CARE | SOUTH ASIA

RIMES

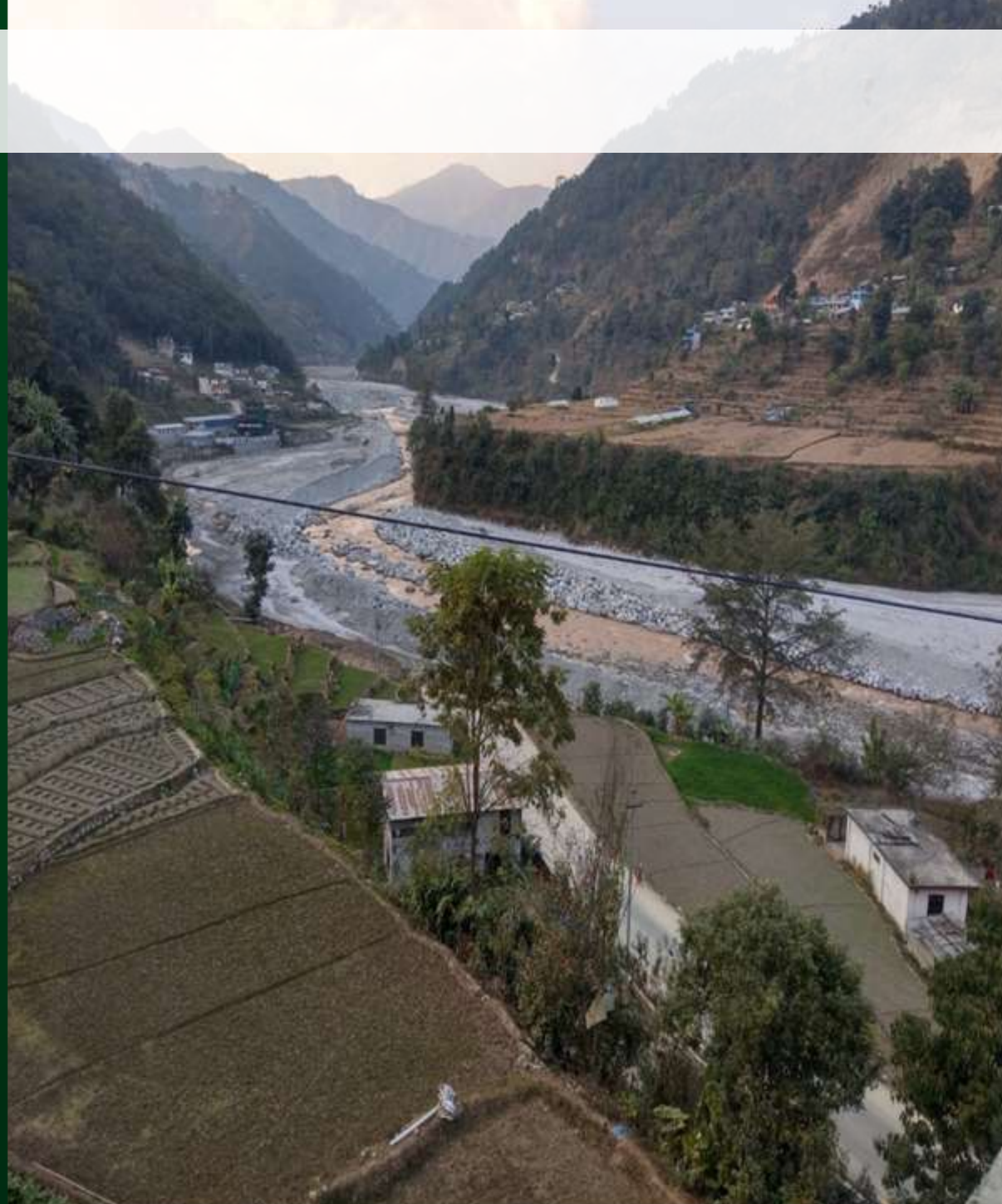
THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

3rd Regional Workshop of CARE Component 1:
Regional Sectoral Focal Points Meeting

