Early Warning, Early Action and Early Finance (AWARE) Platform; Technical Guide

14 December 2023
Colombo, Sri Lanka

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CGIAR
INITIATIVE ON
Climate Resilience

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Suggested Citation

Alahacoon, N.; Amarnath, G. 2023. *Early Warning, Early Action and Early Finance (AWARE) Platform: technical guide*. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Initiative on Climate Resilience. 33p.

Acknowledgments

This work was carried out with support from the CGIAR Initiative on Climate Resilience, ClimBeR. We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund.

CGIAR Initiative on Climate Resilience

The CGIAR Initiative on Climate Resilience, also known as ClimBeR, aims to transform the climate adaptation capacity of food, land, and water systems and ultimately increase the resilience of smallholder production systems to better adapt to climate extremes. Its goal is to tackle vulnerability to climate change at its roots and support countries and local and indigenous communities in six low-and middle-income countries to better adapt and build equitable and sustainable futures.
Learn more about ClimBeR here: https://www.cgiar.org/initiative/climate-resilience/

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SUMMARY

The AWARE platform, a vital component of CGIAR's Climate Resilience initiative, stands as a crucial tool connecting early warning systems, proactive measures, and timely financial interventions. Designed for anticipatory action, AWARE empowers stakeholders to mitigate the impact of disasters before they occur, emphasizing multi-level coordination and collaboration for effective responsiveness. AWARE disseminates comprehensive information across climate, market dynamics, health, nutrition, and population displacement. It fosters collaborative efforts among diverse partners, promoting joint actions to strengthen preparedness and streamline response mechanisms. The platform targets government departments, agencies, humanitarian organizations, and funders to facilitate anticipatory action, identifying risks and formulating plans.

Comprising six major modules, the report primarily focuses on Early Warning, Early Action, and Early Finance. The Early Warning module offers forecast and monitoring indicators, visualized through a step-by-step process. Early Action involves three phases: preparedness, readiness, and active, allowing users to input actions and collaborate seamlessly. Early Finance ensures financial resources are in place for interventions through a meticulous assessment.

The report provides detailed guidance on utilizing the AWARE platform, featuring map preferences, Early Warning visualization, and Early Action protocols. It delves into forecasting indicators such as OpenWeather, NOAA Global Forecast Systems (NOAA-GFS), and International Research Institute for Climate and Society (IRI), and monitoring indicators like dry spell, Soil Moisture Condition Index (SMCI), and Integrated Drought Severity Index (IDSI). Flood indicators include Accumulated Rainfall (GPM), Flood (ESA), Flood (NASA), GLOFAS, and GeoGlows.

Early Action, a key component, involves a step-by-step approach and accommodates user and administrator roles. Users can add, edit, and visualize early action protocols, fostering collaboration. Early Finance ensures financial backing for interventions, and the system generates comprehensive reports, facilitating information sharing. The training manual concludes by emphasizing the user-friendly nature of the guide, with interactive symbols, meaningful indicators, and a breakdown of modules. It encourages users to leverage map preferences for diverse base layers, enhancing data visualization.

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LIST OF ACRONYMS

AA	Anticipatory Action
AWARE	Early Warning, Early Action and Early Finance
CGIAR	A Global Research Partnership for a Food-Secure Future
ClimBeR	CGIAR Initiative on Climate Resilience
EFI	Extreme Forecast Index
ESA	European Space Agency
GLOFAS	Global Flood Awareness System
IDSI	Intigrated Drought Seviorty Index
IRI	International Research Institute for Climate and Society
MODIS	Moderate Resolution Imaging Spectroradiometer
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
SMCI	Soil Moisture Condition Index
VCI	Vegitation Condition Index

INTRODUCTION

The AWARE platform, part of the CGIAR's Climate Resilience initiative, serves as a key tool in fortifying the connections between early warning systems, proactive measures, and timely financial interventions. It has been Designed to facilitate anticipatory action, the platform empowers stakeholders to mitigate the impact of disasters before they onset. A main feature of AWARE is its emphasis on advancing multi-level coordination and collaboration, coupled with enhanced accountability, thereby enabling more effective responsiveness. Through the AWARE platform, a wealth of information spanning climate, market dynamics, health, nutrition, and population displacement is disseminated. This broad dissemination aims to strengthening the collaborative efforts among diverse partners operating at international to national to local level. By promoting joint actions, AWARE seeks to strengthen preparedness, streamline response mechanisms, advocate for necessary actions, and mobilize resources during periods of extreme climate events. In essence, AWARE plays a pivotal role in creating a comprehensive and collaborative approach to addressing the complex challenges binging by climate-related disasters.

