes
- Tipper Lorry (Light Load)
- Recovery Van
- Lifebuoy
- Life Jackets
- Inflatable Boat (12 Persons)
- Fiber Boat (12 Persons)
- Motor Boats
- Country Boats
- Tarpaulin

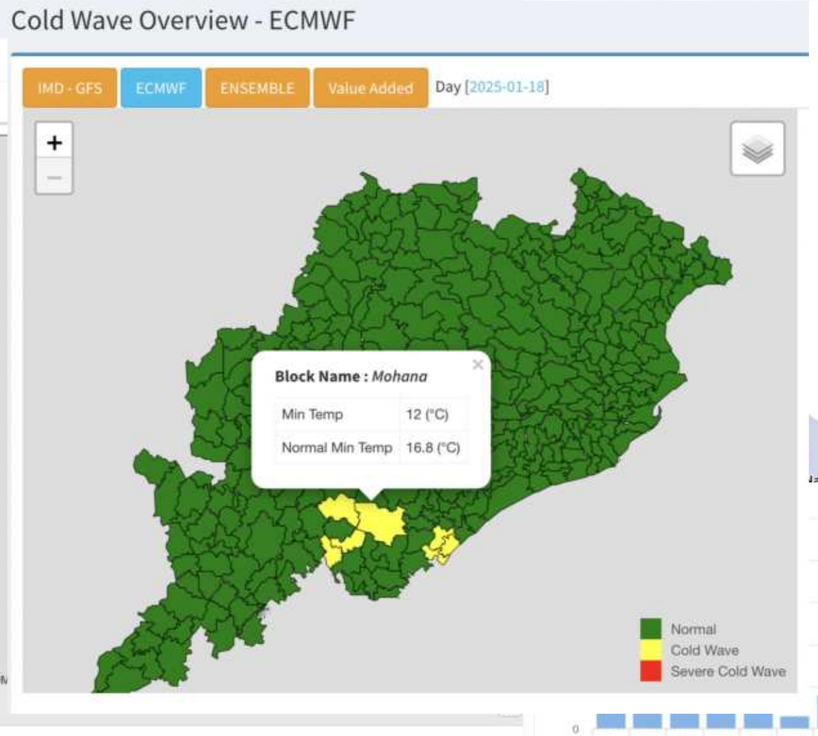
Legend

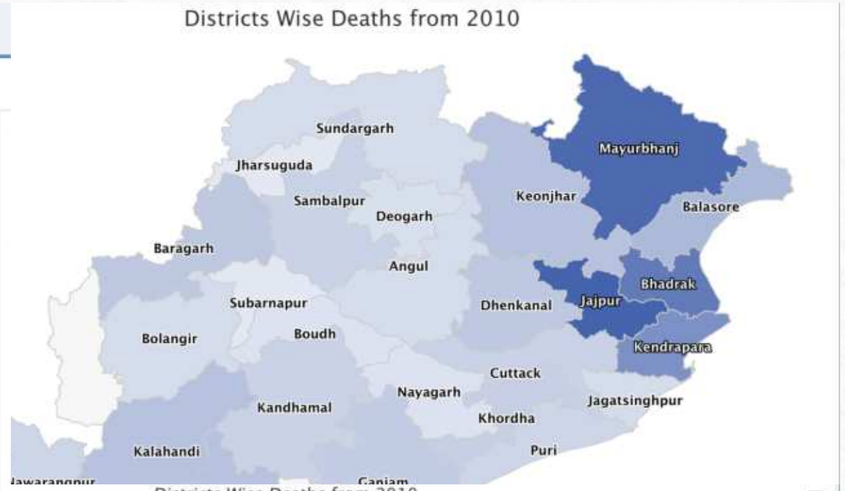
Impacts in Very High Vulnerable location	Very High	High	Medium	Low
Impacts in High Vulnerable location	High	Medium	Low	
Impacts in Medium Vulnerable location	Medium	Low		
Impacts in Low Vulnerable location	Low			

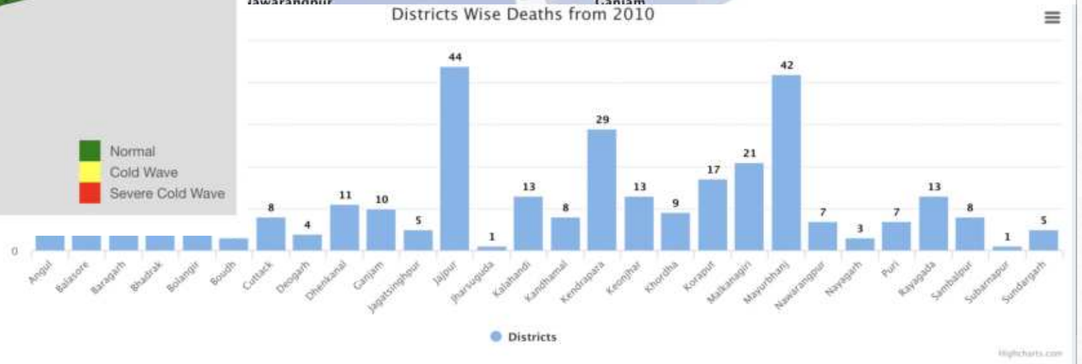
Tamil Nadu System for Multi-hazard potential impact assessment, Alert, emergency Response planning and Tracking