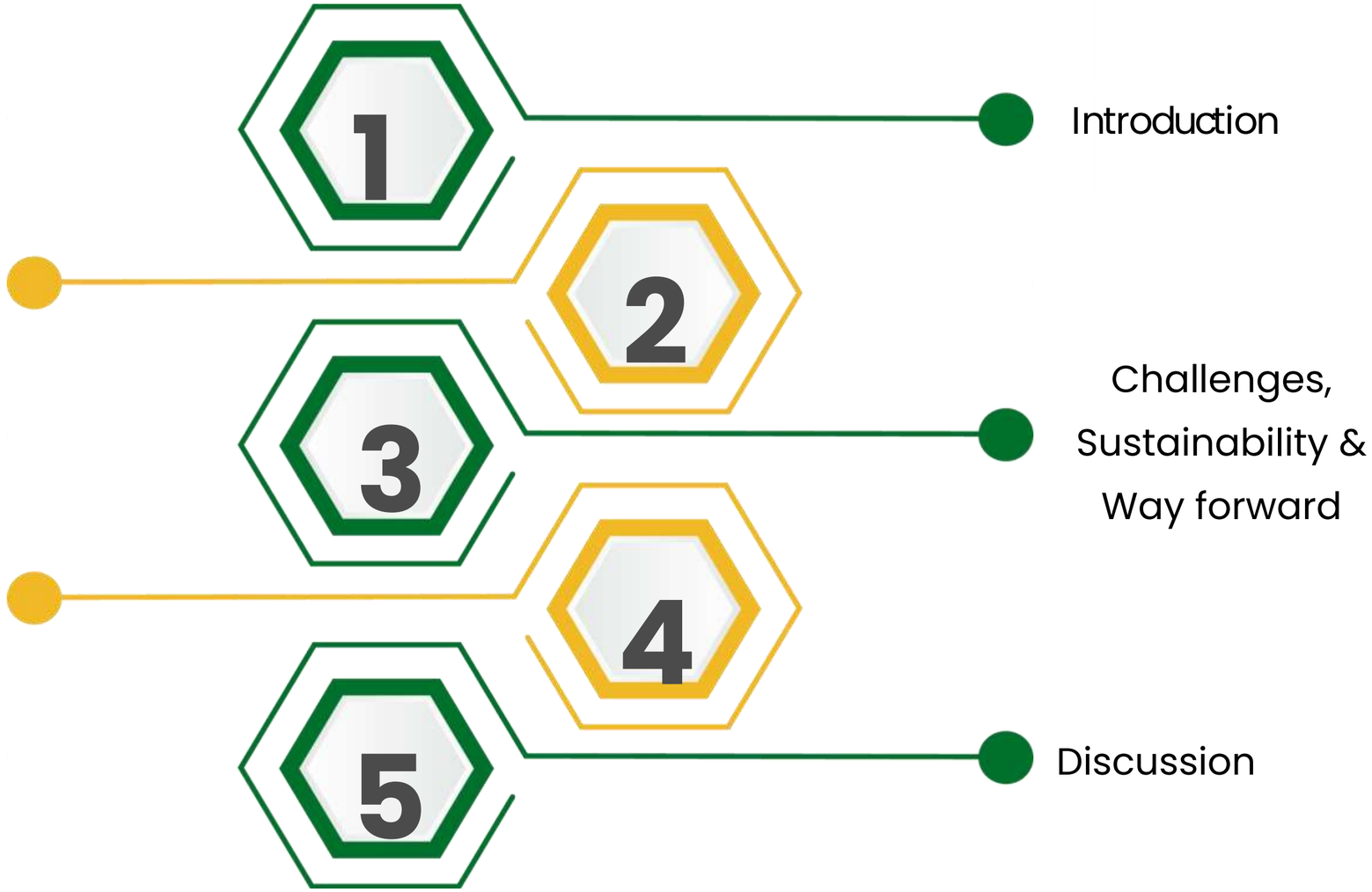
24 February 2025

IMPLEMENTATION PROGRESS:

Nepal

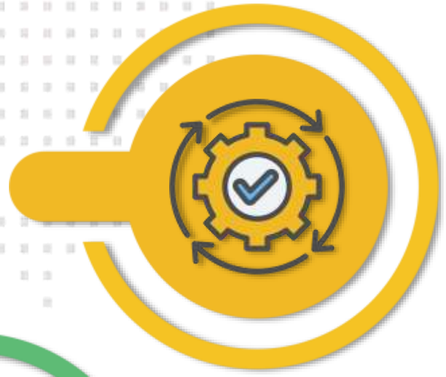


AGENDA


1
Introduction
2
Progress & Achievement
3
Challenges, Sustainability & Way forward
4
Demonstration of the Tools/DSSs
5
Discussion

PROGRESS & ACHIEVEMENTS

Operationalization of the DSSs



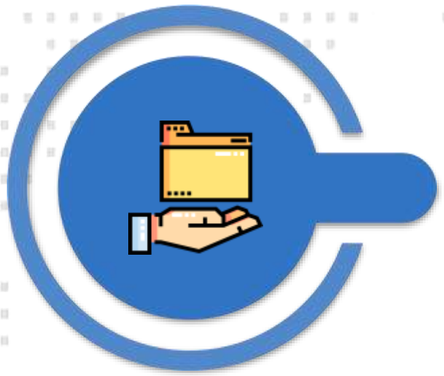
User-Centered Improvements Based on Feedback

Enhanced Early Warnings

Mobile Apps

Digital & Technical System Enhancements

Capacity Building



Handover of system and hardware

Satark DSS (National Disaster Risk Reduction & Management Authority)

