CARE | South Asia

9TH BI-ANNUAL PROGRESS REPORT

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Climate Adaptation and Resilience for South Asia

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RIMES

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Contents

List of Figures

List of Figures

ACRONYMS

ACCESS-CM	Australian Earth-System Simulator-Coupled Model
ADPC	Asian Disaster Preparedness Center
ADVISE	Agro-Advisory System
AEZ	Agro-ecological Zone
AI	Artificial Intelligence
ALOS	Advanced Land Observing Satellite
APHRODITE	Asian Precipitation Highly Resolved Observational Data Integration Towards Evaluation of Water Resources
BACD	Balochistan Agriculture and Cooperatives Department
BAF	Bangladesh Air Force
BAMIS	Bangladesh Agro-Meteorological Information Service
BIPAD	Building Information Platform Against Disaster
BMD	Bangladesh Meteorological Department
BRRI	Bangladesh Rice Research Institute
BWDB	Bangladesh Water Development Board
CAF	Climate Application Forum
CARE	Climate Adaptation and Resilience
CHIRPS	Climate Hazards Group Infrared Precipitation with Station Data
CLIM-PLANNeD	Climate Informed Planning and Development DSS
CMIP	Coupled Model Intercomparison Project
CRU	Climate Research Unit
CWG	Coordination Working Group
DAE	Department of Agricultural Extension
DataEx	Data Exchange
DEOC	District Emergency Operation Centre
DHM	Department of Hydrology and Meteorology
DLS	Department of Livestock Services
DMC	Disaster Management Committee
DoR	Department of Roads
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DSS	Decision Support System
DSSAT	Decision Support System for Agrotechnology Transfer
E&S	Environment and Social
EC	Executive Council
ECMWF	European Centre for Medium-Range Weather Forecasts
EM-DAT	Emergency Database
ENSO	El Nino Southern Oscillation
ERA5	ECMWF Reanalysis v5
ESA	European Space Agency
ESD	Environment and Social Development
FAO	Food and Agriculture Organization
FFFT	Forecast Flash Flood Threat
FForum	Forecasters' Forum
FFWC	Flood Forecasting and Warning Center

FMD	Foot and Mouth Disease
FMS	Financial Management Specialist
FSCC	Food Security and Climate Change
GCISC	Global Climate Change Impact Studies Centre
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIDC	Government Integrated Data Center
GIS	Geographic Information System
GLOF	Glacial Lake Outburst Flood
GloFAS	Global Flood Awareness System
GPCC	Global Precipitation Climatology Centre
HEC-HMS	Hydrologic Engineering Center's Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center's River Analysis System
ICIMOD	International Centre for Integrated Mountain Development
ICKM	Information, Communication, and Knowledge Management
IDA	International Development Association
IMD	India Meteorological Department
IRI	Intermediate Results Indicator
ISMR	Indian Summer Monsoon Rainfall
ISR	Implementation Status Reporting
IT	Information Technology
IUFR	Interim Unaudited Financial Report
KMS	Kiosk Monitoring System
LDDP	Livestock and Dairy Development Project
MIS	Management Information System
ML	Machine Learning
MODIS	Moderate Resolution Imaging Spectroradiometer
MoPDSI	Ministry of Planning, Development and Special Initiatives
MSWEP	Multi-Source Weighted-Ensemble Precipitation
MoU	Memorandum of Understanding
NAVIGATE	National Vehicular and Transport Resilience Gateway
NDRRMA	National Disaster Risk Reduction and Management Authority
NLAS	National Livestock Advisory System
NMHS	National Meteorological and Hydrological Services
NWP	Numerical Weather Prediction
NWS	National Weather Service
O&M	Operations and Maintenance
ONI	Oceanic Nino Index
PAD	Punjab Agriculture Department
PDO	Project Development Objective
PEOC	Provincial Emergency Operation Center
PIU	Project Implementation Unit
PMD	Pakistan Meteorology Department
RDAS	Regional Resilience Data and Analytics Services
RIMES	Regional Integrated Early Warning System
RTI	RIMES Technical Inputs
SAAO	Sub-Assistant Agricultural Office

SAFFGS	South Asia Flood Forecasting System
SAHF	South Asia Hydromet Forum
SAR	South Asian Region
SoE	Statement of Expenditure
SSP	Shared Socioeconomic Pathways
THI	Temperature Humidity Index
ToT	Training of Trainers
TRIGRS	Transient Rainfall Infiltration and Grid-Based Regional Slope-Stability Analysis
TWG	Technical Working Group
UI/UX	User Interface/User Experience
USD	US Dollar
WB	World Bank
WRF	Weather Research and Forecasting

CARE SOUTH ASIA

INTRODUCTION AND BASIC DATA		
Project Title	Climate Adaptation and Resilience for South Asia	
Project Development Objective (PDO)	To contribute to an enabling environment for climate-resilient policies and investments in select sectors and countries in South Asia	
Reporting Year	☐ 2020 ☐ 2021 ☐ 2022 ☐ 2023 ☒ 2024 ☐ 2025	
Reporting Semester	☐ 1st Semester ☒ 2nd Semester	
Country or Region	South Asia Region (Bangladesh, Nepal, Pakistan)	
Total estimate project cost for Component 1 (In Million US$)	12.00 M	
Revised project cost for Component 1 (In Million US$)	-	
Project Components	Promoting Evidence-based Climate Smart Decision Making	**Cost US$ 10.00 M**
	Project Management and Specialized Support	**Cost US$ 2.00 M**

PROGRESS REPORT

SYSTEMS DEVELOPMENT

1.1 RDAS

RDAS (https://rdas.rimes.int/) is a public-domain platform for consolidating open data and analytics relevant for climate-informing key sectoral policies, decisions, and investments in SAR countries (i.e., Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka). RDAS optimizes the use of and contributes to open-source data and models and maximizes impacts of these data through meaningful integration with other datasets, for application in climate risk/resource management.

Summary of progress towards achievement of Project Development Objective (PDO) and Intermediate Results (IR) indicators relevant to RDAS is provided in Appendix 1.

Progress on PDO Indicator: *Users in select sectors satisfied with access to data, information, and/or analytics in Regional Resilience Data and Analytics Services (RDAS) platform (Percentage)*

The target users' satisfaction rating for RDAS/RDAS products is at least 70%. The average satisfaction rating is 79.06%, based on survey forms collected from 2 assessments[1] conducted from July to December 2024. A total of 110 government officials participated in the surveys, of which, 33 are NMHSs officials in SAR and 77 are from various sectoral agencies in the countries.

Progress on IRI: *A regional-level resilience data and analytics services platform (RDAS) developed and accessible (Number)*

[5 out of 5 target development milestones completed]

- ✓ **Completed Milestone 1:** RDAS prototype system completed in December 2021
- ✓ **Completed Milestone 2:** RDAS user interface created and available since October 2022
- ✓ **Completed Milestone 3:** RDAS experimentally operational since October 2022
- ✓ **Completed Milestone 4:** RDAS connected to SAHF Knowledge Hub and DSSs supported by the project, i.e., i) linked to SAHF Knowledge Hub through DataEx, which facilitates connectivity to ECMWF forecast; ii) provides observation/historical/ forecast hydrometeorological datasets to various DSSs in June 2024
- ✓ **Completed Milestone 5:** RDAS fully operational in December 2024; including 3 analytical tools (i.e., "El Nino and Local Climate", Land Use & Land Cover Change", and "Crop Calendar Suitability to Observed Climate") and 2 predictive tools (i.e., "El Nino impacts on climate variability" and "Temperature Sensitivity Alerting System

[1] *Assessments are carried out in 3 phases to evaluate users' satisfaction in RDAS/RDAS products based on their relevance, coherence, effectiveness, impact, and sustainability: (i) co-development process, completed in September 2024; (ii) system performance/utilization of RDAS/RDAS products, completed in December 2024; and (iii) handholding support/ application of RDAS/RDAS products, by March 2025.*

(TempS)"

Detailed progress on key components/modules/products during this period are:

- **Data,** provides easy access to regional/national sectoral and climate data of various spatial and time scales. The target for this component is access to at least 200 regional/national sectoral and climate datasets within SAR. The actual achievement is 289 datasets incorporated into RDAS, visualized in charts and maps, and/or linked to other systems/tools developed under the project. Historical/observed climate datasets of the remaining 5 SAR countries (i.e., Afghanistan, Bhutan, India, Maldives, and Sri Lanka) have been disaggregated month-wise, district-wise, and integrated into RDAS during this reporting period. Moreover, updating of climate datasets from at least 3 sources (i.e., ERA5, ERA5 Land, MSWEP) have been automated to ensure sustainability of the tools within RDAS, and the DSSs connected to such datasets. Appendix 2 provides a list of datasets within RDAS.
  - ✓**Completed:** Collection, processing, disaggregation, analysis and visualization of regional/national sectoral and climate datasets. A total of 289 datasets have been incorporated into RDAS and classified according to sector:
    - Administrative (10)
    - Agriculture (39)
    - Climate (164)
    - Disaster Management (32)
    - Environment (12)
    - Social & Economic (10)
    - Transport (8)
    - Water Resources (14)

- **Analytics,** provides easy-to-understand analyses of time-series climate and sectoral datasets to identify behavior patterns, and relationships between climate and sectoral parameters. This component targets integration of at least 3 analytics. Achievements under this component include:
  - ✓**Completed:** **El Nino and Local Climate,** provides a correlation analysis, for a minimum of 30 years, of El Nino intensities (weak, moderate, strong, very strong) based on the Oceanic Nino Index (ONI) and climate parameters such as long-term time-series rainfall/temperature data, disaggregated month-wise/district-wise; including side-by-side comparison of rainfall/ temperature deviation maps. Module refinements completed in October 2024 focused on streamlining information, enhancing data visualization, and integrating additional historical/observed climate datasets (e.g., ERA5, ERA5 Land, GPCC, APHRODITE, CRU, MSWEP, CHIRPS, and IMD for India only) of remaining SAR countries. The tool is capable of utilizing custom datasets uploaded by users. Detailed description of datasets used in the module is available at this link.
    The tool can be accessed through https://analytics.rdas.live/elnino-analytics.
  - ✓**Completed:** **Land Use & Land Cover,** analyzes increasing/decreasing trends of different land cover types (e.g., water, trees, rangeland, crops, built-up areas, bare ground, snow/ice) over a specified period, presented in charts and maps. This module, initially developed for Nepal and Pakistan DSSs in November 2024, was upscaled to cover all SAR countries and deployed to RDAS in

December 2024. Land cover data used by the tool is derived from ESA Sentinel-2 imagery (10m resolution), which is a composite of land use/land cover predictions for 7 classes for each year from 2017-2023. Description of the dataset used in the module is available at this link.

The tool can be accessed through https://analytics.rdas.live/analytics-land.

✓**Completed:** **Crop Calendar Suitability to Observed Climate**, analysis of inter-annual variability of a cropping calendar through identification of matches/mismatches of behaviors of cropping calendar vs. observed monthly rainfall/temperature over a period of 30 years, 20 years, 10 years, and 5 years, and potential seasonal adjustments to the cropping calendar per updated seasonal/monthly climate outlooks. To estimate crop water requirements, the tool, deployed in November 2024, uses a comprehensive methodology integrating advance crop modeling tools (e.g., AquaCrop model, to validate and adjust initial crop coefficient values to local conditions; DSSAT model, to estimate duration of crop growth stages and impact of varying climate scenarios on different crops to derive crop-weather thresholds; and CROPWAT model, to calculate crop water requirements and irrigation needs based on climate, crop, and soil data), and satellite-derived datasets (e.g., MODIS MOD16A2, which provides 8-day global terrestrial evapotranspiration estimates; monthly/reference evapotranspiration datasets from NASA's Land Processes Distributed Active Archive Center [LP DAAC]). Detailed description of the datasets and methodologies used in this module is available at this link.

The tool can be accessed through https://analytics.rdas.live/analytics-crop.

- **Predictive Tools,** deploys analytical tools/models to tailor climate information needs of National Meteorological and Hydrological Services (NMHSs) and research institutions, anticipate opportunities and risks associated with the interaction of climate and various sectors, and generate decision guidance for sectoral stakeholders (e.g., policy/decision makers) per potential impacts of relevant weather/climate events. This component targets integration of at least 2 predictive tools. Completed tools under this module are:

  ✓**Completed:** **El Nino Impacts Prediction**, predicts potential impacts of El Nino events (weak, moderate, strong, very strong) to rainfall/temperature, disaggregated month-wise, district-wise, for a specific location/time. Module refinements, completed in December 2024 focused on improving the process of estimating potential impacts of El Nino on climate drivers, e.g., rainfall/temperature, by matching El Nino forecast characteristics with analogue El Nino characteristics. Similar to the El Nino analytics, work also involved enhancement of data visualization to effectively present information, and integration of additional historical/observed climate datasets (e.g., ERA5, ERA5 Land, GPCC, APHRODITE, CRU, MSWEP, CHIRPS, and IMD for India only) of remaining SAR countries. The tool is also capable of utilizing custom datasets uploaded by users. Detailed description of datasets used in the module is available at this link.

  The tool can be accessed through https://analytics.rdas.live/predictive-tools.