Traditionally, many countries in the global South have established early warning systems as a fundamental means of providing timely information regarding water-related hazards. In this context, AWARE goes beyond the conventional role of relaying information; it actively promotes proactive measures to diminish the impact of future disasters. The unique focus of the AWARE platform lies in its ability to translate early warnings into tangible actions capable of mitigating the consequences of hazards or disasters. These proactive actions span a spectrum of strategies, including the development of evacuation plans, strategic allocation of resources, reinforcement of critical infrastructure, pre-financing agreements among humanitarian actors, and fostering community preparedness. Significantly, AWARE broadens the involvement of stakeholders, encompassing government officials, emergency response managers, humanitarian organizations, and the local communities at risk. By fostering collaboration, the platform encourages these diverse stakeholders to take preventive actions well before a disaster occurs, aiming not only to minimize its effects but, more crucially, to safeguard lives.

The AWARE Platform strategically targets government departments, agencies, humanitarian organizations, and funders to facilitate anticipatory action. The initial phase involves a meticulous process of identifying risks to communities and formulating comprehensive plans to effectively mitigate these risks. This task is executed through the utilization of tools embedded in the Platform's Early Action dashboard. During this stage, users engage in community risk assessments, conduct focus group discussions, and carry out key informant interviews, employing guidance documents made available through the Platform. The information gathered populates four crucial data structures: 'Category,' encompassing various aspects of a community's life and the physical assets susceptible to disaster impacts; 'Impact,' consolidating data on the direct and indirect consequences of different hazards on the community; 'Possible

Anticipatory Actions,' strategically developed in response to the identified impacts; and a thorough Anticipatory Action Plan, synthesizing all gathered information.

This comprehensive plan delineates specific actions to be undertaken across three distinct phases: 'Preparedness,' scheduled six to nine months ahead of a potential hazard; 'Readiness,' activated when a hazard is forecasted within the next week or so; and 'Active,' implemented when the event is imminent. Through this systematic approach, the AWARE Platform aims to empower stakeholders with the tools and insights necessary for proactive and effective anticipatory actions, fostering resilience in the face of potential disasters.

The AWARE platform comprises six distinct major modules, including Early Warning, Early Action, Early Finance, Sectorial Climate Risks, and Online bulleting. This report mainly focusing on delivering comprehensive information regarding the utilized data and delineates a step-by-step approach to facilitate a user-friendly interaction with the platform.

OBJECTIVE

The objective is to guide the users through the details of the platform, ensuring ease of use and a clear understanding of its functionalities.

HOW THE TECHNICAL GUIDE WORKS

The technical guide has been designed interactively to facilitate easy access when using the platform, featuring meaningful symbols accompanying each indicator. Additionally, the guide offers comprehensive module-level information, as illustrated in bellow Figure 1, and organized according to the major modules. This approach aims to enhance user experience by providing accessible and detailed guidance for navigating the platform seamlessly.