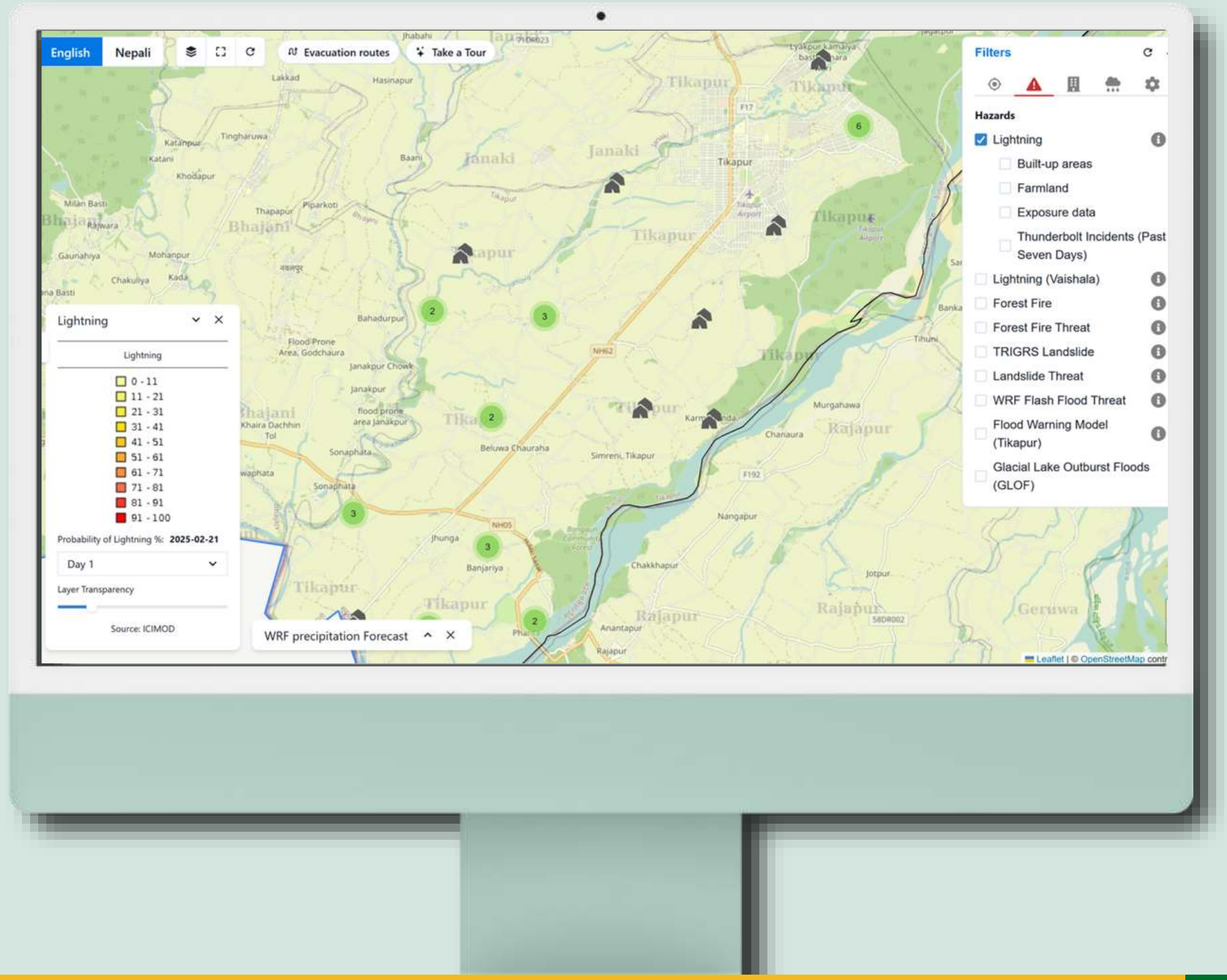
https://satark.bipadportal.gov.np

Progress

Integrated HIWAT & VAISHALA for tracking lightning events

Developed TRIGRS & Weighted Overlay Model that provide landslide threat outlook up to 2 days in advance (with provision of extending to 10 days)

Integrated SAFFGS that provides 3-hours & 6-hours flash flood alerts



GLOF included in the system as per feedback

Incorporated evacuation route mapping to support emergency response and planning

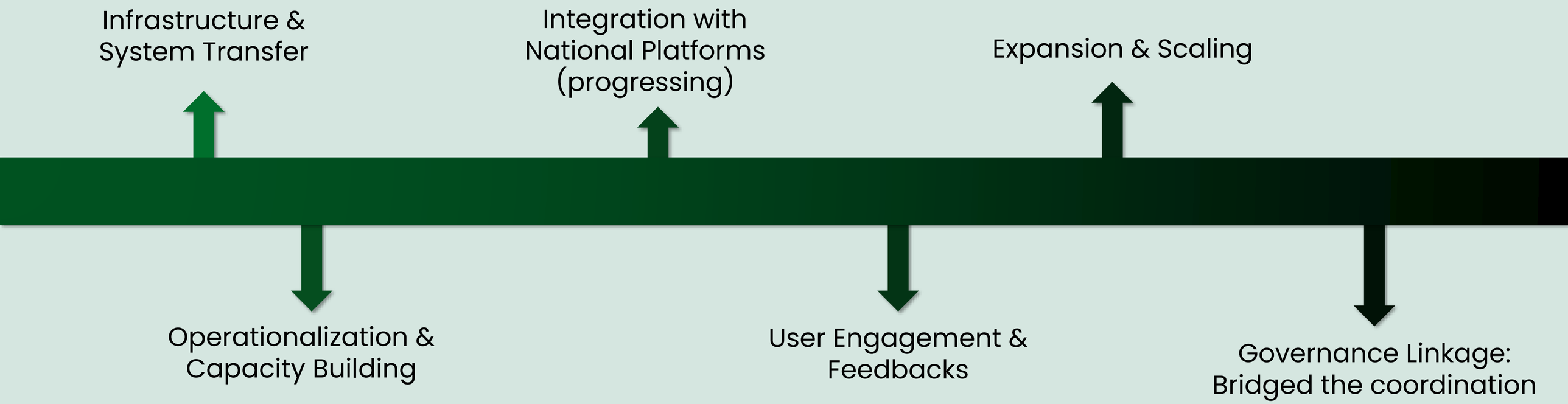
Integrated HIWAT-based forest fire model & developed Weighted Overlay Model that provide forest fire outlook up to 2 days in advance (with provision of extending to 10 days)

SYSTEM DEVELOPMENT PROGRESS

Satark DSS (National Disaster Risk Reduction & Management Authority)

https://satark.bipadportal.gov.np

Achievements



NAVIGATE DSS (Department of Roads)