  ✓**Completed:** **Temperature Sensitivity Alerting System (TempS)**, provides alerts when anticipated temperature becomes critical for different livestock,

categorized per kind, per productivity stage, and per levels of vulnerability. The module, deployed in December 2024, inputs ECMWF temperature forecast data, utilizes livestock-weather thresholds (e.g., temperature; temperature-humidity index [THI]) to estimate potential impacts of temperature to livestock (e.g., ruminants, poultry), and automates generation of alerts/recommendations, at district-level. Users can configure livestock growth/ productivity stages, livestock-weather thresholds (i.e., conducive/unconducive conditions), and advisories. Moreover, the tool is capable of integrating/utilizing custom THI equations tailored to local conditions. TempS is currently available for the focus countries in Bangladesh, Nepal, and Pakistan and for upscaling to other countries in the region.

The tool can be accessed through https://analytics.rdas.live/predictive-temps.

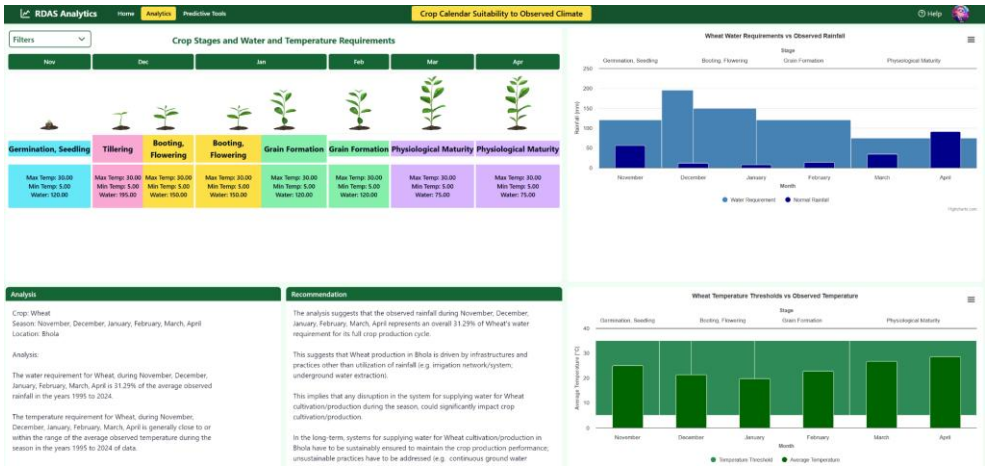

Figure 1. Cropping Calendar Suitability to Observed Climate Analytics

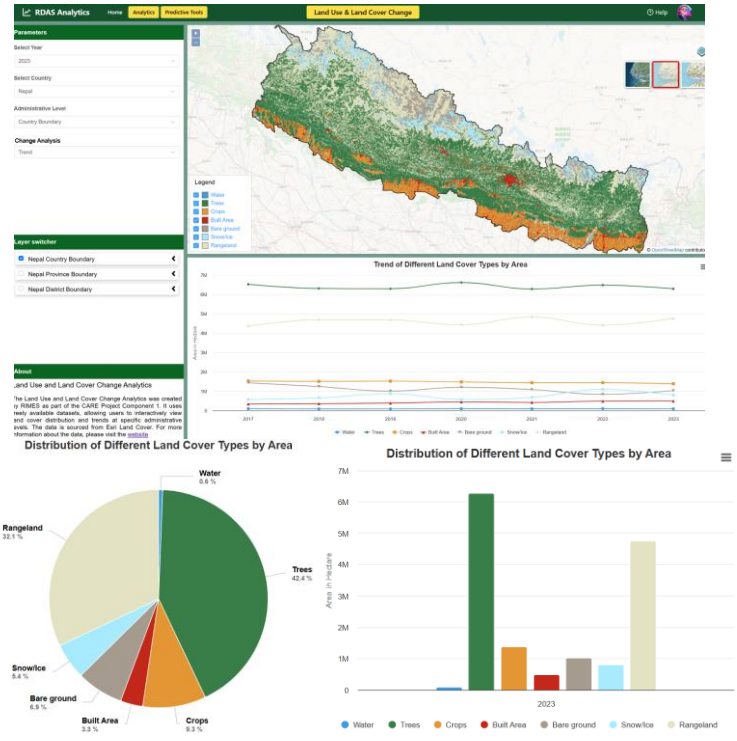

Figure 2. Land Use and Land Cover Analytics

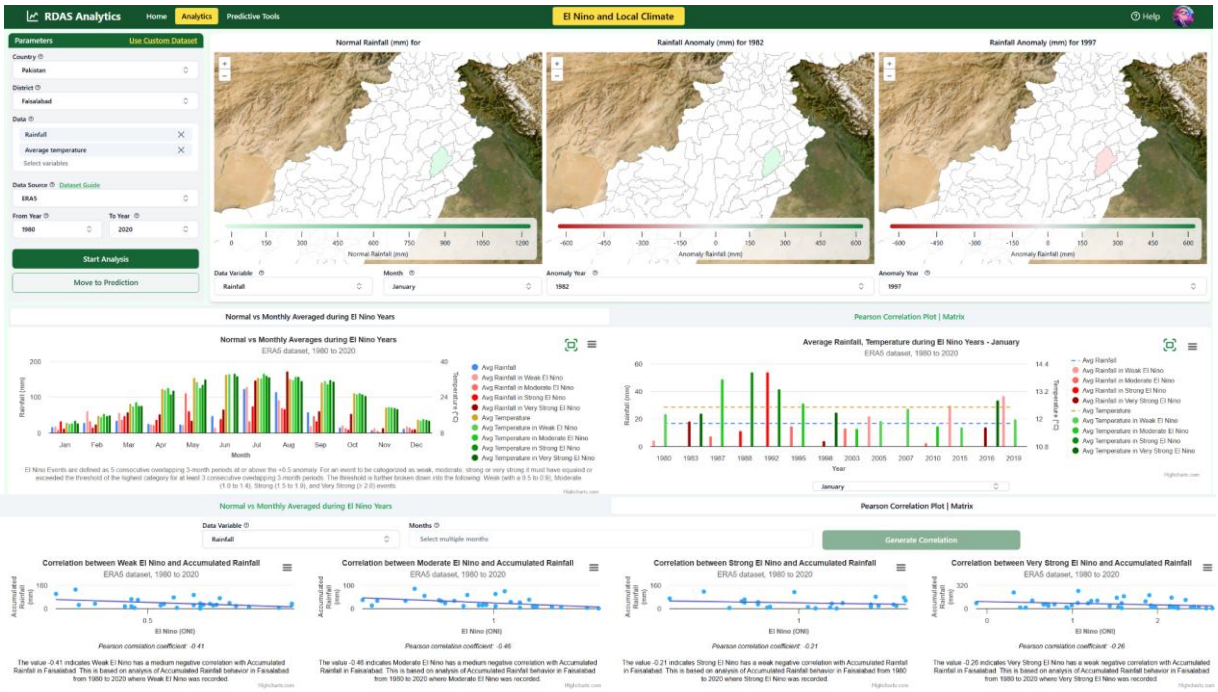

Figure 3. El Nino and Local Climate Analytics

Figure 4. El Nino Impacts Prediction

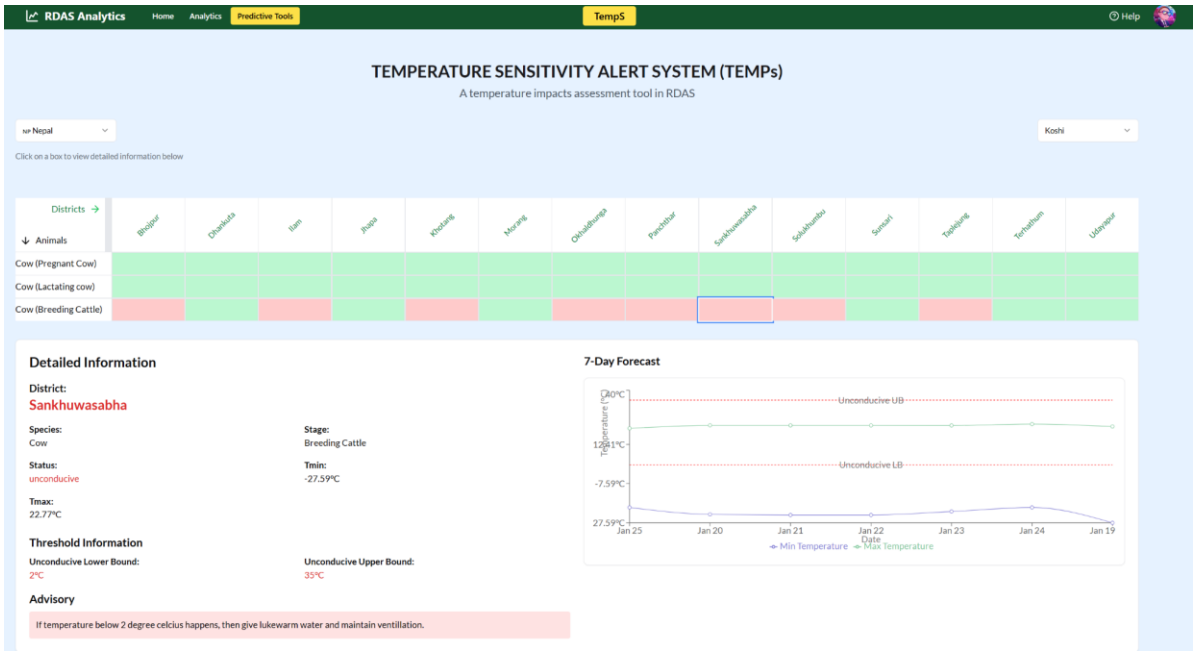

Figure 5. Temperature Sensitivity Alert System (TempS)

1.2 DSSs

Decision Support Systems (DSSs) developed/enhanced in focus countries in Bangladesh, Nepal, and Pakistan, through a co-development process with beneficiary government institutions, assist stakeholders in climate-informing plans and decisions of different timescales, through dynamic generation and dissemination of forecast-based decision guidance products based on stored and analyzed historical climate, sectoral data, and automatically-fetched forecast products (sub-seasonal to seasonal forecasts, and climate projections). Mobile applications, to complement the DSSs, were developed.

Summary of progress towards achievement of Project Development Objective (PDO) and Intermediate Results (IR) indicators relevant to the DSSs is provided in Appendix 1.

Progress on PDO Indicator: *Users in select sectors satisfied with decision support systems and tools developed under the project (Percentage)*

The target users' satisfaction rating for DSSs/DSSs products developed/enhanced under the project is at least 70%. The average satisfaction rating is 80.48%, based on survey forms collected from 2 assessments[2] from August to December 2024. DSS satisfaction ratings disaggregated by country are: 87.69% in Bangladesh, 79.14% in Nepal, and 80.88% in Pakistan. A total of 287 government officials participated in the survey, of which, 132 are from Bangladesh, 101 are from Nepal, and 54 are from Pakistan.

Progress on IR Indicator: *Climate-informed decision-making tools and systems developed/ enhanced in focus countries (Number)*

[39 out of 40 target development milestones completed]

- ✓ **Completed Milestone 1:** 8 DSSs prototype systems completed in December 2021
- ✓ **Completed Milestone 2:** 8 DSSs experimentally operational since June 2024
- ✓ **Completed Milestone 3:** 8 DSSs/DSSs products are available since September 2024
- **Ongoing Milestone 4:** 7 mobile applications developed in December 2024; mobile application for CLIM-PLANNeD for MoPDSI in Pakistan is expected to be completed by February 2025
- ✓ **Completed Milestone 5:** 8 DSSs fully operational in December 2024

The following are country DSSs and mobile applications developed under Component 1.

2 Existing DSSs:

Bangladesh: FFWC DSS (FFWC/BWDB): http://ffwc.rimes.int/app/home/ [Public portal]
https://ffwc.rimes.int/admin/home [Forecaster Panel/DSS]

Nepal: NAMIS/ADVISE (MoALD): https://np-moald-staging.rimes.int/

[2] *Assessments are carried out in 3 phases to evaluate users' satisfaction in DSSs/DSSs products based on their relevance, coherence, effectiveness, impact, and sustainability in focus countries: (i) co-development process, completed in September 2024; (ii) system performance/utilization of DSSs/DSSs products, completed in December 2024; and (iii) handholding support/application of DSSs/DSSs products, by March 2025.*

6 New DSSs:

Bangladesh:	NLAS (DLS):	https://nlas.dls.gov.bd/dashboard/home/
Nepal:	NAVIGATE (DoR):	https://navigate-dor.rimes.int/
	SATARK (NDRRMA):	https://np-satark.rimes.int/
Pakistan:	CLIM-PLANNeD (MoPDSI):	https://clima-planned.rimes.int/
	ADVISE (PAD):	http://203.156.108.67:1080/
	ADVISE(BACD):	http://203.156.108.67:1180/

8 New mobile applications:

Bangladesh:	BAMIS (DAE)	
	NLAS (DLS)	
Nepal:	NAVIGATE (DoR)	
	NAMIS/ADVISE (MoALD)	
	SATARK (NDRRMA)	
Pakistan:	CLIM-PLANNeD (MoPDSI)	
	ADVISE (PAD):	https://play.google.com/store/apps/details?id=com.app.advisedss
	ADVISE (BACD):	https://play.google.com/store/apps/details?id=com.app.advisedss

As of 31 December 2024, 5 out of 10 DSSs servers have been delivered to respective institutions in Bangladesh (DAE), Nepal (DoR, MoALD, NDRRMA), and Pakistan (BACD); 2 servers in Bangladesh (BMD, FFWC) and 3 servers in Pakistan (MoPDSI, PAD, PMD) are expected to be delivered by the first quarter of 2025. Four (4) out of these 5 servers have been officially handed over to the recipient institutions in Bangladesh (DAE), Nepal (DoR, MoALD), and Pakistan (BACD). This pre-handover process is supported by 2 documents: (i) *Asset Handover Form - Technical Details of Asset*[3] and (ii) *Inter-Organization Asset Handover and Acceptance*[4]. Appendix 3 provides the status of handover of the DSSs. Official handover of the DSSs is expected to be completed after migration of the systems to the new servers.