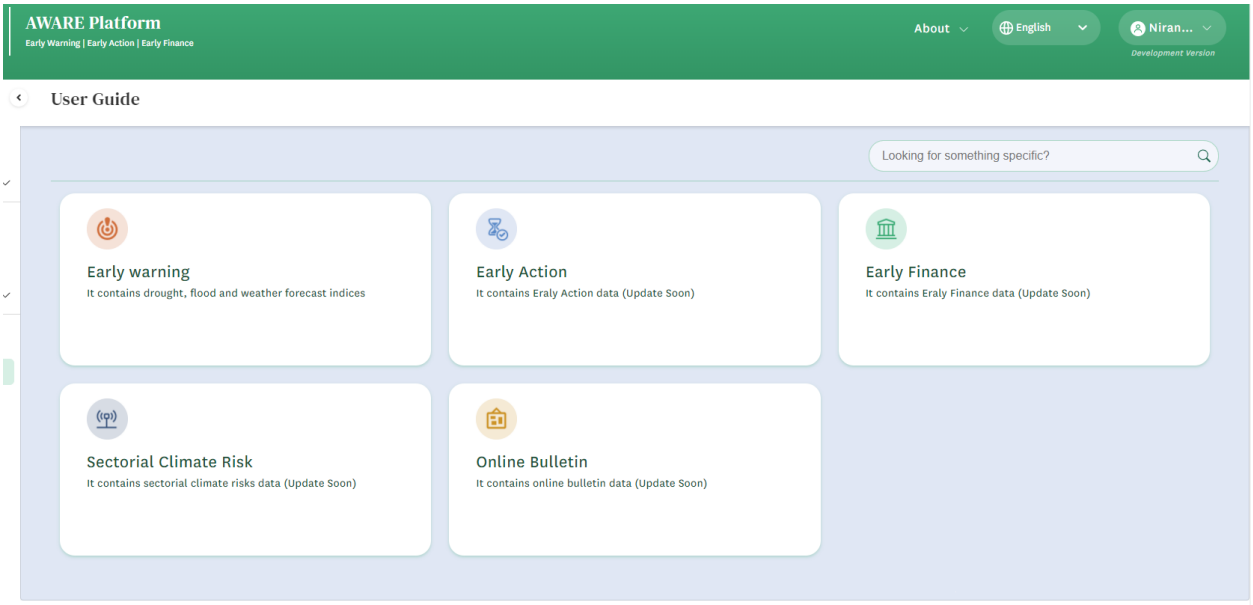

Figure 1: Modules within AWARE Platform that is covered in the Technical Guide

MAP PREFERENCES

The AWARE platform offers a diverse array of base layers for users to employ, providing a broad spectrum for interactive data visualization. These base maps can be accessed through the Map Preferences tool within AWARE, organized into several categories, including Admin, Basin, Demography, Ground Station, Landuse Land Cover, Water Resources, and others as displayed in the below figure 2. This categorization enhances the user experience, allowing for convenient selection and utilization of specific base layers tailored to their needs.