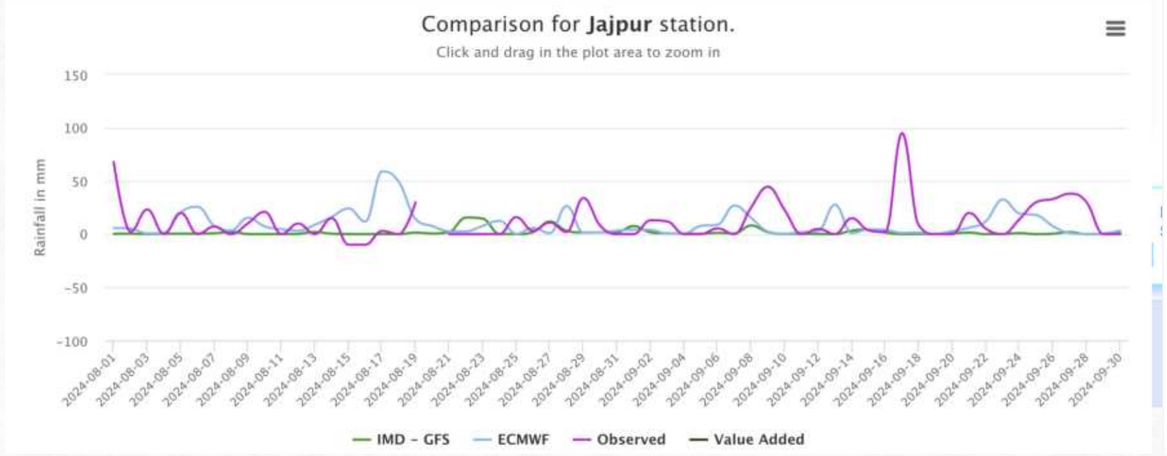
SATARK (Odisha) TN-SMART (Tamil Nadu) DSS