Progress on IR Indicator: *Gender-disaggregated data analytics developed that contributes to narrow the gender gap in climate change vulnerability (Number)*

[5 out of 4 target analytics completed]

- ✓ **Completed Milestone 1:** Gender-disaggregated data analytics embedded in **agriculture tool** (DAE); and additional analytics for **NLAS** (DLS) in Bangladesh
- ✓ **Completed Milestone 2:** Gender-disaggregated data analytics embedded in **SATARK** (NDRRMA), in Nepal
- ✓ **Completed Milestone 3:** Gender-disaggregated data analytics embedded in **ADVISE** (BACD), in Balochistan, Pakistan
- ✓ **Completed Milestone 4:** Gender-disaggregated data analytics embedded in **ADVISE** (PAD), Punjab, Pakistan

Detailed progress on the DSSs is provided in the following sections.

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[3] *Certification that representatives of the asset handing over organization (RIMES) and asset taking over organization (recipient institution) are present during inspection and testing of the assets.*

[4] *Certification by the asset taking over institution of the receipt of the asset, including all associated accessories, manuals, tools, warranty, registration details, etc. required for the operation of the assets, and its responsibility to support the operation, maintenance, and sustainability of the asset, within the project period and beyond; and by RIMES, of its responsibility to provide technical support, as needed, within the project period.*

BANGLADESH

1.2a Support to BAMIS

CARE provides support to the BAMIS of the DAE, through development of tools including i) Agromet Service Beneficiary Database Portal, ii) Kiosk Monitoring System, and iii) mobile application.

Tools targeted under the IR indicators for DSSs and gender analytics, are the mobile application for BAMIS and gender analytics tool for the agriculture sector, respectively. These targets were achieved by December 2024.

Status of completed tools is as follows:

✓**Completed:** **BAMIS' mobile application,** key features include i) easy account creation via phone number or email; ii) personalized profiles with farm location, crop details, and preferences; iii) real-time updates on temperature, humidity, wind speed, and rainfall; iv) weather forecast with detailed conditions; v) visual weather maps for rainfall, temperature, humidity, and soil moisture; vi) notifications for severe weather conditions; vii) recommendations based on crop type and current weather; vii) localized agricultural advice for better relevance; ix) *Crop Management Tools* for optimized schedules for planting and harvesting; x) *Pest and Disease Alerts* for warnings about potential outbreaks based on weather; xi) *Task Reminders* notifications for tasks like watering, fertilizing, and spraying; xii) *Farmer Community Forum* for sharing experiences and advice; and xii) AI-based crop health diagnosis using camera.

✓**Completed:** **Gender analytics,** to better understand and optimize the roles of women and men, at different levels, in the agriculture sector. This tool, currently embedded in the Agromet Service Beneficiary Database Portal, includes: i) gender in agromet beneficiaries with individual/group-wise, e.g., CIG leader, DMC, farmer, journalist, religious leader, and teacher (from DAE, DLS, DMC) and CARE project/non-CARE project-wise disaggregation; ii) gender in agriculture extension workers; iii) gender in participation in capacity building activities. Development of the tool was completed in September 2024.

The tool can be accessed through https://farmer.bdservers.site/.

*Other progress not related to the Results Framework (IR indicators) are:

✓**Completed:** **Agromet Service Beneficiary Database Portal**, a web-based database of farmers, farmer leaders, extension workers, and local service providers, to support rapid dissemination of agromet advisories to specific areas and efficient collection of feedback from end-users and other stakeholders. The database has been expanded to include disaster management committee (DMC) members, local journalists, community leaders, etc. to maximize the reach and application of agromet services. More than 8000 multi-group beneficiary data (including name, gender, age, address, mobile number) including 2,035 female [25%] and 6,058 male [75%] beneficiaries from 4 sub-districts in hazard hotspots: Sariakani, Bogura (monsoon flood), Tahirpur, Sunamganj (flash flood), Tanore Rajshahi (drought), and Dacope, Khulna (coastal cyclone and saline-prone) has been collected and integrated into the system, in addition to secondary sources, from 32,813 DMC members' information from the

Department of Disaster Management and 72,271 farmers' information from the Livestock and Dairy Development Project (LDDP) of DLS, into the database. Further, a total of 1,175 inactive data from the initial 30,000 beneficiaries data provided by DAE has been removed. Further enhancements to the tool, particularly on the integration of the gender analytics tool, were completed in September 2024.

Advisories are generated across 64 districts in Bangladesh. Voice messages are sent to beneficiaries from any district to be affected where DAE beneficiaries are listed.

The system can be accessed through https://farmer.bdservers.site/.

✓**Completed: Kiosk Monitoring System,** serves as the central monitoring system for agromet computer kiosks, is capable of spotting/flagging non-operational computer kiosks and uploading agromet information for rapid dissemination via these kiosks. The mobile application underwent enhancements following user recommendations and was republished to the Google Play Store on 16 July 2024.
The KMS web app can be accessed through https://kms.bdservers.site/.
The KMS mobile app can be accessed through
https://play.google.com/store/apps/details?id=com.saim.kms&pli=.

The technical progress report on DAE tools is provided in Appendix 4.

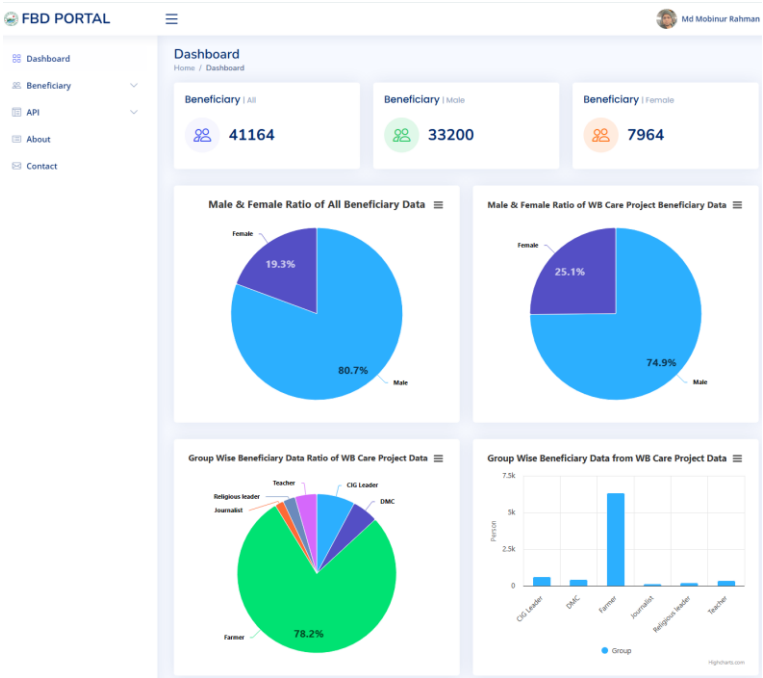


Figure 6. Gender analytics tool for agriculture sector in the Agromet Service Beneficiary Database Portal

Livestock
1.2b NLAS

The **National Livestock Advisory System (NLAS)** of the DLS is a climate-smart DSS tailored for the livestock sector that aims to help ensure sustainable livelihoods of farmers amid changing climate conditions through the generation and dissemination of location-specific risk management options/advisories in local language/dialects. This DSS targets integration of at least 9 modules and development of a mobile application under the IR indicator for DSSs. The target of 9 modules, including 2 additional modules, *Adaptation* and *Flood Map*, and mobile application have been achieved in December 2024.

Further, an additional gender analytics has been developed for the livestock sector in September 2024.

In general, work on NLAS during this period focused on enhancing user interface (UI) elements and heatwave bulletins, resolving existing issues, deploying a secure authentication system to safeguard user access and data integrity, and implementation of additional modules.

Status of completed DSS modules is as follows:

✓**Completed:** **Weather,** interactive visualization (figures, charts, and table) of location-specific BMD (WRF) forecasts of relative humidity, temperature, precipitation, and humidity for all 495 Upazilas for the next 6 days including Upazila-wise 3-hourly forecasts; threshold-based alerts for heatwave, cold wave, rainfall, wind, and THI; and ML-enabled temperature bias correction tool

✓**Completed:** **Climate,** integrates the climatology of Bangladesh (baseline 1990-2020), including comparison between monthly normal and observed rainfall/temperature data from BMD; district-wise monthly/seasonal/annual climate projection of rainfall/temperature (maximum, minimum, and mean) data using SSP2-4.5 & SSP5-8.5 of the CMIP6 ACCESS-CM2, NorESM20MM, TaiESM1, NESM3, MRI-ESM2-0, MPI-ESM1-2-HR, BCC-CSM2-MR, MIROC6, and CanESM5 models for various period/range, e.g., 5, 10, 20, 30 years; and monthly climate outlook (e.g., mean/min/max temperature, total rainfall). Various climate risk indicators (annual) of maximum/minimum temperature and rainfall using SSP2-4.5 & SSP5-8.5 of the CMIP6 ACCESS-CM2 model have also been computed district-wise and integrated within the system.

✓**Completed:** **Analytics,** analyses of district-wise, monthly/seasonal/annual Foot and Mouth Disease (FMD) clusters and incidence (cattle and buffalo) from 2014 to 2020 and visualization of predictive risk map and guidance for pre-/post-monsoon/winter seasons. Data sources include DLS and Bangladesh Bureau of Statistics.

✓**Completed:** **Decision Box,** district-wise graphical visualization of projected THI for the years 2021-2050, 2031-2060, and 2041-2070

✓**Completed:** **Statistics,** charts and maps visualization:

- Annual statistics on livestock animals (e.g., cattle, buffalo, goat, sheep, chicken, duck) and their products (e.g., egg, milk, meat) over 15 years from DLS
- Gender analytics, including i) gender in farmers and agriculture labors (Bureau of Statistics); ii) women's income in raising small ruminants (Sumi et al, 2021); iii) gender in labor force disaggregated by category, e.g., agriculture, services, and industries (World Bank); iv) agriculture-related policies; v) gender in livestock extension workers; vi) participation in capacity building activities by gender

✓**Completed: Advisory,** provides region-wise monthly advisory for livestock and poultry. Advisories are generated for all 64 districts, 495 sub-districts in Bangladesh.

✓**Completed: Dissemination,** module to disseminate bulletin using bulk email list, that is managed through a dedicated admin panel

✓**Completed: Special Bulletin,** capable of generating advisories for extreme events such as heatwave/coldwave based on weather forecast provided by BMD and flood/flash flood conditions based on flood forecast by FFWC

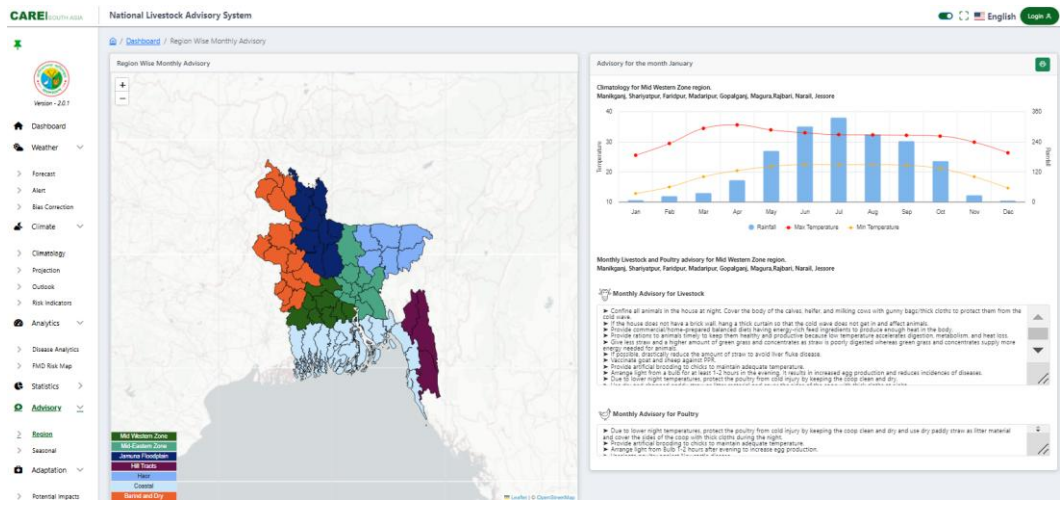
✓**Completed: Vaccine & Disease,** provides a list of diseases/vaccines from DLS for guiding their management/administration

✓**Completed: Adaptation (additional module),** this module identifies specific climate risks relevant to a region including assessment of the frequency and severity of climate-related disasters, such as, heatwaves, floods, and droughts and provides recommendations (such as implementation strategies for infrastructure improvements, ecosystem restoration, community engagement, etc.), based on the goals of the National Adaptation Plan of Bangladesh (2023-2050) for the livestock sector

✓**Completed: Flood Map (additional module),** provides district-wise flood condition, e.g., normal (more than 50cm below danger level), warning (50cm below danger level), flood (above danger level), severe flood (more than 1m above danger level) from FFWC

NLAS can be accessed through https://nlas.dls.gov.bd/dashboard/home.

The technical progress report on NLAS is provided in Appendix 5.