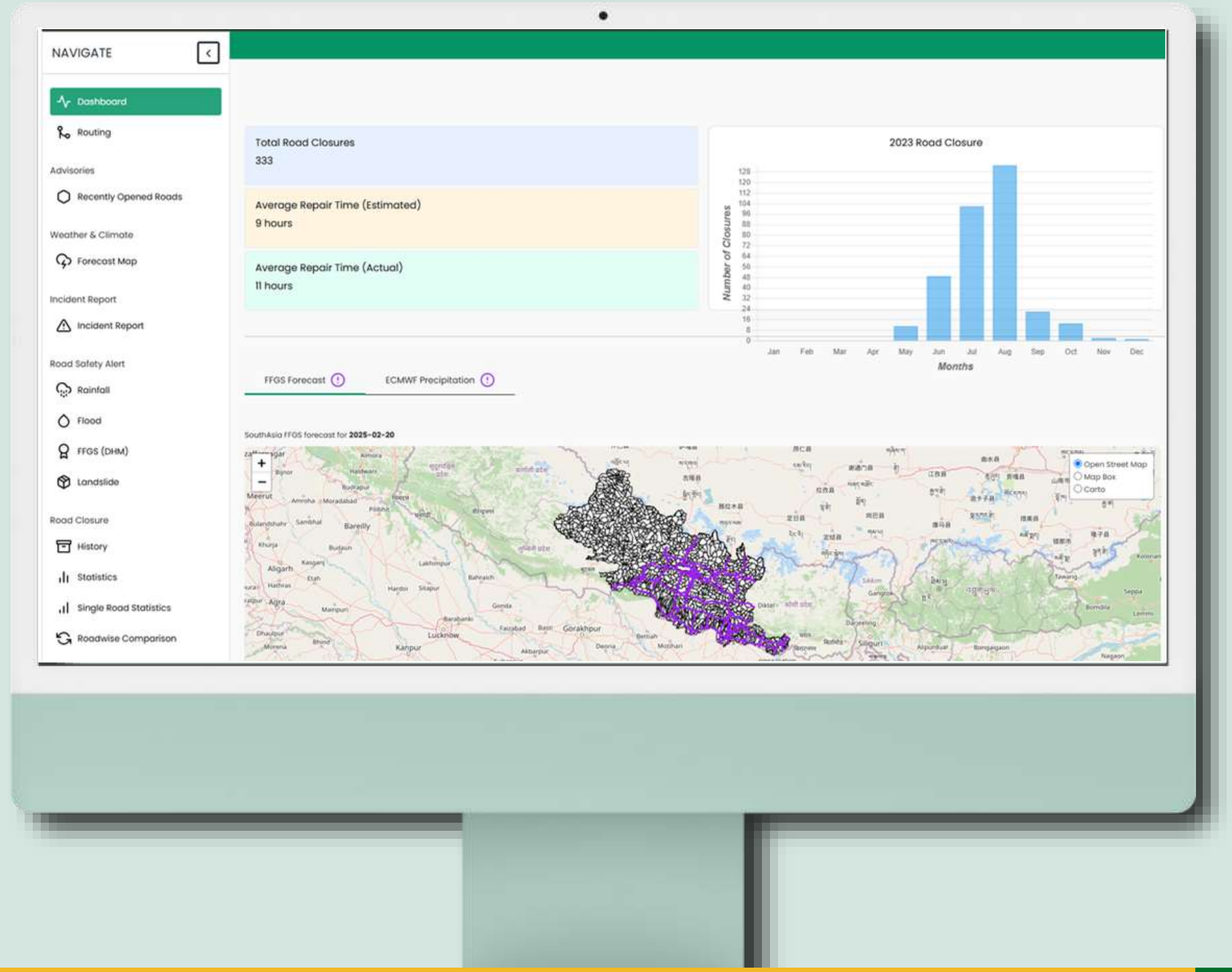
http://navigate.dor.gov.np

Progress

Weather & Climate Visualization – Uses ECMWF forecast data (10-day outlook, 6-hour timestep)

Computation integrated with road closures

Road Closure, bridge closure with statistics



Flash Flood Early Warning – Based on the HEC-HMS model (Madhesh province, Bagmati & Koshi basins).

Advisories; Road Safety Alerts (Flood, Landslide)

Incident Report; Alternative Route; Equipment History

NAVIGATE DSS (Department of Roads)

http://navigate.dor.gov.np

Achievements

Infrastructure & Security Enhancements

Digitization of manually and error prone road closure data entry system

Digitization of mobilizable equipment for use during road closures or disasters like landslide