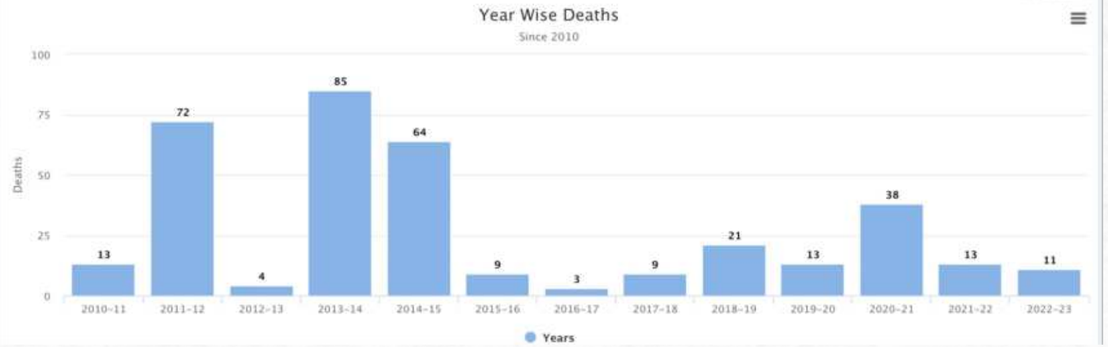






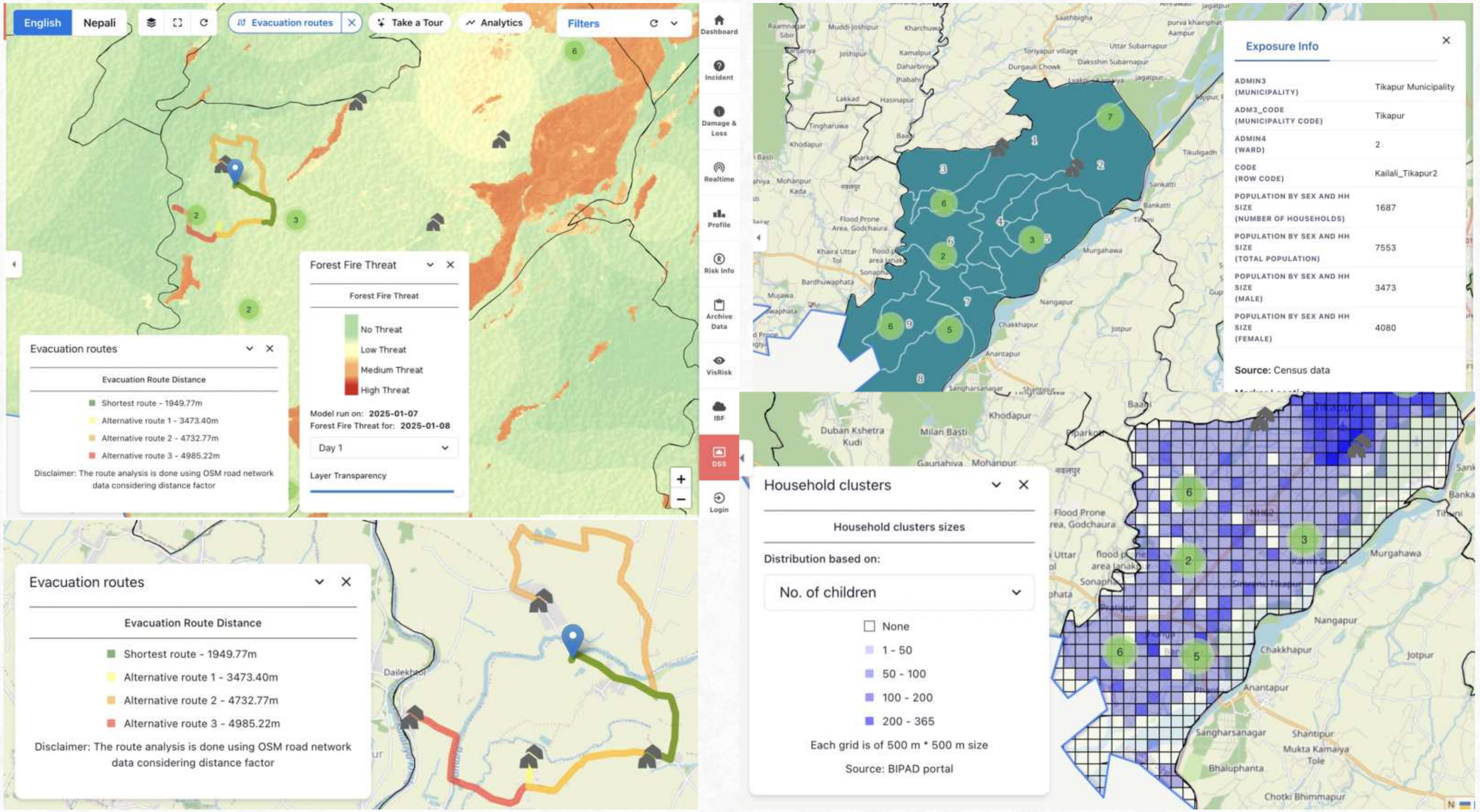






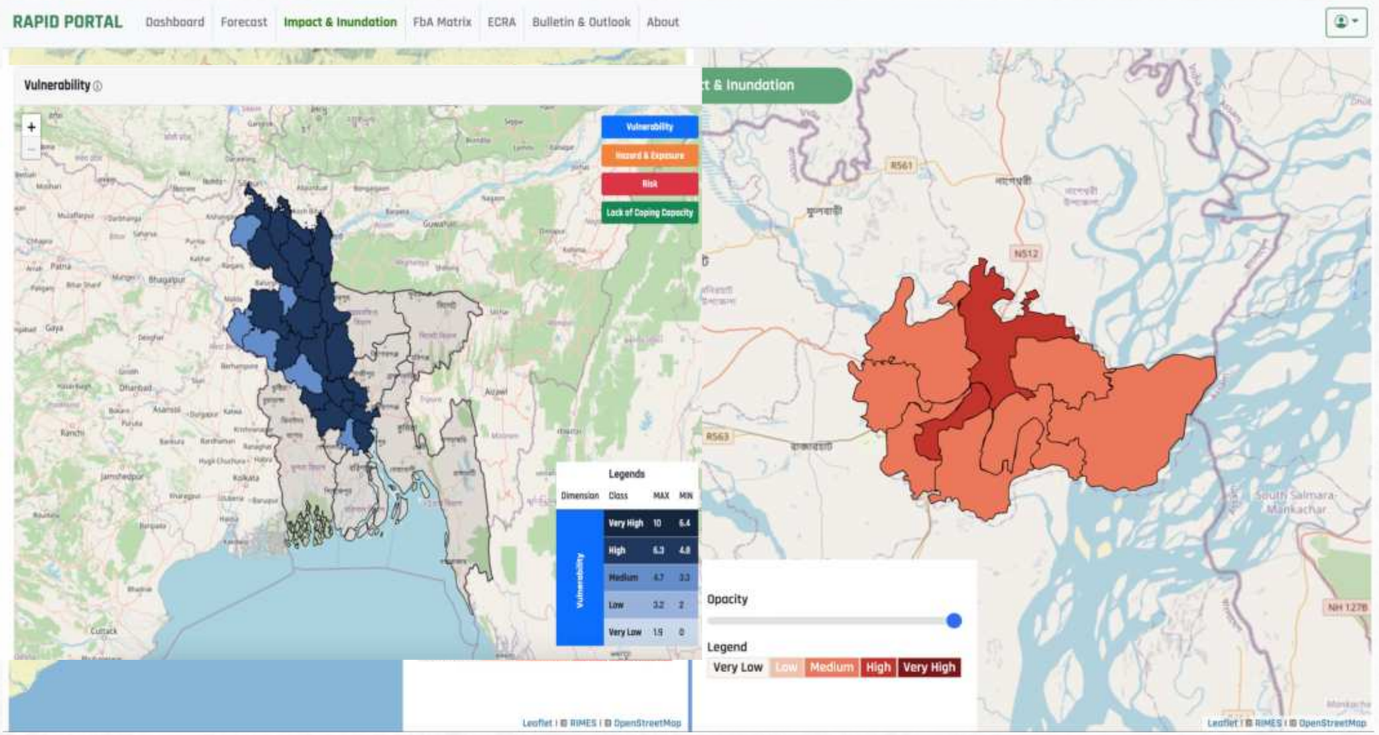
System for Assessing Tracking and Alerting Disaster Risk Information based on Dynamic Risk Knowledge