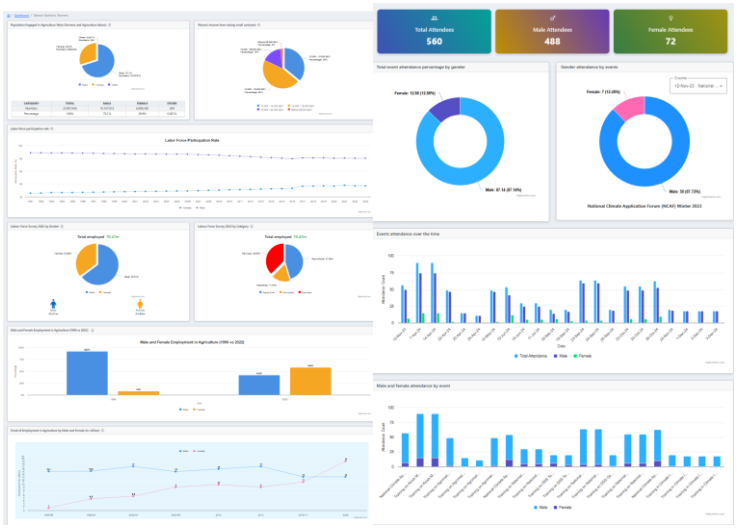


Figure 7. Region-wise monthly advisory (top) and gender analytics tool for the livestock sector (bottom) in NLAS

Water Resources
1.2c FFWC DSS

Technical Support to FFWC is carried out through enhancement and transformation of its existing web portal into a DSS. A total of 3 out of 2 target DSS modules/products have been completed, under IR indicator for DSSs, in addition to enhancements to existing modules hosted at the FFWC public portal. The two modules, including 1 additional module, *Flood Magnitude Map*, have been completed in November 2024.

Enhancements to the FFWC DSS during this period focused on addressing stakeholder recommendations for enhancing the front-end interface of the system, implementing an authentication system, automating bulletin/advisory generation, and incorporating additional tools, such as, machine learning-based flood forecasting, which predicts a station's water level for any given period based on historical time-series data of transboundary water stations.

Status of completed DSS modules is as follows:

✓**Completed:** **Admin Panel,** facilitates efficient management of users and data (e.g., configuration of roles/access levels, data import-export and search mechanisms)

✓**Completed:** **Forecasters' Panel,** include:

- **Observed Water Level of Transboundary Rivers**, visualization of transboundary and in-country stations' water level on a map
- **Flood Forecasting,** predicts in-country flooding using transboundary Indian station data
- **Flash Flood Guidance,** provides an estimation of the amount of rainfall required over a given area during a given duration to cause flooding of small streams
- **Feedback,** facilitates collection of users' experience/feedback/recommendations

✓**Completed:** **Flood Magnitude Map (additional module),** a newly developed module that provides district-wise flood condition, e.g., normal (more than 50cm below danger level), warning (50cm below danger level), flood (above danger level), severe flood (more than 1m above danger level); clustering of stations into similar groups based on flood level type, including animated blinking of stations under severe flood, flood, and danger status

✓**Completed:** Enhancements to existing modules within the FFWC public portal include:

- **Rainfall Distribution Map,** a new method, Inverse-Distance Weighted (IDW), has been applied to generate rainfall distribution in raster format
- **Inundation Map,** integrated a comparative/side-by-side visualization of satellite-based (Sentinel 1) and model-based flood extent and assessment of historical flood extent and affected cropland/urban areas/population (MODIS, GHSL) from 2019 to 2022
- **Data Table,** integrated year-wise monthly sum and average water level observation data
- **Hydrograph,** integrated basin-wise/district-wise/station-wise spatial maps for visualizing observed, short range (5-days)/medium range (10 days) forecasts of water level
- **Forecast & Warning,** capable of generating automated bulletins with interactive table and filter options

Advisories are generated for all 64 districts in Bangladesh.

FFWC Forecasters' Panel (DSS) can be accessed through https://ffwc.rimes.int/admin/home. FFWC's public portal can be accessed through http://ffwc.rimes.int/app/home/.

The technical progress report on FFWC DSS is provided in Appendix 6.

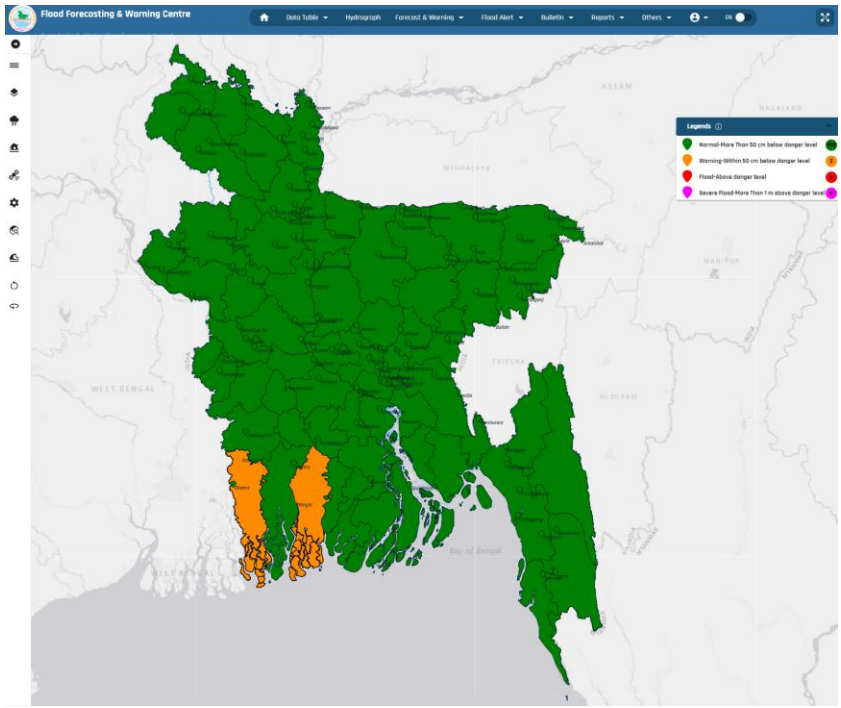


Figure 8. Flood magnitude map in FFWC portal


NEPAL

Transport
1.2d NAVIGATE

The **National Vehicular and Transport Resilient Gateway (NAVIGATE)** of the DoR is a climate-resilient road operations and maintenance system that aids different stakeholders address gaps in climate-informed planning and decision-making in the transport sector through provision of guidance information products (e.g., long-range planning for planners and decision-makers at the ministry/department; and short-range decision making for end-users). This DSS targets integration of at least 5 modules and development of a mobile application under IR indicator for DSSs. The target of 5 modules, including 1 additional module, and mobile application have been completed in December 2024.

During this period, work on the system focused on improvements to data visualization, user interface, and advisory module; implementation of an authentication module; localization of the system (option to use Nepali); integration of an additional module for managing heavy equipment and tools for viewing road closure images for reporting; addressing stakeholder recommendations, e.g., uploading mechanism and presentation of analytics for road closure information; and fixing issues within the system.

Moreover, work on mobile application development involved implementation of the user authentication system, integration of interactive map views for FFGS and landslide, road/bridge statistics and history, real-time updates on road and bridges, and real-time alerts for flash flood, rainfall, and road/bridge closure.

Status of completed DSS modules is as follows:

✓**Completed:** **Weather & Climate Hazards,** provides precipitation forecast and assessments of probability of secondary hazards occurring:

- Heavy rainfall (European Centre for Medium-Range Weather Forecast model)
- Flood (HEC-HMS model for Madhesh Province)
- Flash flood (DHM's Flash Flood Guidance System [FFGS] model)
- Landslide (Transient Rainfall Infiltration and Grid-Based Regional Slope-Stability [TRIGRS] model)

✓**Completed:** **Road Safety Alerts,** highlights location of roads/bridges, per province, that will likely be affected by heavy rainfall, flash flood, and landslide

✓**Completed:** **Advisories,** capable of generating and disseminating district-wise rainfall and flash flood alerts/advisories, for 21 districts in Madhesh and Bagmati provinces

✓**Completed:** **Road & Bridge Closure Data and Analytics,** equipped with records/analytics of road/bridge closure events disaggregated district-wise, month-wise, road-wise/bridge-wise, including month-wise average repair time for better management of road operations and maintenance activities

✓**Completed:** **Weather and Climate Impact Data (Data Repository),** this module provides spatial visualization of rainfall impacts to roads, in terms of road closure

✓**Completed:** **Routing (additional module),** generates a route based on user-specified locations

NAVIGATE can be accessed through https://navigate-dor.rimes.int/.

The technical progress report on NAVIGATE is provided in Appendix 7.

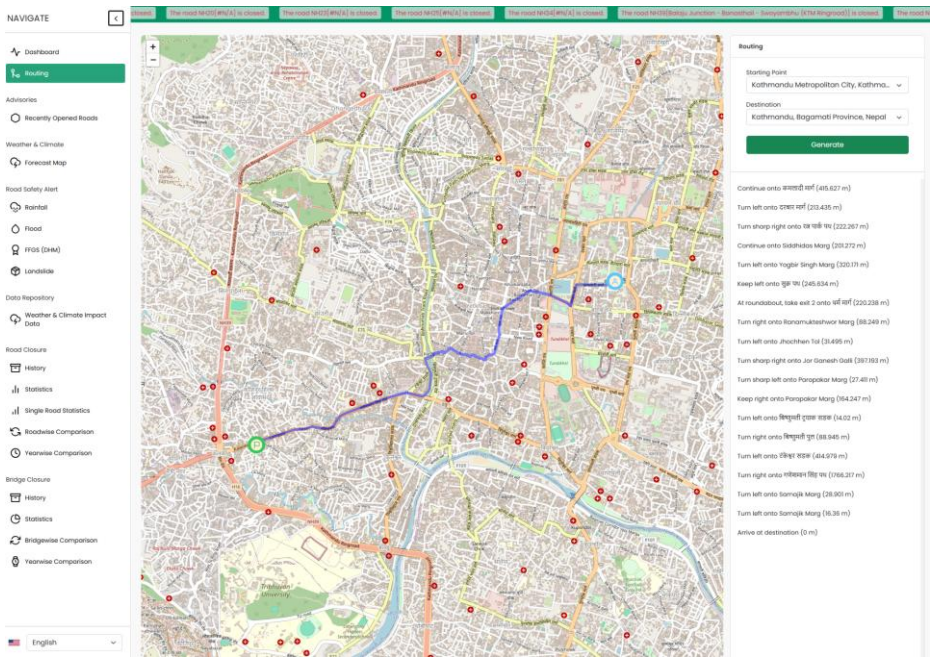


Figure 9. Routing feature in NAVIGATE

Agriculture

1.2e NAMIS/ADVISE

The **Agro-Advisory System (ADVISE),** customized for Nepal (MoALD), is a climate-resilient agriculture system supported with real-time data and crop advisories. This DSS targets integration of at least 3 modules and development of a mobile application under IR indicator for DSSs. The target of 3 modules, including 2 additional modules on livestock and land use/land cover change, and a mobile application have been achieved in December 2024.

Work completed during this period focused on addressing stakeholder recommendations, including enhancements to the user interface, charts and visualization, data repository module, crop observation module, and advisory module (e.g., streamlining of information; language localization; uploading of images/links to advisories; dissemination via WhatsApp); and development of an additional module for the livestock sector.

Development of the mobile application focused on implementation of the user authentication system; integration of push notification alerts on weather conditions, crop risks, and pests, and real-time location-specific crop advisories; development of crop guides to enhance user understanding; and features to upload crop observation data.

Status of completed DSS modules is as follows:

✓**Completed:** **Climate-Agriculture Patterns (Data Repository)**, hosts time-series data on crop production, pests, diseases and observed climate, to better discern interaction patterns between climate and agriculture; and livestock analytics, to understand trends in livestock population and disease outbreaks

✓**Completed:** **Observation & Forecast**, this module includes:

- On-ground observations, which include data for all key parameters (rainfall, max temp, min temp, wind, and humidity) at district level, for the latest day, past 7 days, and past 30 days
- Location-specific 3-day forecast, (i.e., ECMWF forecast, WRF flash flood)

✓**Completed:** **3-Day Advisory, General Advisory,** capable of generating and sending the location-specific, anticipatory crop-specific advisories that are supported with observation and forecast data, for managing better crops productivity and managing risks. Crop-weather thresholds and advisories, including management practices/measures, can be customized by admin users. Advisories are generated for 21 districts in Madhesh and Bagmati provinces and sent to at least 50 recipients via email.

✓**Completed:** **Temperature Sensitivity Alerting System [TempS] (additional module)**, provides alerts when anticipated temperature becomes critical for different livestock, categorized per kind, per productivity stage, and per levels of vulnerability. This module, similar to the TempS module in RDAS, is customized for Nepal and utilizes ECMWF temperature forecast data and livestock-weather thresholds (e.g., temperature; temperature-humidity index [THI]) to estimate potential impacts of temperature to livestock (e.g., ruminants, poultry). Alerts/recommendations are automatically generated by the module at district-level. Users can configure livestock growth/ productivity stages, livestock-weather thresholds (i.e., conducive/unconducive conditions), advisories, and customize THI equations to tailor to local conditions.

✓**Completed:** **Land Cover (additional module),** analysis of increasing/decreasing trends of different land cover types (e.g., water, trees, rangeland, crops, built-up areas, bare ground, snow/ice) over a specified period (presented in charts and maps). This module, developed in November 2024 utilizes land cover data from ESA Sentinel-2 imagery (10m resolution), which is a composite of land use/land cover predictions for 7 classes for each year from 2017-2023. Description of the dataset used in the module is available at this link.

ADVISE can be accessed through https://np-moald-staging.rimes.int/.