Analysis tools built from the digitized data via the process of ETL

System operation & capacity building

User engagement & weekly based feedbacks mechanism

SYSTEM DEVELOPMENT PROGRESS

Krishi Mausam Sallah Pranali (ADVISE) DSS

http://advise.moald.gov.np/

Progress

Crop Information management module

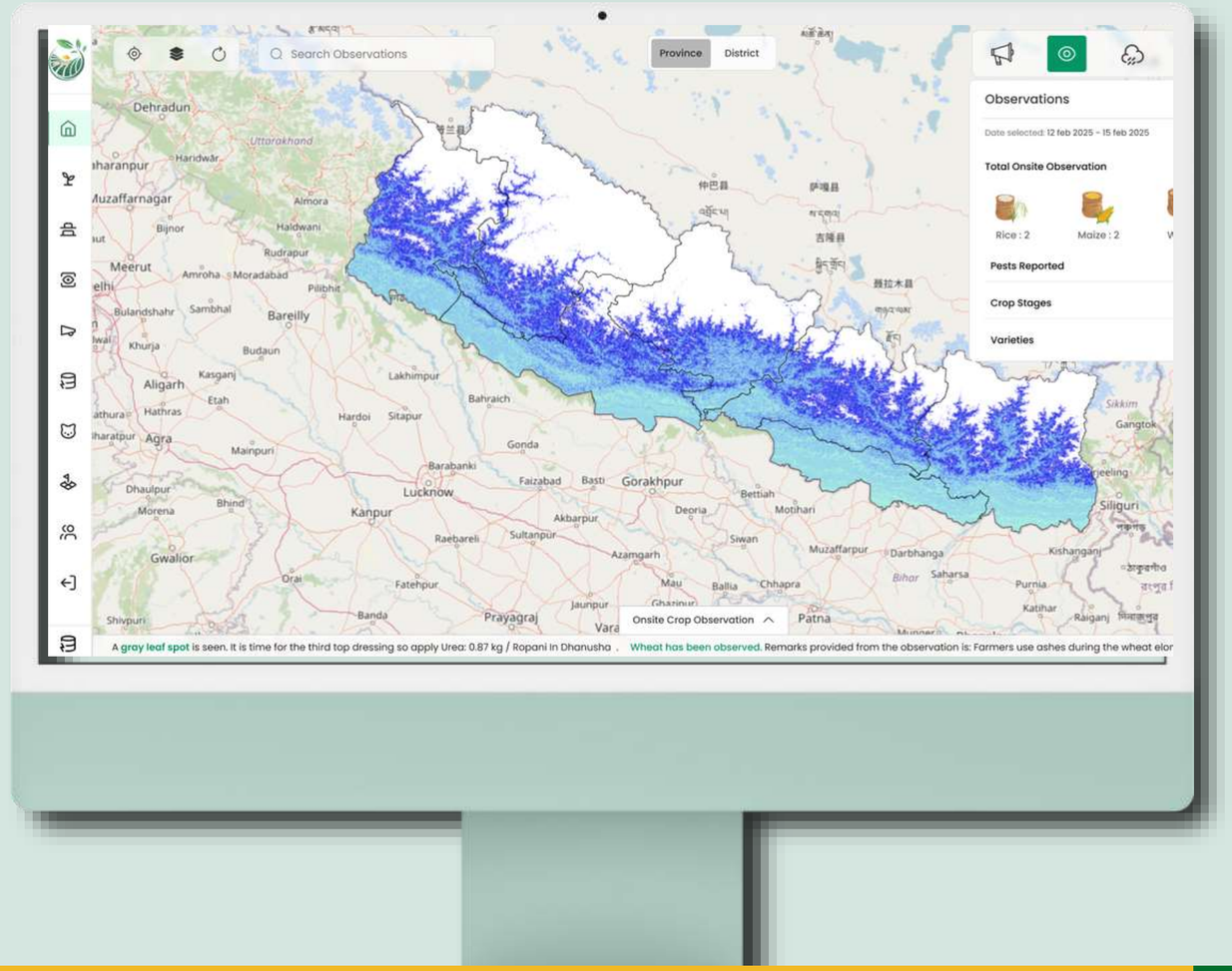
Crop Data repository

3 days Climate informed Crop Advisories

Dynamic cropping calendar

Onsite observations module

Land Cover Change



Weather-pest and Weather-crop impact analysis tools

Livestock information management module

Livestock Vaccination Advisories

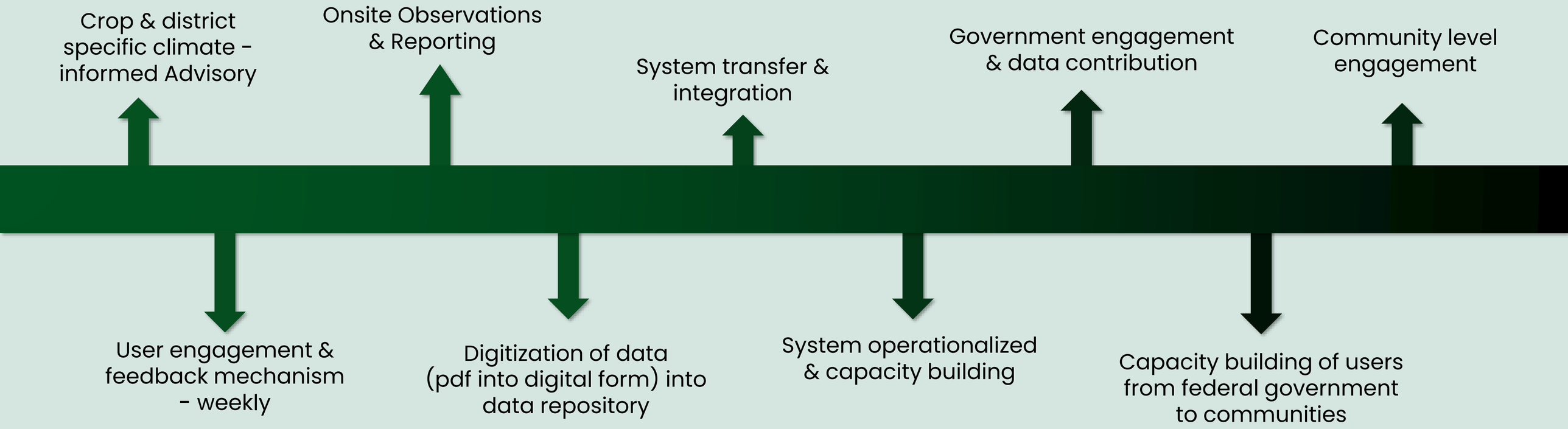
Livestock Data repository

TEMPERATURE SENSITIVITY ALERT SYSTEM (TEMPS)

Krishi Mausam Sallah Pranali (ADVISE) DSS

http://advise.moald.gov.np/

Achievements



Mobile Applications

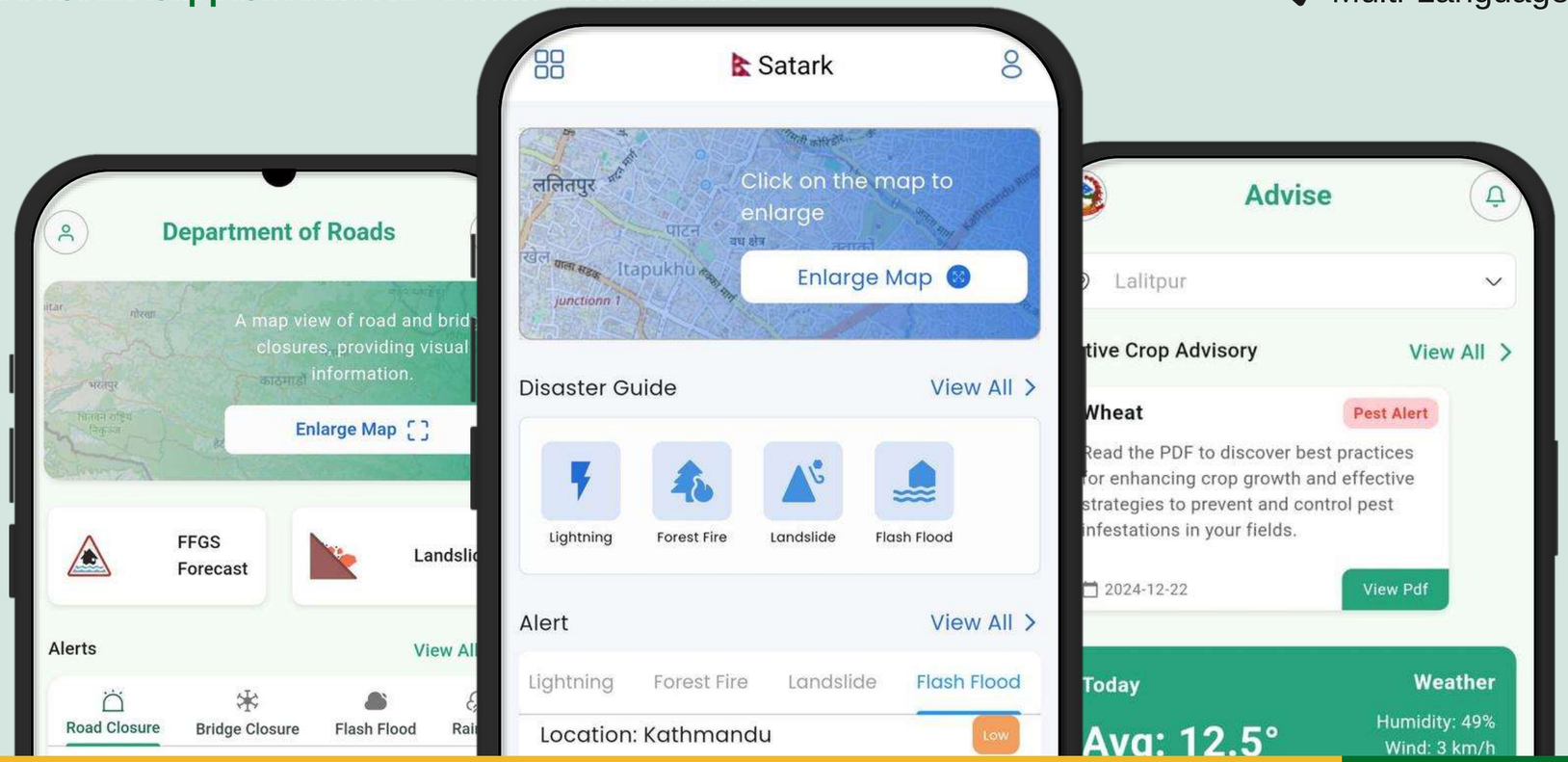
Krishi Mousam Sallah Pranali (ADVISE)
https://play.google.com/store/apps/details?id=np.gov.doanepal.advice