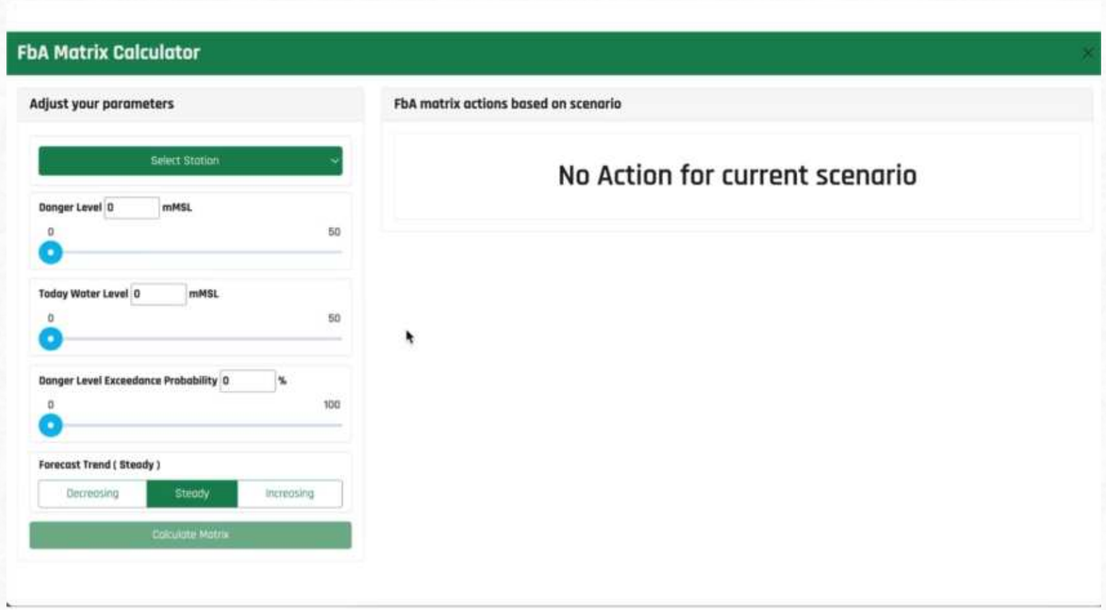
SATARK DSS for Nepal's BIPAD Portal



satark-np.rimes.int, bipad.gov.np

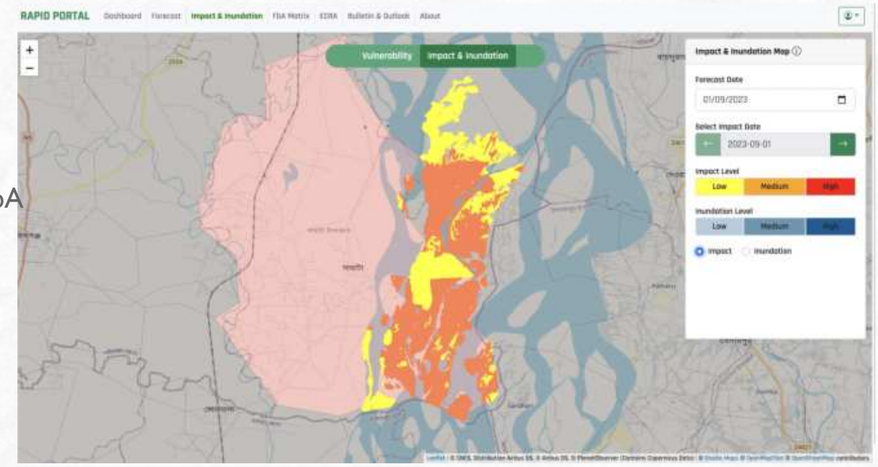
Risk Anticipation for Preparedness and Informed Decision-making (RAPID)