The technical progress report on ADVISE is provided in Appendix 8.

Figure 10. Observed crop condition in ADVISE

Disaster Management
1.2f SATARK

SATARK DSS generates key modules/products to aid NDRRMA in disaster management and is embedded within its BIPAD portal. This DSS targets integration of at least 5 modules and development of a mobile application under the IR indicator for DSSs. The target of 5 modules, including one additional module, and the mobile application have been achieved in December 2024. Furthermore, gender analytics for the disaster management sector has been developed under the IR indicator on gender analytics.

For this period, progress on the DSS focused on addressing stakeholder recommendations regarding user interface enhancements and alerts dissemination (e.g., grouping of alerts; linkage to WhatsApp, Viber, Facebook), automating the process for running the landslide and flood models, integrating the forest fire susceptibility map for Okhaldhunga District and lightning nowcasts from Vaisala, upscaling the FFGS product to cover the whole country, and fixing issues within the system.

Work on the mobile application involved integration of the core modules of the DSSs, incorporation of a routing feature to check hazard locations or to find evacuation centers and fire engine services in Tikapur Municipality, and language localization.

Status of completion of DSS modules is as follows:

✓**Completed:** **Lightning Alerts**, visualizes lightning probability (%) at municipality level using ICIMOD's probability of lightning products (from the HIWAT tool). This provides the lightning probability for the next two days. Similarly, Vaisala data is integrated to

visualize the lightning data, including its direction for the last 5 minutes, which can provide up to 60 minutes of potential thunderstorm activity.

✓**Completed:** **Flash Flood Decision Guidance**, generates dynamic 3-hourly/6-hourly flash flood alerts based on the SAsiaFFGS' FFFT product provided by DHM; and 6-hourly river flow forecast at certain junctions in Tikapur Municipality based on ECMWF forecast data and HEC-HMS model, with alerts triggered when river discharge conditions correspond to 2-year and 10-year return period floods

✓**Completed:** **Forest Fire Threat**, generates 2-day forest fire outlook for the whole country based on fire conditioning factors and utilizes forecasted temperature, rainfall, and humidity from WRF/ECMWF. Further, it generates forest fire alerts at the municipality level based on the Forest Fire Risk Index.

✓**Completed:** **Landslide Impact Forecasting**, dynamically generates landslide hazard (TRIGRS)/threat alerts based on 3-day rainfall forecasts. The module also utilizes another landslide model based on the Weighted Overlay (WOM) method, which takes account slope, geology, soil type, aspect, curvature, land use land cover, normalized difference vegetation index (NDVI), distance to fault, distance to river, and distance to roads to calculate the *Landslide Threat Index* (Martin et al., 2017) and generate landslide susceptibility map. The landslide susceptibility outlook for the next 2 days is generated through integration of ECMWF or WRF precipitation forecasts into the susceptibility map. Further, municipal-level landslide threat alerts, based on the landslide risk index, are generated for the whole country at municipality level.

✓**Completed:** **Gender Analytics**, including i) gender in DRR (focal persons), ii) gender in DEOC (focal persons), iii) gender in PEOC (focal persons), and iv) participation in capacity building activities by gender

✓**Completed:** **Evacuation Routes (additional module)**, maps out alternative evacuation routes from a user-specified location to the nearest shelters in Tikapur Municipality, using OSM road network data

✓**Completed:** **Glacial Lake Outburst Floods (additional module)**, visualization of glacial lakes and potentially dangerous glacial lakes derived from 2015 to 2016 Landsat imagery obtained from ICIMOD. Similarly, GLOF inundation maps for Lower Barun and Thulagi glacial lakes can also be visualized. The inundation maps were generated using the NWS-BREACH and HEC-RAS models, including other relevant physical conditions/parameters (Maskey et al., 2020).

Alerts are generated by SATARK at municipal level (753 municipalities) for the whole country.

SATARK can be accessed through https://np-satark.rimes.int/.

The technical progress report on SATARK is provided in Appendix 9.

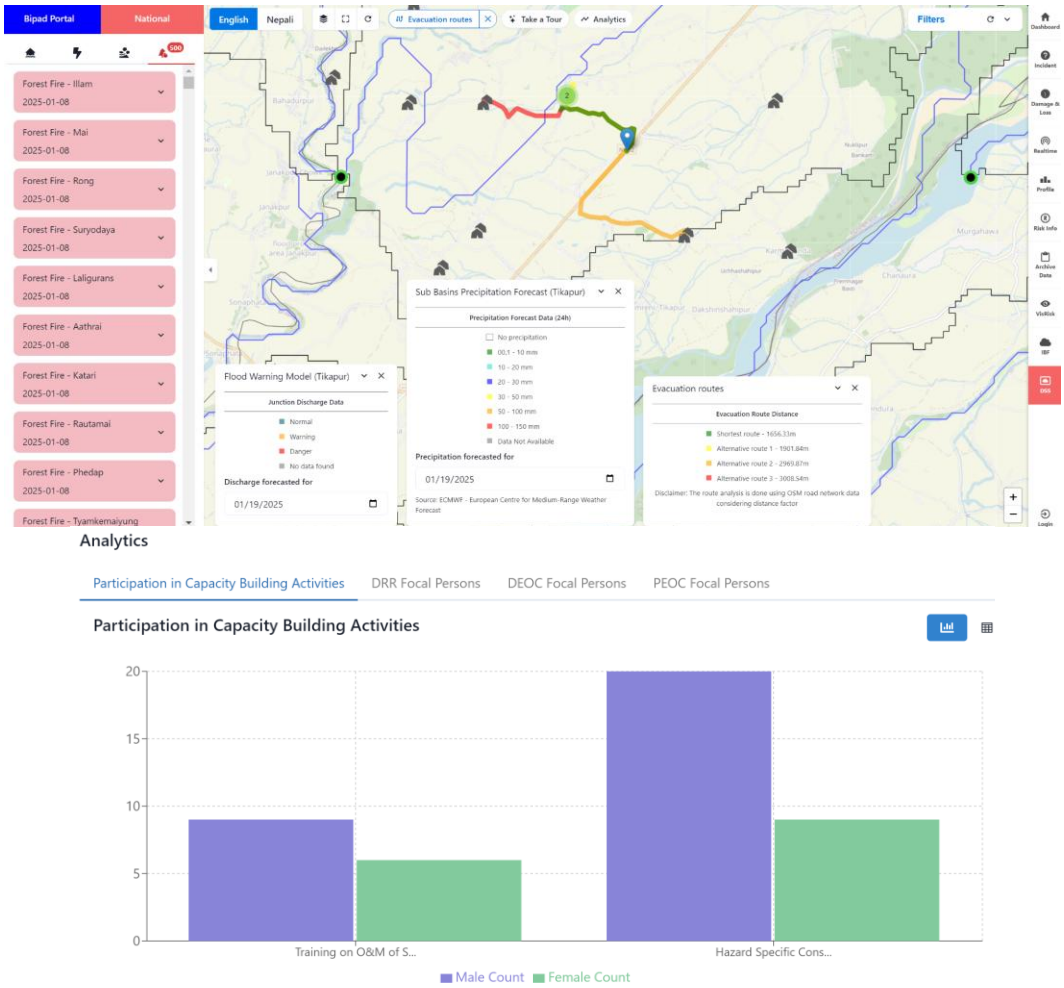


Figure 11. Evacuation route module (top) and gender analytics tool for disaster management sector (bottom) in SATARK


PAKISTAN

Planning
1.2g CLIM-PLANNeD

The **Climate-Informed Planning (CLIM-PLANNeD)** DSS for MoPDSI aids climate mitigation and adaptation efforts by providing data-driven insights for strategic planning across sectors. This DSS targets integration of at least 4 modules and development of a mobile application under IR indicators for DSSs. The target of 4 modules, including 2 additional modules, have been achieved in December 2024; completion of the mobile application is expected in February 2025.

Addressal of stakeholders' feedback/recommendations; enhancement of data visualization and performance optimization of existing modules; as well as development of 2 additional modules were the focus of work during this period.

Mobile application development focused on completion of the *Green Transport* module, and integration of the *Agro-Suitability* module.

Status of completion of DSSs modules is as follows:

✓**Completed:** **Agro-Suitability Pro,** a dynamic tool for analyzing/assessing province-wise/district-wise suitability of crops in various areas in Pakistan, per climate, soil, crop and water availability parameters; and for supporting current and future decisions on crop resilience, up to district level, with 15 years of historical data and projections extending up to 2100 (based on 2 climate scenarios SSP2 4.5 and SSP5 8.5). In addition to the 4 priority crops targeted for analyses, i.e., rice, wheat, maize, and cotton, the tool integrated pulses and oilseeds, such as, groundnut, brassica, sesame, soyabean, sunflower, chickpea, lentil, mung bean, cowpea, olives, based on stakeholder recommendations. Data sources include ISRIS, Extension 2.0 Project of Punjab, World Climate Data, crop norms from FAO, CMIP.

✓**Completed:** **Hazards and Impacts,** this module records district/provincial/national-level historical and future climate events and impacts, for better understanding of risk patterns, tailoring solutions, and supporting informed disaster resilience plans and decisions. Data from Emergency Events Database [EM-DAT] since 1950 are disaggregated by frequency, casualty, sectoral and economic impacts at district/province/country-level.

✓**Completed:** **Resources,** serves as a hub for literatures/information materials that are useful for sustainable development planning and platform for knowledge-sharing and informed decision-making across sectors

✓**Completed:** **Green Transport,** this module provides insights on current and future carbon emissions from land transportation and evaluates mitigation strategies to reduce these emissions; analysis of potential carbon outputs from land transportation over different time slices aids in data-driven planning and decisions on sustainable transport systems. Parameters include population, renewable energy, oil prices, road infrastructure, energy intensity, and GDP per capita. Data sources include Pakistan GHG data inventory GCISC, Climate Watch.

✓**Completed:** **Land Use & Land Cover (additional module),** trend analysis of increasing/decreasing land cover types (e.g., water, trees, rangeland, crops, built-up areas, bare ground, snow/ice, etc.) over a specified period (presented in charts and maps). Developed in November 2024, this module utilizes land cover data from ESA Sentinel-2 imagery (resampled to 500m resolution), which is a composite of land use/land cover predictions for 7 classes for each year from 2017-2023.

✓**Completed:** **Land Surface Temperature (additional module),** visualizes country-wise, province-wise, district-wise land surface temperature in maps and graphs from 2017-2023, disaggregated annually, seasonally, and hot (June) and cool (January) months.

CLIM-PLANNeD can be accessed via https://clima-planned.rimes.int/.

The technical progress report on CLIM-PLANNeD provided in Appendix 10.

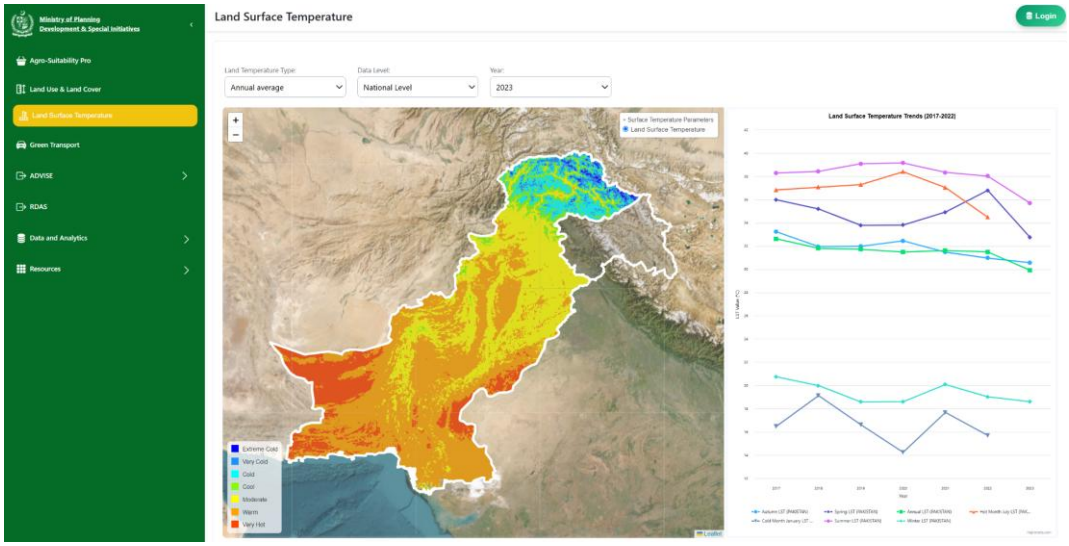


Figure 12. Land Surface Temperature module in CLIM-PLANNeD

Agriculture

1.2h ADVISE for Punjab

1.2i ADVISE for Balochistan

The **Agro-Advisory System (ADVISE),** aids climate-resilient agriculture in Punjab and Balochistan through dynamic analysis of climate information of various timescales and crops requirements, to generate analytics and crop advisories to guide decisions of institutional leaders, extension agents, and farmers. For each DSS, at least 4 modules and development of a mobile application are targeted under the IR indicator for DSSs. Moreover, gender analytics tools are targeted to be completed for each DSS under the IR indicator for gender

analytics. The target of 4 modules and a gender analytics tool, have been achieved for each DSS, including an integrated mobile application for both systems, in December 2024.

Work on both systems focused on implementation of an authentication module, incorporation of gender analytics tools, refinements to existing modules, enhancement of advisory contents (including fertilizer summary) and approval process, language localization, and WhatsApp integration for dissemination of advisories.