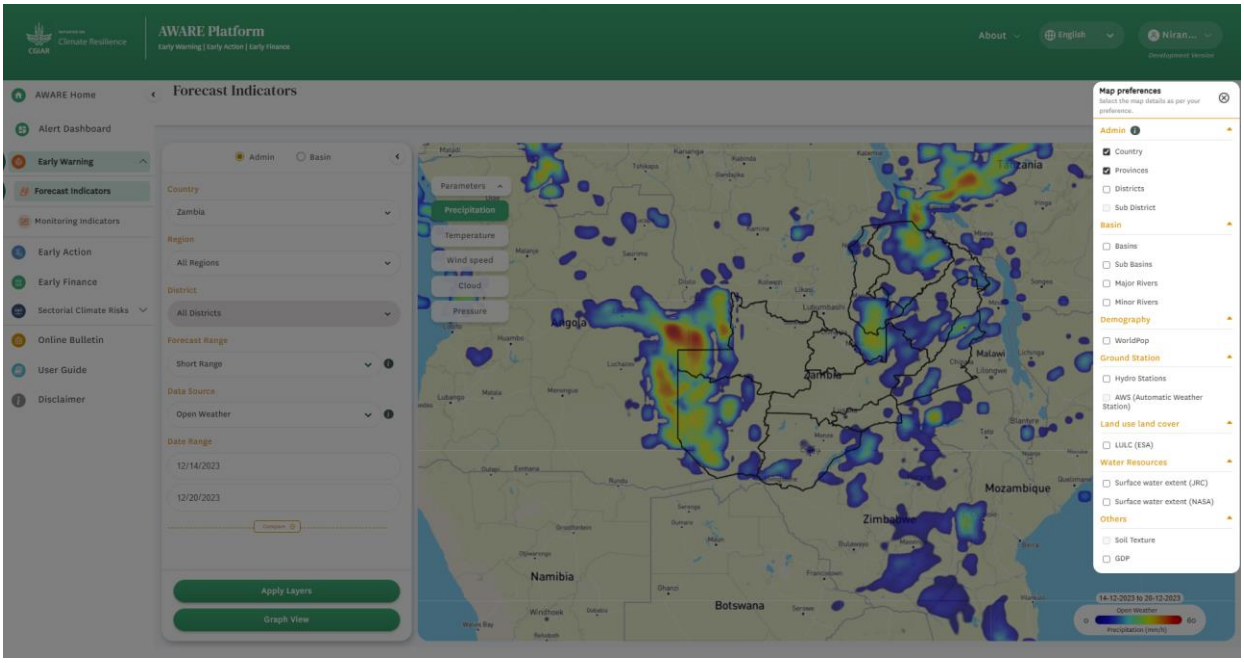

Figure 2: Various map preferences offered by the AWARE Platform

Moving forward, the subsequent sections are elaborate in the technical guide, focusing on the Early Warning, Early Action, and Early Finance modules covering data sources and stepby step approach of application. These explanations gives a detailed breakdown of each module's features, ensuring a comprehensive understanding and effective utilization of the user guide within the these essential components.

EARLY WARNING

The Early Warning module comprises two distinct sub-modules, namely Forecast Indicators and Monitoring Indicators. Forecast Indicators encompass a range of freely available short, sub-seasonal, and seasonal forecasts. On the other hand, Monitoring Indicators predominantly leverage freely available satellite and model data, covering a comprehensive array of flood and drought indicators. Scientists, researchers, and developers utilize Earth Engine to detect changes, map trends, and quantify differences on the Earth's approach, underscoring the significance of cutting-edge technology in the approach and interpretation of these indicators.

Common Approach for Visualizing Weather Forecast Data

The conventional method for visualizing both forecast and monitoring indicators involves a systematic sequence. Begin by selecting the geographical scope, including the country, province, and district. Subsequently, choose the specific indicator (OpenWeather, NOAA-GFS, IRI, etc.), followed by the selection of a date range and the adjustment of temporal aggregation. The next step is to apply these selections to visualize the data as a map. Should the user prefer a graphical representation, the option to apply the graph view is available as displayed in Figure 3 and Figure 4.

By following these detailed steps, users can seamlessly navigate the visualization process for both forecast and monitoring indicators, ensuring a comprehensive and tailored understanding of the data.

1. Start by selecting the country on Climber's homepage.
2. Navigate to the "Aware" tool on the Climber homepage.
3. Within the "Aware" home page, choose the "Early Warning" tool.
4. Opt for "Weather Forecast" under Climate and Vegetation from the left panel.
5. The default display will show Open Weather data source with precipitation map data.
6. Open Weather provides parameters such as Precipitation, Temperature, Wind Speed, Cloud, and Pressure.
7. Without selecting the "Apply Layers" button, choose the required parameters for Open Weather data source to display related legend and map data on the map.
8. Optionally, select Country, Region, and District based on your needs.
9. In "Data Source," use the drop-down to select Open Weather, GFS-NOAA, or IRI as required.
10. Choose the specific data source based on your needs.
11. Set the "Date Range" according to the selected data source.
12. Adjust Temporal Aggregation based on the selected data source.
13. Click on the "Apply Layers" button.
14. The selected data source indicator and its corresponding data will be visible on the map.
15. Zoom in or out of the map data using the '+' and '-' icons on the right side.
16. Explore satellite and streets views by selecting the base layer on the right side.