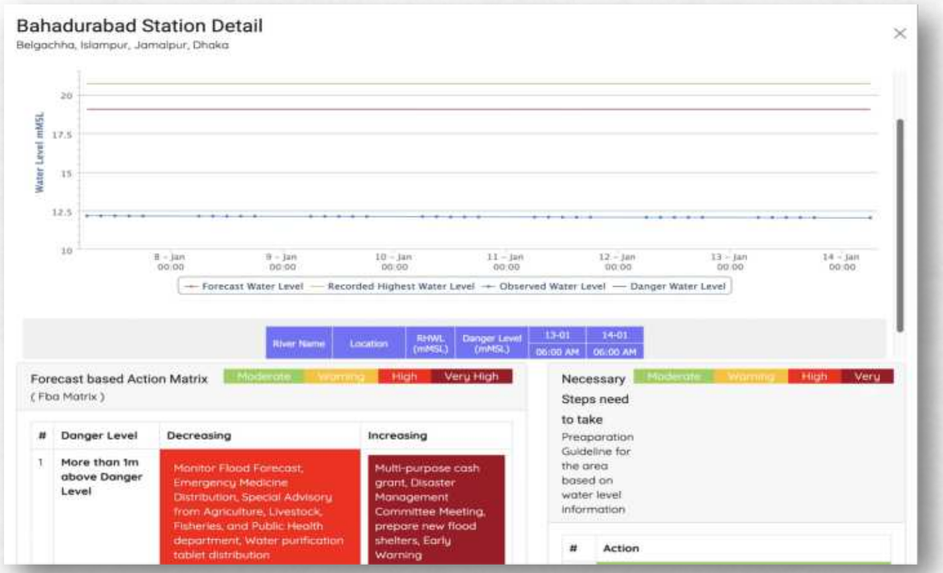




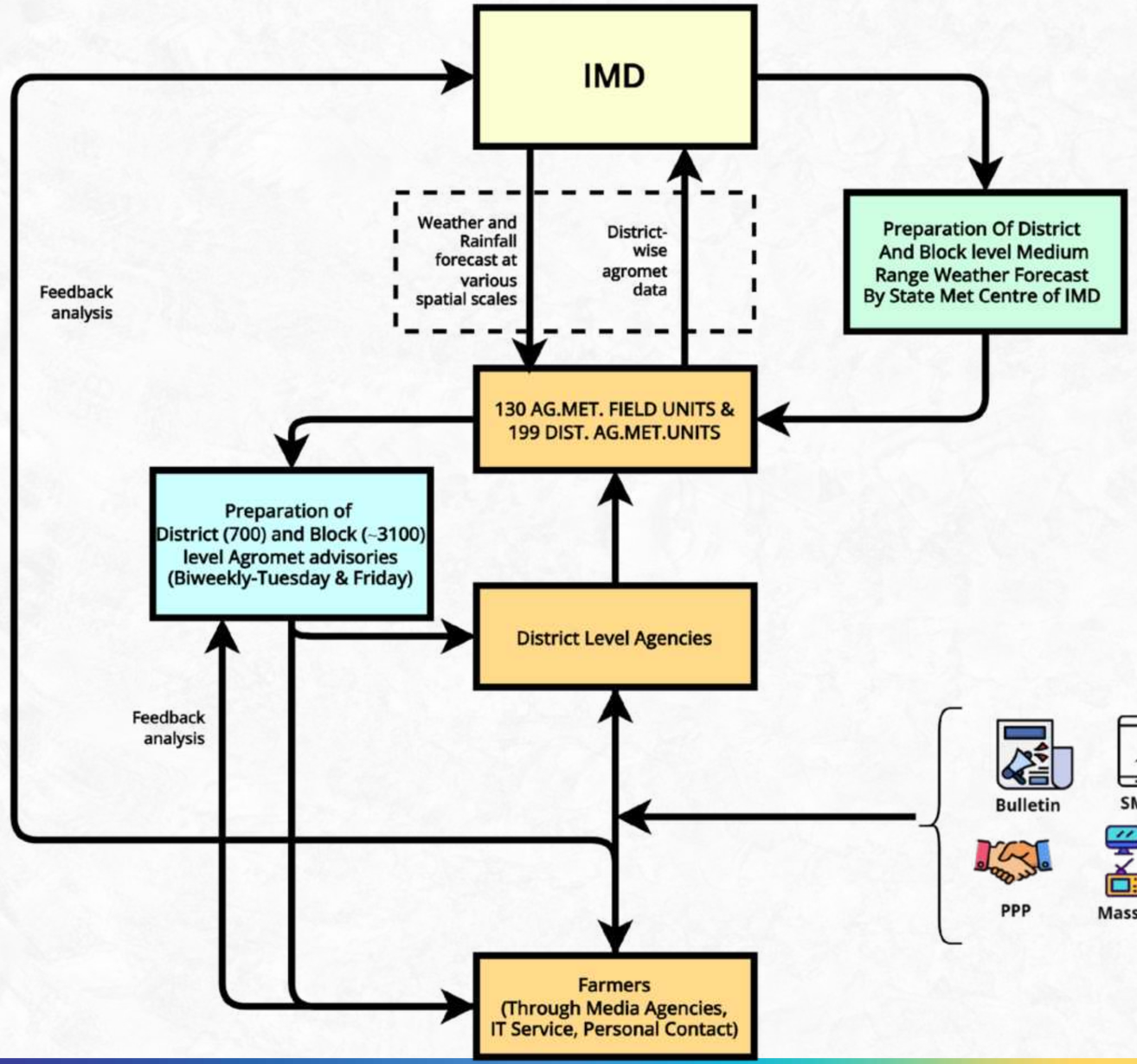
- Monitor and analyze flood forecast
- Visualize possible area of inundation
- Visualize impact information
- Monitoring of trigger for monsoon flood through FbA Trigger Matrix
- Decision-making support for Anticipatory Action
- Dissemination of bulletins, warning and advisory information
- Digital Community Risk Assessments