An integrated mobile application platform for ADVISE Punjab and ADVISE Balochistan has been published to the Google Play Store on 4 November 2024. Work during this period involved integration of key DSSs modules; features to capture ground observation images, create and download PDF reports (including information on district, crop, weather forecasts, and management advice); language localization; testing and debugging of the application before publishing to the Google Play Store.

Status of completion of DSSs modules is as follows:

✓**Completed:** **Climate-Agriculture Patterns (Data Repository),** equipped with time-series data of crop production and climate from the Crop Reporting Services and PMD, respectively, to provide analytics to discern interaction patterns between climate and agriculture

- **Gender analytics,** currently embedded in the system: i) gender in farming, ii) gender in agriculture extension, and iii) participation in capacity building activities by gender

✓**Completed:** **Observation & Forecast,** this module includes:

- **On-ground observations,** which include PMD observation data for all key parameters (rainfall, max temp, min temp, wind, and humidity) at district level, for the latest day, past 7 days, and past 30 days
- **Lcoation-specific 3-day forecast (WRF),** automatically fetched from PMD; with redundancy mechanism for ensuring regular flow of information (e.g., ECMWF)

✓**Completed:** **3-Day Advisory, Seasonal/Monthly/General Advisory,** supports agriculture extension agents to automatically generate location-, crop-, and crop stage-specific advisories, supported with observation and forecast data, for climate-informed crops, nutrients, pests, diseases, and water management, with lead times of 3 to 7 days; monthly/seasonal advisories offer a perspective for season-wise planning, to align crop strategies to anticipated climate and other relevant conditions. This module is connected to CLIM-PLANNeD's Agro-Suitability Pro, for long-term agricultural planning. Test advisories, including crop-stage-wise pest, diseases, and water management measures, are sent to 60 farmers from 4 districts in Punjab and 146 farmers from 8 districts in Balochistan, through relevant extension departments.

✓**Completed:** **Resources,** a repository of literatures, research resources, and other materials that are useful for further developing the agriculture sector; and a platform for stakeholders to access and share beneficial information, for broader benefit of the sector

ADVISE for Punjab can be accessed via http://203.156.108.67:1080/.
ADVISE for Balochistan can be accessed via http://203.156.108.67:1180/.

The technical progress report on ADVISE is provided in Appendix 11.

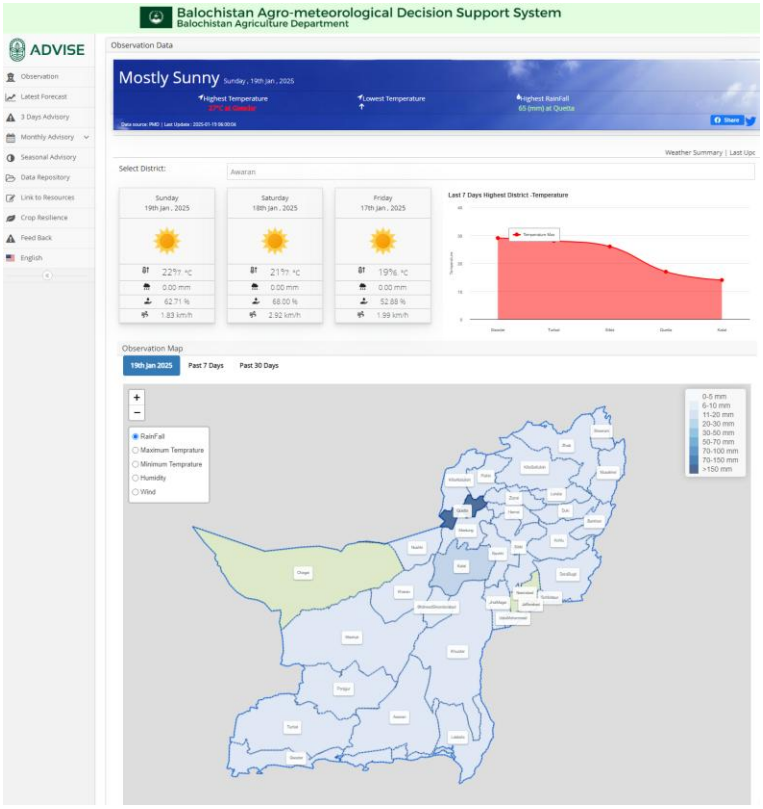


Figure 13. User interface of ADVISE for Balochistan

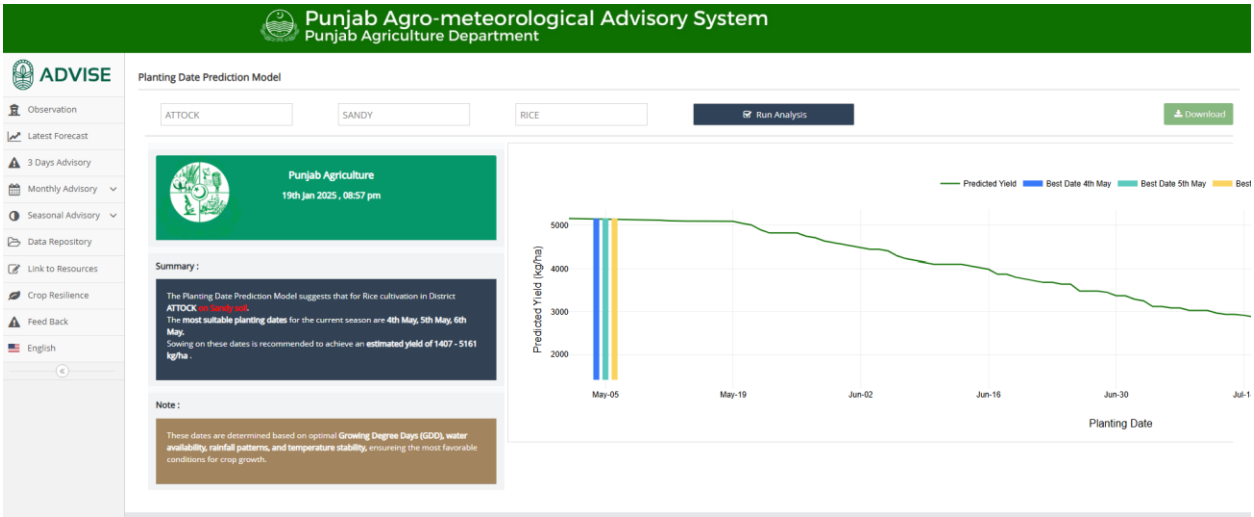


Figure 14. Planting Data Prediction module of ADVISE Punjab

CAPACITY BUILDING

PDO Indicator: *Trainees in select sectors satisfied with training provided by RIMES under the project based on its relevance, coherence, effectiveness, impact, and sustainability (Percentage)*

The target participants' satisfaction rating for training conducted under Component 1 is 70%. The actual satisfaction rating is 84.57%, based on survey forms collected after each training event based on their relevance, coherence, effectiveness, impact, and sustainability. Trainings satisfaction ratings disaggregated by country are: 86.62% in Bangladesh, 82.14% in Nepal, 87.26% in Pakistan, and 80.47% in SAR.

For evaluating the trainings, a harmonized process and set of questionnaires have been jointly developed by RIMES and ADPC to ensure uniformity in the measurement.

IR Indicator: *Government officials trained by RIMES in targeted units/ departments to apply climate resilient standards and data analytics in policies, planning and investments (Number)*

IR Indicator: *Women are trained among the staffs trained within targeted units/departments (Percentage)*

[1,630 out of 1,230 government officials trained]

✓**Completed:** A total of 1,630 out of targeted 1,230 government officials were trained from project start until 31 December 2024 (259 of which, or 15.88%, were female staff)

Training/Activity	Bangladesh	Nepal	Pakistan	Regional	Total	% Achieved
RDAS Trainings/CoP				**190**/160	**190**/160	**119%**
Climate Application Forums	**203**/250	**223**/250	**229**/250		**655**/750	**87%**
ToT -Climate Info App	**48**/20	**16**/20	**12**/10		**76**/50	**152%**
Training on DSS/tools O&M	**269**/30	**47**/30	**63**/30		**379**/90	**421%**
Training on DSS products application	**182**/40	**33**/40	**46**/40		**261**/120	**218%**
Training of NMHSs				**47**/50	**47**/ 50	**94%**
Forecasters' Forum				**22**/10	**22**/10	**220%**
Total	**702**/340	**319**/340	**350**/330	**259**/220	**1,630**/1,230	**133%**
% Achieved	**206%**	**94%**	**106%**	**118%**	**133%**	

Detailed progress on capacity building activities is provided in the following sections.

Climate Application Forums

The Climate Application Forums (CAF) brings together various stakeholders including government officials from NMHSs (BMD, DHM, PMD) and key sectoral institutions in focus countries to seasonally review their climate-risk informed, anticipatory preparedness plans, their implementation, and improvement in subsequent seasons. These forums also serve as a vital platform for NMHSs to tailor climate information to suit requirements of their users; for stakeholders, to share knowledge, experiences, lessons learned, and innovative solutions, to advance resilience of sectoral institutions, and strengthen collaborative efforts among institutions; and over time, for building sectoral stakeholders' capacity in operational, tactical, and strategic application of climate information of different timescales in plans and decisions (i.e., seamless application of historical/observation data, extended range forecasts, and climate change projections in informing plans, and adjusting such plans with the application of short-range forecasts).

A total of 267 government officials, out of which, a total of 34 were female staff, were capacitated in the CAFs organized in Bangladesh, Nepal, and Pakistan from July to December 2024.

✓**Completed: Bangladesh,** a total of 97 government officials were trained, out of which, a total of 13 were female government officials. These include:

- Winter Forum (7 female staff out of 51 government officials), 30 October 2024
- Winter Forum, Sylhet Division (6 female staff out of 46 government officials), 18 December 2024

✓**Completed: Nepal,** a total of 96 government officials participated in the CAFs, out of which, a total of 14 were female government officials. These include:

- Winter Forum (6 female staff out of 26 government officials), 8 December 2024
- Winter Forum, Madhesh Province (4 female staff out of 25 government officials), 10 December 2024
- Winter Forum, Bagmati province (4 female staff out of 45 government officials), 19 December 2024

✓**Completed: Pakistan,** a total of 74 government officials were trained, out of which, a total of 7 were female government officials. These include:

- Winter Forum (6 female staff out of 26 government officials), 8 December 2024

✓**Completed: Pakistan,** a total of 74 government officials were trained, out of which, a total of 7 were female government officials. These include:

- Monsoon Forum (3 female staff out of 50 government officials), 2 July 2024
- Winter Forum (4 female staff out of 24 government officials), 5 December2023

Detailed reports of the CAFs are provided in Appendix 12.

Activity 1.3.1
Stakeholder Engagement to Facilitate Uptake of Climate Information

Demonstration of Climate Information Application in Communities

The Training of Trainers program was designed to bridge the gap between national-level climate information products and their practical application at the sub-national and community levels. By training government officials in the use of DSSs climate information products, the program aims to establish a team of knowledgeable professionals who can effectively train farmers and other stakeholders in their respective regions. The training program covers a wide range of topics/activities, from the basics of climate science, climate change impacts on agriculture and livestock, weather forecast interpretation, climate information application, effective communication, to hands-on training of the DSSs. Further, this initiative aims to improve agricultural/livestock productivity, promote gender inclusivity, and ensure sustainable knowledge dissemination for resilient farming practices. Detailed reports of the Training of Trainers are provided in Appendix 13.

A total of 76 government officials, out of which, a total of 10 were female staff, were capacitated to demonstrate climate information application in communities in Bangladesh, Nepal, and Pakistan from July to December 2024.

✓**Completed: Bangladesh,** a total of 48 government officials in the agriculture (DAE) and livestock (DLS) sectors were trained, out of which, a total of 5 were female government officials. These include:

- Training of Trainers for DAE (5 female staff out of 25 government officials) and DLS (3 government officials; no female participation), 24 November 2024
- Training of Trainers for DAE SAAO field-level officers (18 government officials; no female participation), 1-3 December 2024

✓**Completed: Nepal,** a total of 16 government officials in the agriculture sector (MoALD) from Mahdesh and Bagmati provinces were trained, out of which, a total of 5 were female government officials

✓**Completed: Pakistan,** a total of 12 government officials were trained in the agriculture sectors in Punjab and Balochistan, with the following disaggregation: PAD (5 male staff), BACD (5 male staff), and PMD (2 male staff)

Figure 15. Training of Trainers in agriculture sector in Nepal

Figure 16. Training of Trainers in agriculture sector in Pakistan

Community-level training sessions, following the Training of Trainers on Climate Information Application, were conducted in Nepal and Pakistan, in October 2024 to enhance farmers' capacity in climate-informed agricultural decision making. The community trainings, facilitated by government officials who have undergone the ToT program, equipped participants with practical skills to leverage climate information and decision support tools in their daily farming practices. The activity was designed to develop farmers' practical skills in interpreting climate information products relevant to their local agricultural context while fostering community collaboration for knowledge sharing. Classroom sessions and field visits to nearby paddy fields were employed to enhance practical learning. In Nepal, a total of 25 farmers (out of which 9 were female farmers) representing the Sana Kishan (Small Farmer) Agriculture Cooperative, in Laxminiya Rural Municipality in Dhanusha District were trained on 26 October 2024; while a total of 25 farmers (out of which were 12 female farmers) from the Hanuman Agriculture Cooperative Limited, in Bhangaha Municipality in Mahottari District were trained on 27 October 2024. In Pakistan, a total of 348 farmers, including one woman farmer and 14 women agriculture officers participated in the training sessions. Detailed reports of the community trainings are provided in Appendix 14.