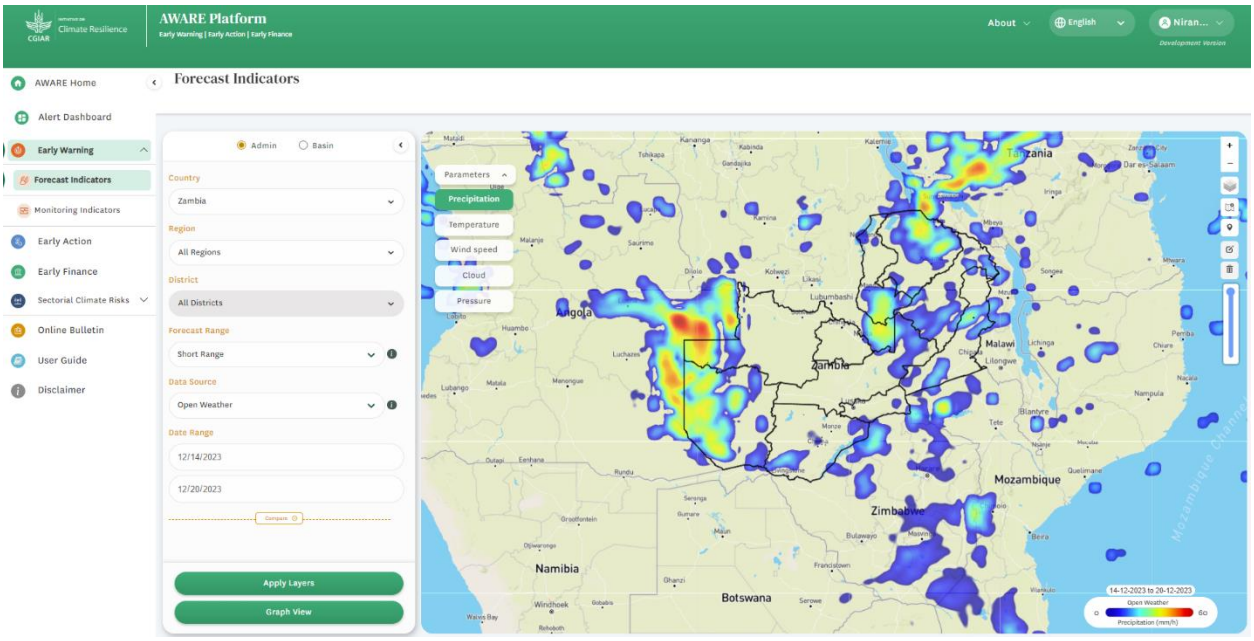

Figure 3: Visualization of OpenWeather Data in Zambia, Including Coverage of Other Areas.

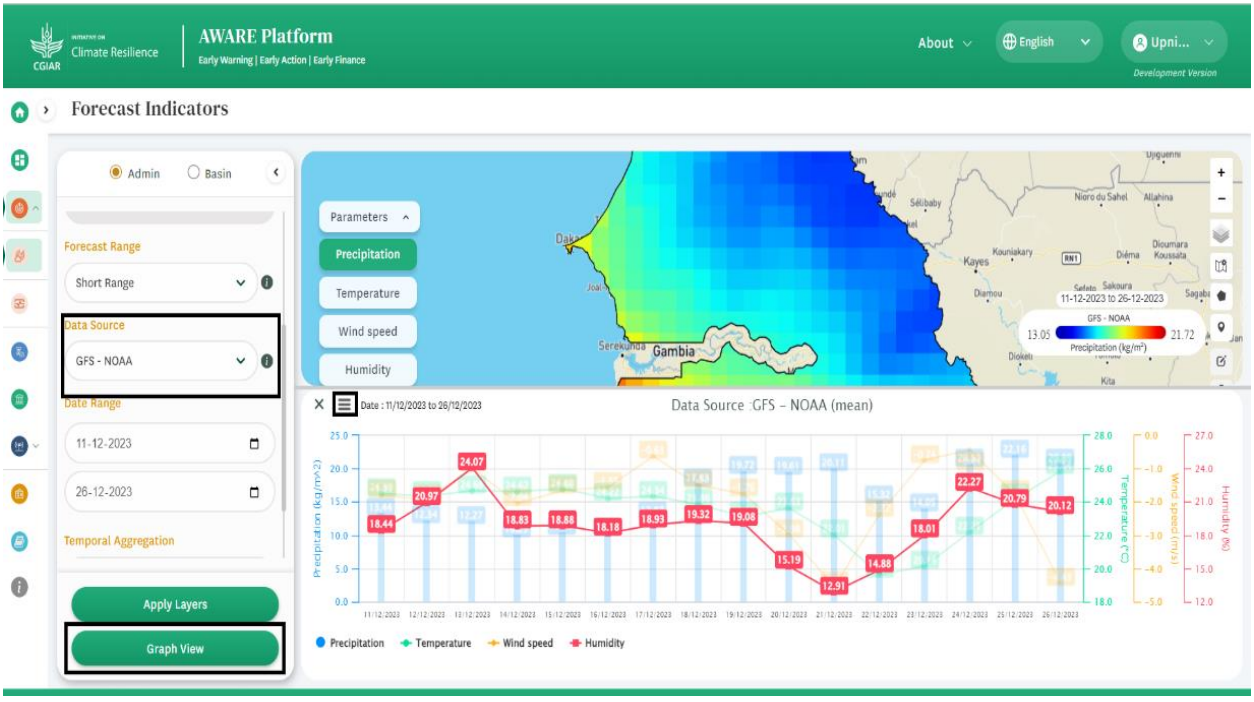

Figure 4: Visualization of GFS-NOAA Data in Senegal.