rapid.rimes.int





SESAME DSS and Agromet Advisory Service in India



98%

Farmers adopted at least 1 practice based on forecast and advisories

Additional $150 per household belonging to Below Poverty Line category in rain-fed areas

Economic Benefits

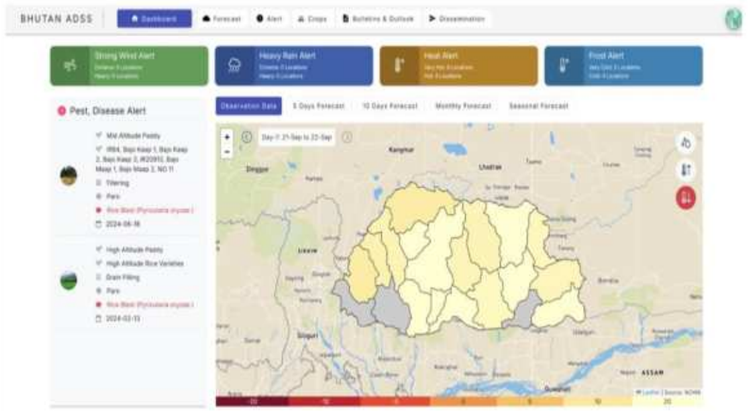
$1.6 Billion

Total income gain per annum in rain-fed districts.

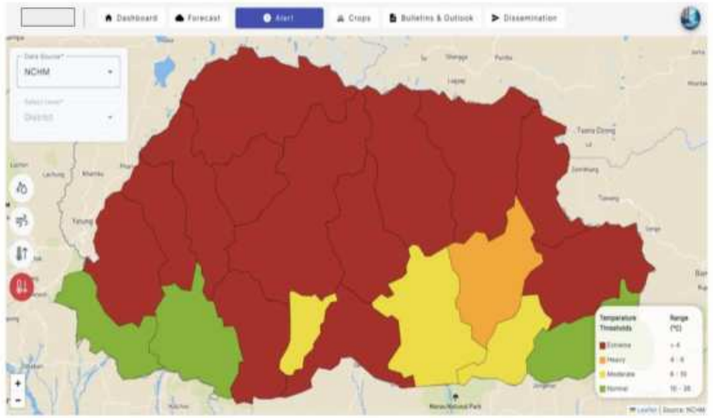
Around 80% farmers reported reduced losses who received early warning

Study by National Centre for Applied Economic Research (NCAER), New Delhi conducted in year 2019 by. Salient findings- (interviewed 3,965 farmers across 121 districts of 11 states of India)