Figure 17. Group discussion and exposure visit to the rice field and group interaction in Nepal

Figure 18. Classroom sessions and action planning in Pakistan

Subsequent to the community trainings, experience sharing forums were conducted in Nepal and Pakistan, to document farmers' experiences, knowledge, and insights into the challenges faced by farmers in the context of changing weather patterns, and usage of ADVISE DSS products and their impact on their agricultural practices. The findings underscore the importance of a robust agricultural DSS, and improved access to and training on using weather data to aid farmers adapt to the impacts of changing climate. There were 2 forums organized in Chitwan District, Bagmati Province in Nepal. The first forum, held on 21 November 2024 at the Unnat Bij Bridhhi Krishak Samuha, Bharatpur Metropolitan City Ward in Chitwan District, Bagmati Province, was attended by 31 farmers (out of which were 15 female participants); while the second forum, held on 22 November 2024 at Kalika Municipality 3, Padampur, gathered a diverse group of participants: 35 farmers (out of which were 16 female farmers) and 4 agricultural officers (ADO). In Pakistan, 214 farmers and 3 women agriculture officers participated. The sessions facilitated structured discussions on farmers' experiences using the app, focusing on its impact on agricultural practices. Participants identified challenges, shared advanced techniques, and collaboratively developed solutions, while gathering valuable feedback for future app improvements. Detailed reports of the experience sharing forums are provided in Appendix 15.

Figure 19. Experience sharing workshop in Nepal

Figure 20. Experience sharing workshop in Nepal and Pakistan

Activity 1.3.2
Regional and National Trainings

Training of recipient institutions in SAR

A series of regional trainings on RDAS and SAHF were held from July to December 2024. The trainings were physically organized in the focus countries and linked virtually in the region. These are:

✓**Completed:** SAR (regional-level), a total of 155 government participants in SAR were trained, out of which, a total of 32 (21%) were female government officials. These include:

RDAS Trainings:

- RDAS training (6 female staff out of 22 government officials), 31 July 2024
- RDAS training (7 female staff out of 25 government officials), 12 September 2024
- RDAS training (8 female staff out of 39 government officials), 26 November 2024
- RDAS training (8 female staff out of 38 government officials), 23 December2024
- RDAS training (3 female staff out of 31 government officials), 31 December2024

NMHS Trainings:

- Forecasters' Forum/IBF training (5 female staff out of 16 government participants), 29-31 July 2024
- Training on forecast interpretation (1 female staff out of 17 government participants), 23-27 September 2024

Forecasters' Forum:

- Online Forecasters' Forum (3 female staff out of 22 government participants); weekly
- A total of 90 weekly sessions involving operational forecasters from NMHSs in the region had been completed since the FForum sessions integration into CARE in April 2023

The trainings on RDAS aimed to enhance the awareness and competency of participants in using the RDAS functionalities, products, and their application, and to document and collate stakeholders' feedback/recommendations on further enhancements of the system. Detailed reports on RDAS training are provided in Appendix 16.

During this period, the following capacity building activities/trainings under SAHF were organized:

The Regional Training Workshop for SAHF FForum Expanded Service Support took place in Bangkok, Thailand, from 29-30 July 2024, in hybrid mode, focused on enhancing regional collaboration and forecasting capabilities among South Asian National Meteorological and Hydrological Services (NMHSs). Key objectives included sharing best practices, discussing challenges, and exploring innovative forecasting solutions, including AI and ML. Participants engaged with advanced forecasting tools and methodologies through practical, real-world applications. The event strengthened regional collaboration, improved forecast dissemination, and fostered actionable strategies to enhance the FForum. By addressing technology gaps and developing new strategies, the workshop aimed to boost

the collective capacity of South Asian NMHSs to manage extreme weather events, contributing to improved regional forecasting and resilience against weather-related challenges.

The SAHF IBF WG meeting on July 31, 2024, in Bangkok focused on turning strategic directions from the SAHF Executive Council (EC) into actionable plans for the WG, fostering collaboration between operational forecasters and IBF WG members. Emphasis was placed on co-developing tailored Decision Support Systems (DSSs) with user sector agencies to address specific sector needs. The meeting also aligned with broader goals to enhance regional hydrometeorological services and improve disaster risk management. Key strategic goals included strengthening collaboration among NMHSs, improving forecast accuracy, creating sector-specific DSSs, and engaging with sectors like agriculture and disaster risk reduction. The meeting aimed to improve forecasting capabilities and overcome challenges in developing multi-hazard early warning systems, particularly given the rising impacts of climate variability and extreme weather in the region.

A special lecture on the Mid-season Review of the Southwest Monsoon 2024 was conducted as part of the FForum on 22 August 2024, led by Dr. Suryachandra Rao, Senior Scientist at IITM, India. The lecture reviewed the performance of the monsoon up until mid-August 2024, highlighting key points such as above-normal rainfall in SA for July and August, except for June. Dr. Rao emphasized the importance of initializing monsoon forecasts in spring, despite the strong link to ENSO. He discussed the reduced variability of ENSO and its impact on the Indian Summer Monsoon Rainfall (ISMR) prediction, particularly in long-lead forecasts. The conditions during June, July, and August were ENSO-neutral, with weak La Niña-like conditions developing, which were expected to persist from September to November 2024, continuing through the Northern Hemisphere winter of 2024-2025.

The Training on Forecast Interpretation and Verification, held from September 23-27, 2024, in collaboration with NCMRWF, India, enhanced technical forecasting capabilities within the SA region. This hybrid training focused on the interpretation, application, and verification of NWP products to improve the accuracy and relevance of weather predictions. Participants engaged in theoretical and hands-on sessions covering advanced forecasting techniques, verification methods, and the utilization of real-time satellite data for severe weather monitoring. Key outcomes included improved proficiency in statistical verification, model evaluation tools, and probabilistic forecast interpretation, enabling participants to deliver more accurate and actionable weather forecasts. The program fostered regional collaboration, equipping participants with the skills to address weather-related challenges effectively while promoting the integration of innovative practices within their respective agencies.

The 2023 Review of the South Asia Hydromet Forum's (SAHF) Forecasters' Forum (FForum) assessed its performance for the period of March 2023 to October 2024, with the evaluation conducted in October 2024. Established in 2022, the FForum serves as a collaborative platform for National Meteorological and Hydrological Services (NMHSs) across South Asia, promoting knowledge exchange to enhance operational forecasting and disaster preparedness. The review highlighted strong participant engagement, with widespread adoption of advanced tools and techniques discussed in the forum, such as AI and machine

learning applications in forecasting. While participants recognized the forum's relevance and impact, areas for improvement included incorporating more region-specific content, practical training opportunities, and optimizing session schedules to accommodate diverse time zones.

The SAHF Annual Assessment of National Hydrological and Meteorological Services (NMHS) for Pakistan, held on 29 November 2024 in Islamabad, Pakistan aimed to evaluate the Pakistan Meteorological Department's (PMD) capacities, achievements, and gaps in delivering hydrometeorological services. The assessment focused on identifying critical needs in infrastructure, capacity building, and technical capabilities to enhance PMD's effectiveness amid growing climate risks. The assessment sought to align ongoing programs with broader climate resilience goals, prioritize investment needs, and provide recommendations for targeted capacity-building efforts. The findings aim to inform strategic planning and resource allocation to improve Pakistan's weather and climate services.

SAHF Knowledge Hub

The SAHF website optimization is currently in progress, focusing on improving functionality and user experience. Significant progress has been achieved in the development of the Learning Management System (LMS), with the first internal demonstration successfully completed and preparations for finalization, underway. The DataEx demonstration video has also been completed, highlighting efforts to enhance tools for knowledge sharing and collaboration. Detailed reports on SAHF trainings are provided in Appendix 17.

Figure 21. Regional Training Workshop for SAHF FForum Expanded Service Support took place in Bangkok, Thailand, from 29-30 July 2024

Training of recipient institutions in DSS Operations & Maintenance and DSS Products Application

The DSS Operations and Maintenance training strengthened capacities of relevant personnel in using, operating, maintaining, and sustaining the DSSs. The training capacitated various

stakeholders per recipient institution, to ensure redundancy and to facilitate future enhancement/upscaling of the systems.

The DSS Products Application training enhanced stakeholders' technical proficiency in using the DSSs, and the application of climate information of different timescales, particularly DSSs products, in planning and decision making within their institutions.

The training/s highlighted the need for collaboration among government agencies to enhance system capabilities, to cultivate internal ownership to reduce dependency on external support, and ensure sustainability of the systems. In general, the participants recommended language localization of the DSSs/DSS products, integration of multiple dissemination mechanisms to ensure timely receipt of advisories, and expansion of the trainings to field level personnel.

Detailed reports on DSSs O&M trainings are provided in Appendices 18.
Detailed reports on DSSs Products Application trainings are provided in Appendices 19.

DSS trainings conducted from July to December 2024 are:

✓**Completed:** Bangladesh, a total of 263 government officials were trained, out of which, a total of 40 (15%) were female government officials. These include:

DSS O&M Trainings:

- NLAS O&M training (6 female out of 20 government participants), 18 September 2024
- DAE tools O&M training (3 female out of 20 government participants), 19 September 2024
- FFWC DSS O&M training (1 female out of 20 government participants), 26 September 2024
- BAMIS Mobile Application O&M training (8 female out of 24 government participants), 30 December 2024
- NLAS Mobile Application O&M training (7 female out of 28 government participants), 30 December 2024

DSS Products Application:

- NLAS products application training in Bogura District, Rajashi Division (5 female out of 30 government participants), 10-11 July 2024
- NLAS products application training in Rangpur District, Rangpur Division (4 female out of 64 government participants), 23-24 September 2024
- NLAS products application training in Sylhet District, Sylhet Division (6 female out of 57 government participants), 23-24 October 2024

✓**Completed:** Nepal, a total of 80 government officials were trained, out of which, a total of 31 (39%) were female government officials. These include:

DSS O&M Trainings:

- NAVIGATE O&M training (3 female out of 14 government participants), 20 September 2024
- SATARK O&M training (6 female out of 15 government participants), 24 September 2024

- ADVISE O&M training (6 female out of 18 government participants), 27 September 2024

DSS Products Application:

- NAVIGATE products application training (8 female out of 15 government participants), 16 December 2024
- ADVISE products application training (8 female out of 18 government participants), 26-27 December 2024

✓**Completed:** Pakistan, a total of 81 government officials were trained, out of which, a total of 18 (22%) were female government officials. These include:

DSS O&M Trainings:

- ADVISE-BACD O&M training (1 female staff out of 15 government participants), 22 August 2024
- ADVISE O&M PAD (4 female staff out of 10 government participants), 28 August 2024
- CLIM-PLANNeD O&M training (2 female staff out of 10 government participants), 12 September 2024

DSS Products Application:

- ADVISE-BACD Products Application training (4 female staff out of 21 government participants), 21 August 2024
- ADVISE-PAD Products Application training (4 female staff out of 10 government participants), 27 August 2024
- CLIM-PLANNeD Products Application training (3 female staff out of 15 government participants), 11 September 2024

Figure 22. DSS Products Application Trainings in Bangladesh

Figure 23. DSS O&M Training and DSS Product Application trainings in Nepal

Figure 24. DSS O&M Training and DSS Product Application trainings in Pakistan

OTHER PROGRESS AREAS

PROJECT MANAGEMENT & IMPLEMENTATION SUPPORT

Activity 3.1 Procurement

The following consultant positions were onboarded during this semester: 20 consultants for systems development/enhancement (5 in the region, 8 in Bangladesh, 3 in Nepal, and 4 in Pakistan); 3 country project assistants (2 in Nepal; 1 in Pakistan); and Finance Management Specialist.

Staffing. As of December 2024, the project has 90 staffs, viz.:

- **PIU Staff (25/26):** **Regional:** Project Director, Project Coordinator, Finance Management Specialist, Finance Management Officer, Project Accountant, Procurement Specialist, Procurement Officer, 3 Administrative Assistants, ESD Specialist, ICKM Specialist, and M&E Specialist; **National:** 3 Country Program Leads, Country Coordinator (Bangladesh), National Adviser (Pakistan), Project Associate (Pakistan), 3 Project Assistants (Nepal & Pakistan), and 3 Administrative Assistants. Staff for onboarding next semester are: **Regional:** External Project Evaluation Specialist

- **Climate Applications Team (17/17):** **Regional:** 2 Climate Impacts Expert (Agriculture/Planning), NWP Expert, 2 IBF Specialists, Data Analyst (Regional); **National:** 3 GIS Specialists, Climate Impacts Expert (Livestock, Bangladesh), Climate Impacts Expert (DRM, Nepal), Senior ICT (Bangladesh), Senior Meteorologist (Bangladesh), 3 Climate Impacts Expert (Agriculture, Nepal and Pakistan), Transport Expert (Pakistan).

- **Capacity Development Team (5/5):** **Regional:** Training Coordinator and Capacity Building Specialist; **National:** 3 Capacity Building Officers.

- **System Development Team (43/43):** Data Management Expert, Geospatial Data and Programming Expert, Systems Development Specialist, 9 Full Stack Developers, Graphic Designer, 2 Web Developers, AI/ML Expert, UI/UX Designer, Data Visualization Expert; **National:** 2 IT/Full Stack Developers (Bangladesh and Nepal), 14 Full Stack Developers (Bangladesh, Nepal, and Pakistan), 3 UI/UX Designers, 2 Data Visualization Experts (Bangladesh and Pakistan), and 5 Mobile App Developers.