NAVIGATE
https://play.google.com/store/apps/details?id=np.gov.dor.dor&pli=1

Satark
https://play.google.com/store/apps/details?id=com.nddrma.satark

Features

- ✔ Interactive map
- ✔ User authentication
- ✔ Real time alerts and notifications
- ✔ Crop advisory based on location
- ✔ Field data collection Form
- ✔ Multi-Language Support



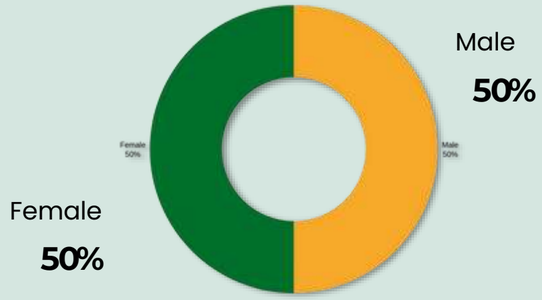
Capacity Building Activities

Experience Sharing :

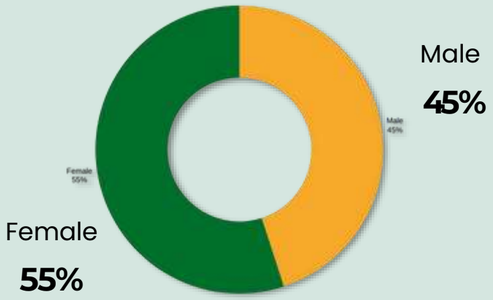
Farming Community

Demonstration of climate information application in communities

21 & 22 Nov 2024



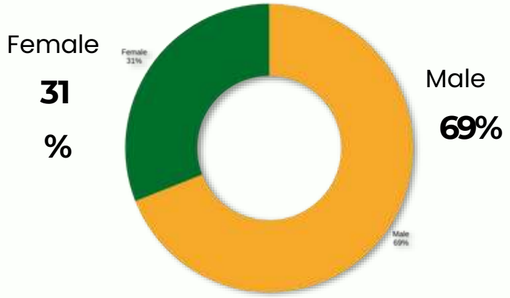
19 & 20 Jan 2025



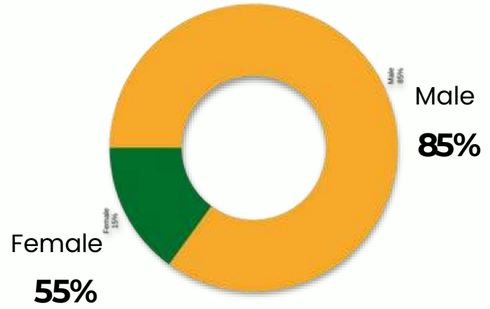
TOT

Climate Information Application in Agriculture and DRM Sector

05 & 07 Aug 2024



12 & 15 Feb 2025



Capacity Building Activities

CAF Events 2024

13 May 2024

National Level Monsoon CAF

8 Dec 2024

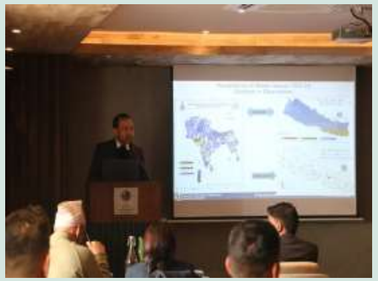
National Level Winter CAF

19 Dec 2024

Province Level Winter CAF (Bagmati)

12 Jun 2024

Province Level Monsoon CAF (Bagmati)



10 Dec 2024

Province Level Monsoon CAF (Madesh)

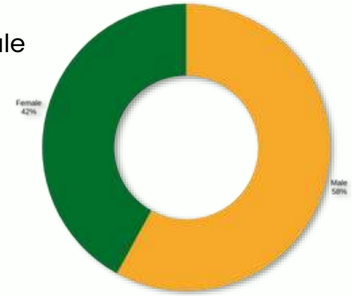
Agriculture Sector

Community Based Training: Madhesh Province

26 & 27 Oct 2024

Female
42%

Male
58%



Impacts of Capacity Building

- CAF: Platform for knowledge-sharing & collaborative seasonal preparedness
- Trained personnel delivering knowledge & capacity building locally (DRM & Agriculture)
- Climate Information Application trainings: Trained officers and engaged 165 farmers on climate applications
- Trained officials for pest & disease data integration into ADVISE DSS
- Structured feedback improved ADVISE system & implementation strategy
- Enhanced capacities on advisories generation
- Improved officials' (DOR, MOALD, NDRRMA)operational competency in system functionalities