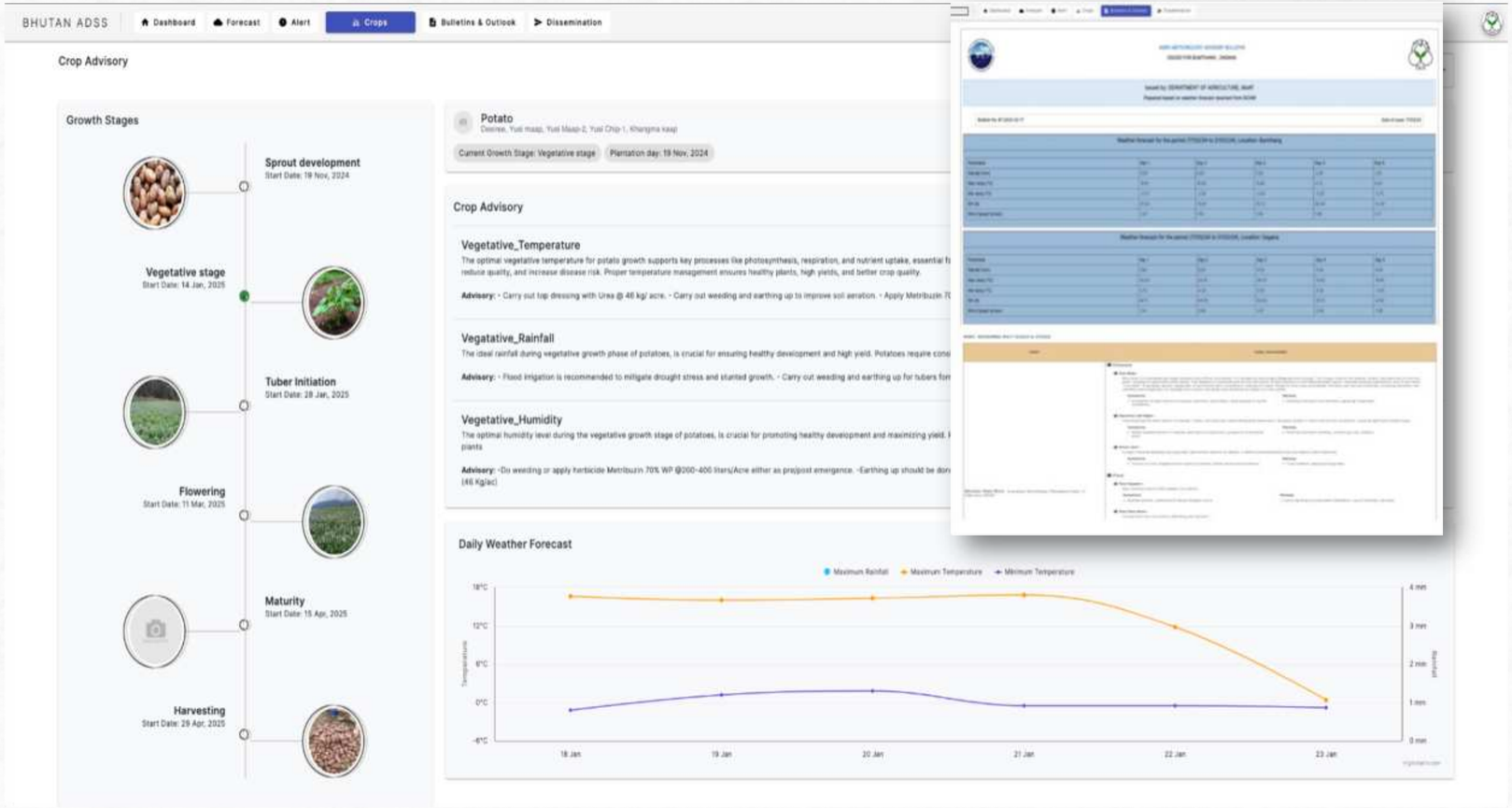
Agriculture DSS (ADSS) - Bhutan



Dashboard with Forecasts, Observations, Pest & Disease Alert and Weather Alert Summary



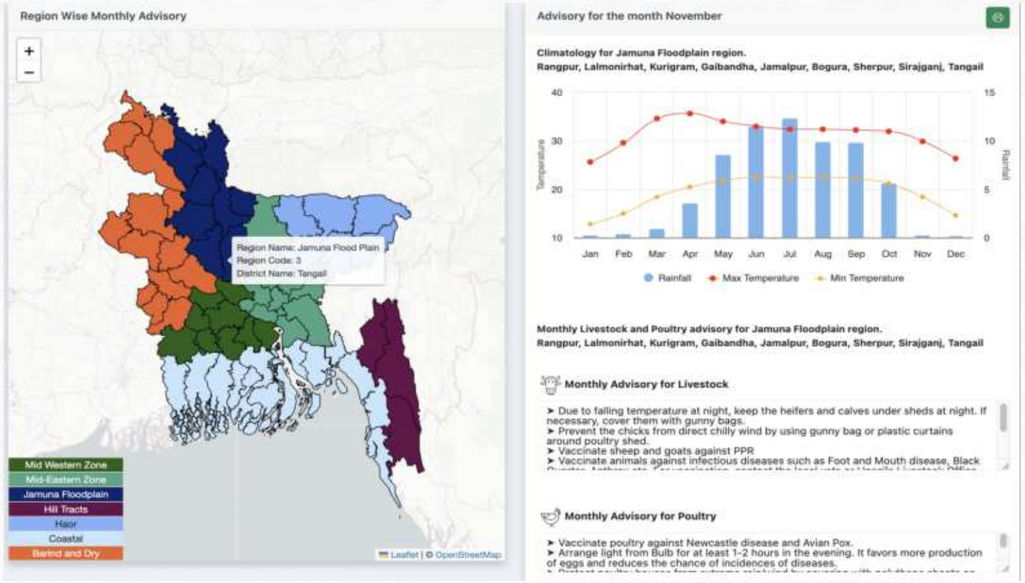
Weather Alert (Rainfall, Heat Wave, Frost and Wind Alert) Generating Dynamically Based on Forecast