Office. The regional office and country offices in Bangladesh, Nepal, and Pakistan are in place.

Procurement of Goods. Procurement of physical servers have been completed: **Regional:** RDAS and project MIS; **National:** DAE, FFWC, BMD (Bangladesh); DoR, MoALD, NDRRMA (Nepal); and MoPDSI, PAD, BACD, PMD (Pakistan). Delivery of the following physical servers

have been completed: **Regional:** MIS; **National:** DAE (Bangladesh); DoR, MoALD, NDRRMA (Nepal); and BACD (Pakistan). Delivery of servers to FFWC and BMD (Bangladesh), MoPDSI, PAD and PMD are expected to be completed by the first quarter of 2025.

ISR Mission. Following the procurement mission on 18 October 2024, the Bank upgraded the procurement performance rating to Satisfactory (S), as procurement processes for most of the activities, particularly, on goods and consultants, have been completed.

Activity 3.2 Finance

Budget, Disbursement and Expenditure. A total disbursement of USD 1,640,493 was made to RIMES within the period of July to December 2024. Actual expenditure from 1 July to 31 December covered staff and consultant salaries, local travel and meeting costs, operating expenses, e.g., office rental and utilities, stationery, and consumables. Component-wise project costs from the start of the project and project budget against expenditure for this period are provided in Tables 1 and Table 2, respectively.

The variances over 10% from actual expenditures, e.g., (41%) are attributed to delays in onboarding consultants/cancellation of consultancy positions and liquidation of cash advances for training and related operating costs.

Reporting. RIMES submitted the audited financial statement for the Year 2023 on 25 September 2024; 8th IUFR report ending June 2024 on 29 August 2024; 9th SOE (USD 423,314.35) from April to June 2024 on 13 August 2024; 10th SOE (USD 810,384.96) from July to September 2024 on 23 October 2024; and 11th SOE (USD 519,702.03) from October to November 2024 on 24 December 2024.

ISR Mission. The FM mission from 23-24 September 2024 (i) updated on FM agreed actions, as part of the ISR mission in June 2024; (ii) reviewed supporting documents for expenditure reported in SoEs covering the period from November 2023 to July 2024; (iii) discussed pending issues on IUFR and external audit report; and (iv) reviewed the revised budget for potential restructuring. The ISR report released by the Bank on 4 December 2024 indicated an overall FM performance rating of Satisfactory (S) and an overall FM risk rating of Moderate (M).

Project Restructuring. The restructuring letter for Component 1 dated 11 December 2024 indicated additional activities related to RIMES' Implementation Development Plan (IDP), such as the RIMES ministerial conference (USD 384,260) and installation of physical servers at the RIMES regional office in Thailand (USD 210,750). The letter also requested a partial cancellation of an estimated amount of USD 2.15 from the IDA grant, which corresponds to project savings due to delays in onboarding of consultants/cancellation of consultancy positions.

Table 1 Component-wise Project Costs as of 31 December 2024 (Amount in US$)

Activity-wise	Original Budget	Revised Budget (A)	Actual Expenditure (B)	Estimated Commitments (C)	Available Budget (D=A-B-C)
Component 1.1	3,500,000	2,630,568	1,862,659	506,741	261,168
Component 1.2	5,000,000	3,680,929	2,561,268	842,682	276,979
Component 1.3	1,500,000	1,230,385	431,017	98,364	701,004
Component 3	2,000,000	1,563,422	1,200,356	266,168	96,898
Sub-Total	**12,000,000**	**9,105,304**	**6,055,300**	**1,713,955**	**1,336,049**
IDP		595,011			595,011
Total	**12,000,000**	**9,700,315**			**1,931,060**

Table 2 Project budget against expenditure from 01 July to 31 December 2024 (Amount in US$)

Description	Planned	Actual	Variance		Forecast
Cost item-wise	**Six months (Jul to Dec '24)**	**July-Dec 2024**	**Amount**	**%**	**Jan to Jun '25**
Individual Consultants	1,516,874	**656,634**	860,240	57%	**802,865**
Consulting Firms	0	**18,303**	(18,303)	-	**18,986**
Goods	0	**332,257**	(332,257)	-	**382,217**
Training	543,350	**117,903**	425,447	78%	**201,300**
Operating Costs	378,206	**172,120**	206,086	55%	**158,558**
PIU Staff	173,260	**170,593**	2,667	2%	**239,782**
RTI Staff	158,897	**172,683**	(13,786)	-9%	**173,041**
Total	**2,770,587**	**1,640,493**	**1,130,094**	**41%**	**1,976,749**

Table 3 Cost category-wise financial summary from project start until December 2024

Cost Category	Project Budget	Total Expenditures			Remaining budget (01-Jan-25)	Commitments	Pending Activities	Pending Procurement	Anticipated contract renewals	Potential Savings
		2020-23	2024	Project start to Dec 2024						
Individual Consultant	5,745,134	1,277,177	988,753	**2,265,930**	3,479,204	674,895	0	54,200	174,638	**2,575,471**
Consulting Firms	489,790	104,731	18,303	**123,034**	366,756	37,972	0	0	0	**328,784**
Goods (GOO)	813,689	141,954	375,032	**516,986**	296,703	382,217	0	0	0	**-85,514**
Training (TRN)	803,985	86,251	182,486	**268,737**	535,248	0	647,051	0	0	**-111,803**
Operating Costs	1,208,955	346,516	262,080	**608,596**	600,192	35,635	369,940	2,990	11,564	**180,063**
PIU Staff	1,338,447	679,605	306,997	**986,602**	352,012	225,681	0	50,100	6,046	**70,185**
RTI Staff	1,600,000	942,302	343,114	**1,285,416**	314,584	168,837	0	33,000	0	**112,747**
Total	**12,000,000**	**3,578,535**	**2,476,766**	**6,055,301**	**5,944,699**	**1,522,237**	**1,016,991**	**140,290**	**192,248**	**3,069,933**

Activity 3.3 M&E

- **M&E system.** Regular mechanisms to track/monitor implementation progress are in place including monthly/bi-monthly PIU, CWG, stakeholder consultations (e.g., TWG/SFP meetings); WB ISR meetings; and weekly meetings/monthly progress reports on systems development, to ensure timely completion of targets and addressal of stakeholder requirements/implementation challenges. Regular enhancements to the MIS are undertaken to optimize efficiency of project operations.

- **ISR Mission.** The interim ISR mission, organized by the World Bank on 2 October 2024, reviewed the progress of Component 1, identified key implementation challenges/bottlenecks, provided guidance, and updated on the status of key actions agreed with the Bank in June 2024. RIMES reported completion of all pending procurement activities and goods in July 2024, except for the hiring of an external project evaluation specialist (expected to be onboarded next semester); and achievement of 50% of all PDO and IR indicators in September. The Bank, in their ISR report released on 4 December 2024, indicated upgraded ratings from Moderately Unsatisfactory (MU) to Moderately Satisfactory (MS) on progress towards achievement of PDOs and overall implementation progress.

  Following the review mission, and per agreement with the Bank, RIMES has: (i) operationalized RDAS in December; (ii) completed most trainings of government officials in December, except for training of trainers and DSS products application for NDRRMA in Nepal; (iii) delivered 8 out of 10 physical servers to respective recipient institutions; and (iv) completed 7 out of 8 mobile applications in December. The following activities are ongoing: procurement of the *External Project Evaluation Specialist*, establishment of a budget review committee, and official handover of DSSs systems to recipient institutions.

- **Results Framework.** Significant progress on results indicators have been realized by the end of December. On the PDO indicators for assessing users' satisfaction of RDAS and DSSs developed in focus countries, 2 phases of the assessments were undertaken, to collect feedback on i) RDAS/DSSs co-development process, from July to September 2024, and ii) RDAS/DSSs performance and utilization, in December 2024. The final satisfaction ratings for RDAS and DSSs will be averaged after carrying out the third and final assessment in March 2025. For assessing participants' satisfaction in trainings conducted under Component 1, a harmonized survey questionnaire, developed by ADPC and RIMES, is shared with participants during each training activity. Results indicate more than 70% satisfaction ratings by users of RDAS (79.06%) and DSSs (80.76%) developed/enhanced in focus countries; and participants (84.57%) in trainings conducted under Component 1.

  Similarly, 3 out of 4 intermediate results (IR) indicators have been achieved in December, i.e., (i) 5 RDAS development milestones were completed; (ii) 5 out of a target of 4 gender analytics were developed, and (iii) 1,630 out of a target of 1,230 government participants were trained under Component 1. The IR indicator for DSSs is mostly

achieved, as 39 out of a target of 40 development milestones were completed, after fully operationalizing all the 8 DSSs and developing 7 mobile applications, in December. Only the mobile application for CLIM-PLANNeD remains to be completed, in February 2025. Detailed progress of PDO and IR indicators are provided in Annex 1.

- **Project Restructuring.** On 11 December 2024, RIMES shared with the Bank a restructuring letter for Component 1 which acknowledges the additional/new IR indicator on the number of districts receiving advisories from the DSSs (minimum of 30 districts: 10 each in Bangladesh, Nepal, and Pakistan); and requests the cancellation of funds, totaling USD 2.15 million, following the revised work plan and budget for the remainder of the project. Moreover, additional activities under the IDP (i.e., RIMES ministerial conference and physical server in the region) amounting to USD 595,011have been cleared by the Bank.

A detailed methodology for achieving PDOs and IRs is provided in Appendix 22.

Activity 3.4 Environment & Social Management

The interim ISR missions on 15 October 2024, organized by the Banks's E&S team, reviewed ongoing/planned user engagement activities and their potential risks, which remain low for Component 1. No complaints or grievances were reported during this period.

Activity 3.4 ICKM

ICKM activities, during this reporting period, focused on documentation/publication of project activities on the CARE Component 1 Facebook platform (https://www.facebook.com/careforsouthasia) and website (careforsouthasia.info), which include Climate Application Forums, SFPs meetings, and the various trainings held in focus countries; preparation of publication materials and other visibility materials for various events, among others; and enhancement of the project website.

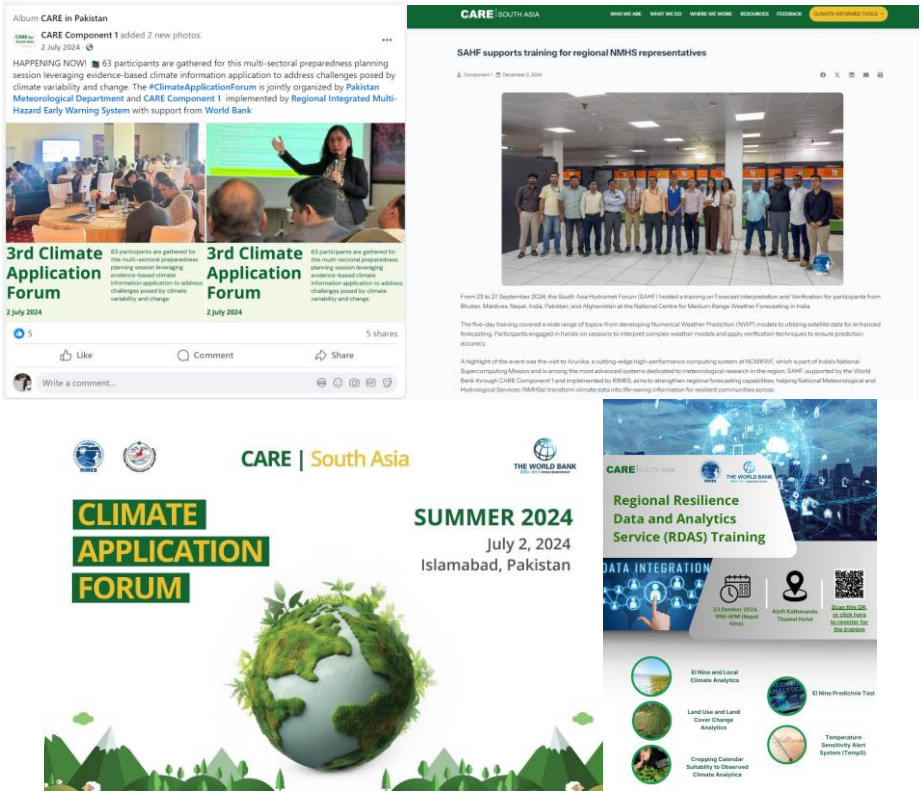


Figure 25. Top L-R: Social media (Facebook) and website posts; Bottom L-R: banner and brochure

Appendices

1. Component 1 Progress Against Indicators
2. Inventory of RDAS datasets
3. DSSs handover status
4. Technical progress report on DAE tools development/enhancement
5. Technical progress report on NLAS development/enhancement, Bangladesh
6. Technical progress report on FFWC DSS development/enhancement, Bangladesh
7. Technical progress report on NAVIGATE development/enhancement, Nepal
8. Technical progress report on ADVISE development/enhancement, Nepal
9. Technical progress report on SATARK development/enhancement, Nepal
10. Technical progress report on CLIM-PLANNeD development/enhancement, Pakistan
11. Technical progress report on ADVISE development/enhancement, Punjab and Balochistan, Pakistan
12. Meeting reports on Climate Application Forums
13. Training reports on Climate Information Application -Training of Trainers
14. Training reports on Climate Information Application in Communities
15. Meeting reports on Experience sharing Forums
16. Training reports on RDAS
17. Training reports on SAHF capacity building activities
18. Training reports on DSS O&M
19. Training reports on DSS Products Application
20. Updated methodology for calculating PDO and IR indicators for Component 1
21. Summary of coordination/consultation meetings

RIMES

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