Sustainability

Co-development

Institutionalization – System Ownership

Handholding Support

Post Project Technical Support for Scaling up

Hand Holding Support

O & M Training

Troubleshooting Support

Station of IT Team

SFP's Meeting

Regular Technical Working Group Meetings

Challenges

Changes in SFPs & government leadership

Availability of forecasts & data

Validation/verification of the models & features of the system

Trust & confidence building in communities

Way Forward

System Operation & Expansion: system operation by users from federal to local levels & communities
June 2025

Model Validation & Improvements
May - June 2025

System enhancements: Incorporating user feedback
June 2025

Mobile app testing & enhancements
March - July 2025

Planned Capacity Building Activities For Nepal

Training of Recipient Institute on Operation & Maintenance

- ADVISE (MOALD) - 2nd Week Of March
- NAVIGATE (DoR)- 1st week of March
- Satark (NDRRMA)- 1st week of April
- Need-based handholding support

Experience Sharing & community Level Training Events

- DRM community-level training and experience sharing - Tikapur- 3rd week of March
- DRM training and experience sharing - Okhaldhunga- 4th week of March
- DRM training and experience sharing - Sindhupalchok- 1st week of April
- Farming Community experience sharing- Madhesh & Bagmati Province- May to June

Training of Recipient Institute on Product Application

- ADVISE (MoALD) - 2nd week of April
- Satark (NDRRMA)- 3rd week of April
- NAVIGATE (DoR)- 4th week of April

Demonstration: Satark

NDRRMA

DSS

https://satark.bipadportal.gov.np

Loss & Damage due to Fire, Flood, Landslide & Thunderbolt in last 10 years (from 2015 to 2024) reported in Bipad Portal system

People death
3752

Estimated Loss
27 Billion(NPR)