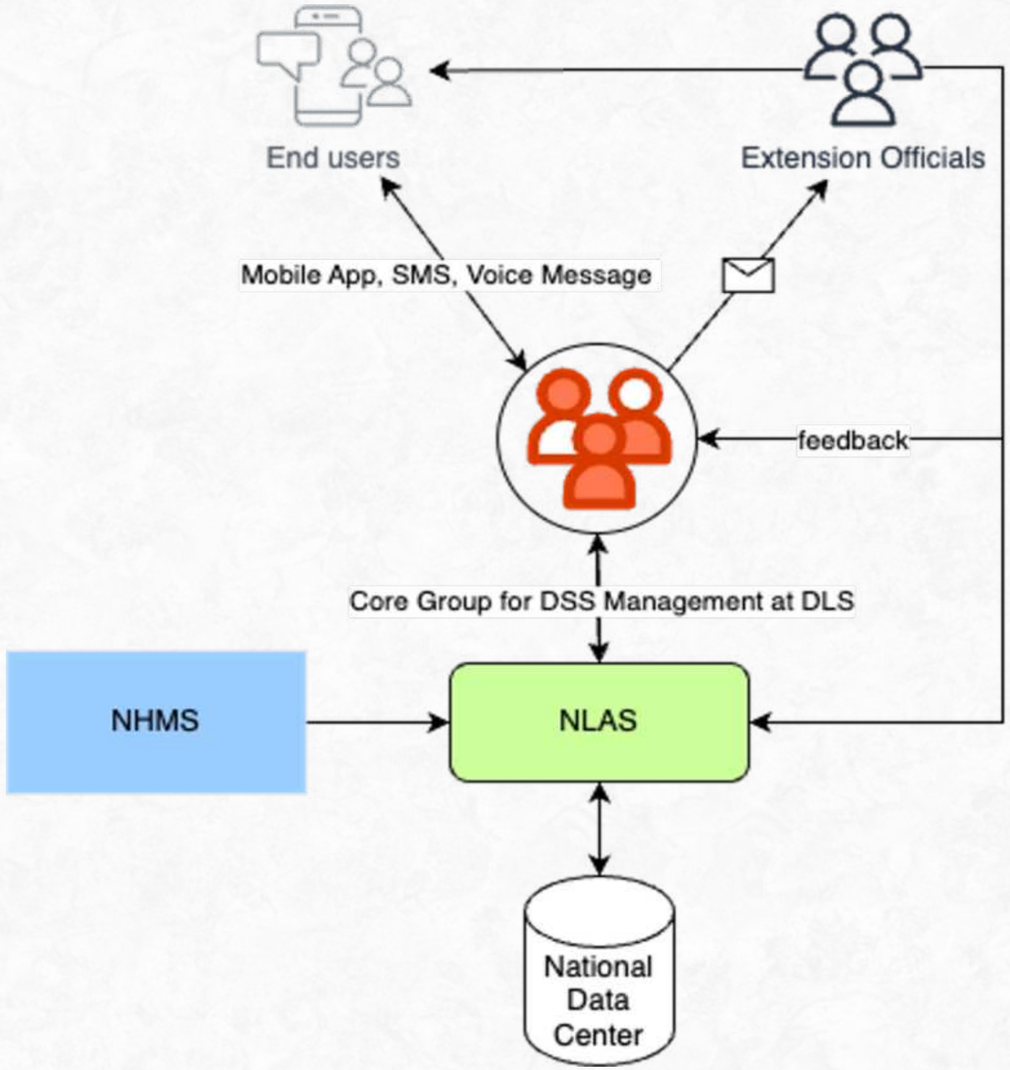


- Generating Crop Calendar and Crop Advisory dynamically based on plantation date for Specific Location

- Generating bulletin dynamically and customizable based on stakeholder choices. These are Disseminated to stakeholders

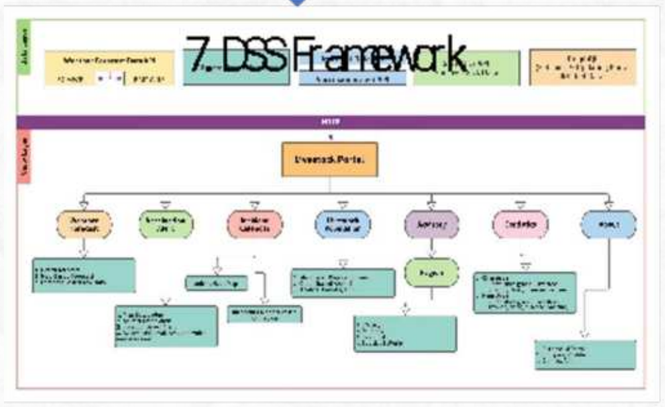
Coproduction of Livestock Advisory DSS - Bangladesh





nlas.dls.gov.bd

Co-production of Livestock Advisory DSS - Bangladesh



Challenges and Lessons Learned

- These are decision support system not decision making ones. The human capacity required to operationalize the DSSs are often very limited.

- IbF and CIS are data intensive and as a result most of the DSS generate products that are focused on National level rather than local level where decisions are implemented

- While some of the DSS are rich in data, sometimes these data are not processed to produce value added Information, composite impact, sectoral impact are most cases missing

- Although multi-hazard multi-timescale information including projections are required for strategic decision-making, some of the DSSs to align with project deliverables does not contain full scale information. In absence of modular flexible design those cannot also be scaled up in future.

- DSSs are more scalable and replicable if designed considering regional relevance and sectoral practices which are often common across countries in SAR

- Impact of the DSS in the ground are often not measured.

Credit: AI

Credit: AI

Thank you!