Infrastructure Destroyed
20968

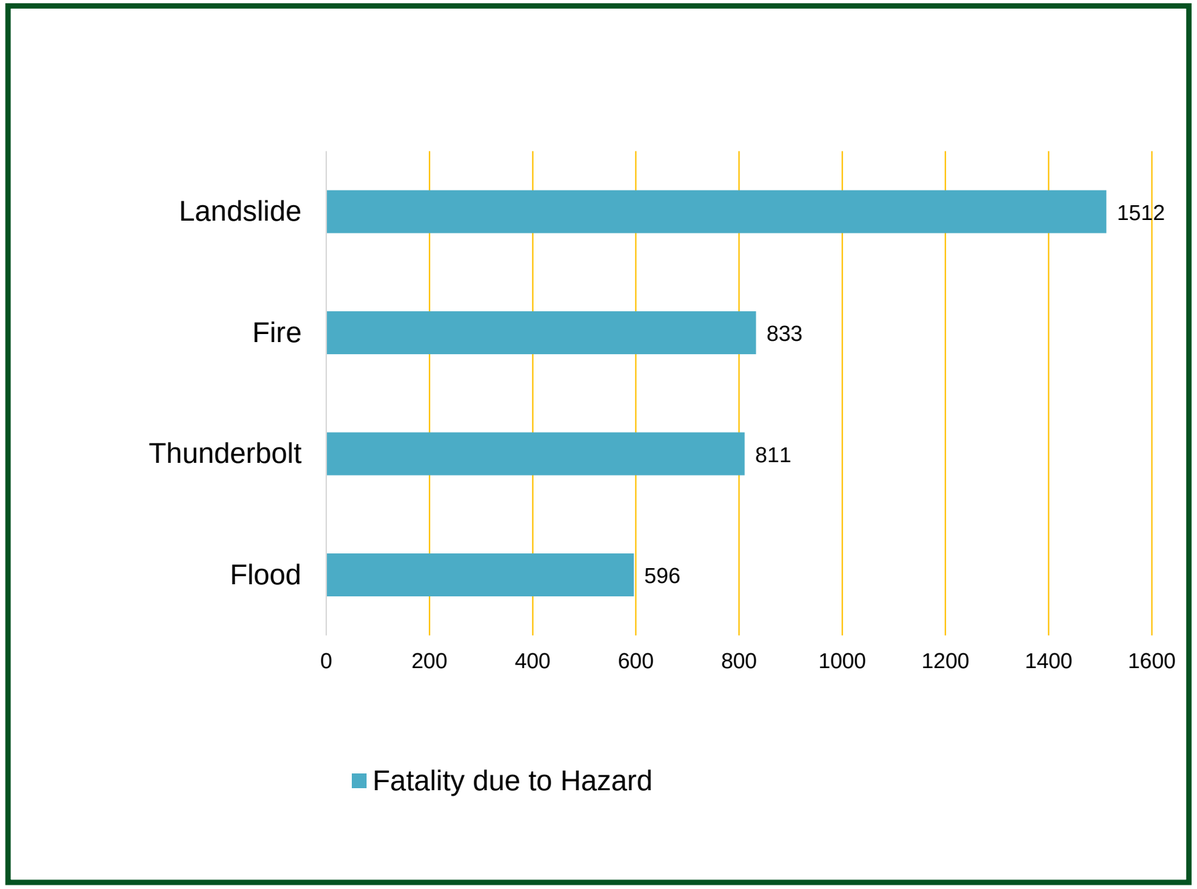
Livestock destroyed
21077

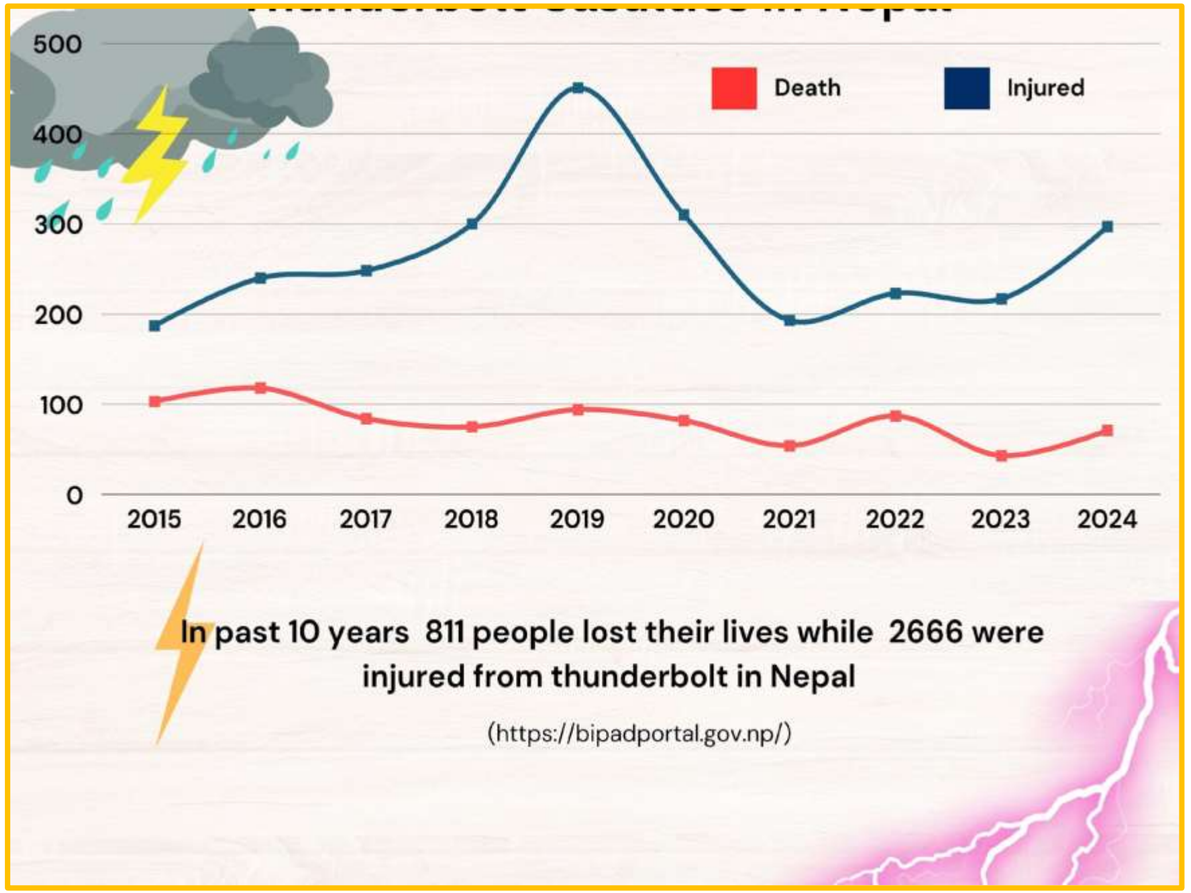
Injured people
7397

Missing people
457

Incident
32581

Hazard Severity reported last 10 years(2015 to 2024) in Bipad Portal





Decision Support System Importance(DSS)

Real time information access

Risk assessment and Prediction:

Identify high risk areas and predict potential disaster impacts

Resource allocation optimization:

Helps to decision makers to allocate emergency response resources efficiently, including personnel, equipment and supplied based on severity and location

Scenario planning & Simulation

Improved communication and coordination

Post disaster analysis and recovery planning and building of resilient society

Challenges to Decision Support System(DSS)

Data Availability and Quality:

Accessing reliable and comprehensive data across diverse regions of Nepal

Connectivity Issues:

Ensuring reliable internet access in remote areas for real-time data transmission

Coordination and Collaboration:

Effective communication and collaboration between different government agencies and community organizations.

Way forward

1. Data Infrastructure Development:

- Establish robust data collection networks including weather stations, sensor arrays, and community-based reporting mechanisms
- Standardize data formats and ensure data quality control
- Utilize open-source data platforms for accessibility and collaboration

2. Capacity Building:

- Train government officials, emergency responders, and community leaders on DSS usage and interpretation
- Develop awareness campaigns to educate communities about disaster risks and the DSS functionalities

3. Integration with Existing Systems:

- Link the DSS with existing disaster management platforms and communication networks

4. Technology Adoption:

- Develop user-friendly interfaces accessible through mobile devices and web platforms

5. Research and Development:

- Continuously refine the DSS by incorporating new technologies, hazard modeling advancements, and local community feedback

6. Integration with Existing Systems:

- Link the DSS with existing disaster management platforms and communication networks

Demonstration: NAVIGATE DSS

http://navigate.dor.gov.np

NAVIGATE DSS

Implementation & Future Outlook

- Technical officials from the Department of Roads (DoR) have received comprehensive training on NAVIGATE DSS, enabling them to manage alerts and advisory systems effectively
- successful migration of NAVIGATE DSS to the government domain, with a focal person capable of operating and orienting the system efficiently

Current Achievements

- Built with a user-friendly interface and flexible architecture
- Supports integration of future modelling requirements
- Enables efficient dissemination of alerts through reliable channels

Application of the system

- Establishing Standard Operating Procedures (SOPs) to formalise stakeholder access and system ownership
- Implementing robust verification methods to assess model forecast accuracy and alert reliability
- Expanding public outreach through strategic alert dissemination channels

Strategic Priorities

Demonstration: Krishi Mausam Sallah Pranali

MOALD

http://advise.moald.gov.np/

Krishi Mausam Sallah Pranali

DSS Way Forward

Capacity Development Achievements

- Government officials at national and sub-national levels trained in system operations and handling
- Training-of-Trainers trained extension officers in climate information application in the agriculture sector are engaged to orient and train sub-national stakeholders and farming community

System Application

- Built with a user-friendly interface and flexible architecture
- Supports integration of future modelling requirements
- Enables efficient dissemination of alerts through reliable channels

Strategic Roadmap

- Developing Standard Operating Procedures (SOPs) to strengthen multi-level government engagement and access to the system for decision making
- Integrating regular field observations to enhance system reliability
- Evaluate the effectiveness and benefits of district-specific agricultural advisories, focusing on their practical value to farmers in crop and livestock management

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