Similarly, users have the capability to conduct comparisons of similar or different indicators within the same or distinct time frames through the utilization of the compare tool in AWARE. This approach is adaptable and can be applied across various parameters in both forecasting and

monitoring indicators. For a visual guide on how to employ this comparison feature, please refer the Figure 5 and the steps provided below.

- Select the Region and District, as per the requirement.
- Select the data source as per the requirement.
- Select the date range for the selected data source.
- Select the “Compare (+) button, and then select map radio button.
- Select the data source as per the requirement.
- Select the date range for the selected data source.
- In comparison, the selected data sources common parameters will be seen.
- Select the “Apply Layers” button.
- The compared data sources legends and its data will be seen on the map.
- The slider in the middle of the map, can be moved left and right side, to view the single data source map data

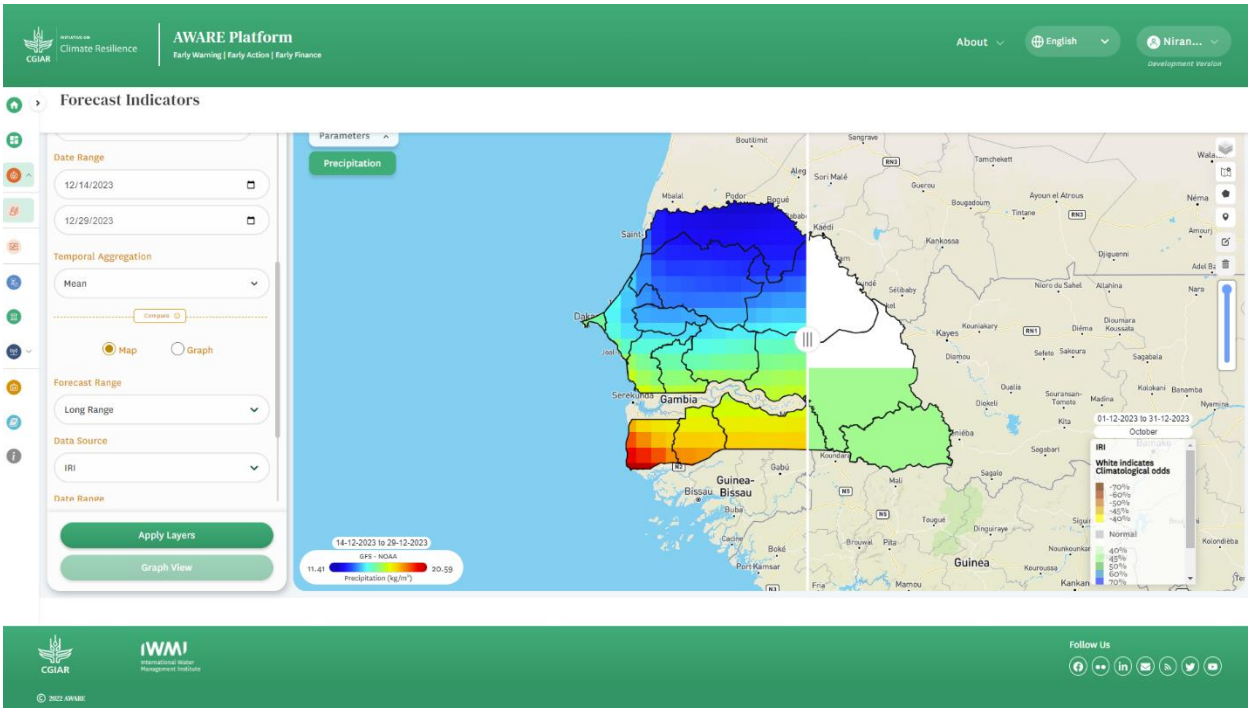

Figure 5: Comparison of Medium-Term and Seasonal Forecast Data at the country level.

Early Waring using forecast indicators

Seasonal forecast (Long range)

The International Research Institute for Climate and Society (IRI) offers a diverse array of climate data sources aimed at monitoring and evaluating climate conditions. These resources are

instrumental in devising strategies for effective water resource and agriculture management in response to climate variability and change. As displayed in Figure 6, the primary parameter available for the IRI data source is Precipitation as a seasonal forecast ranging for the next four month from the corresponding month.

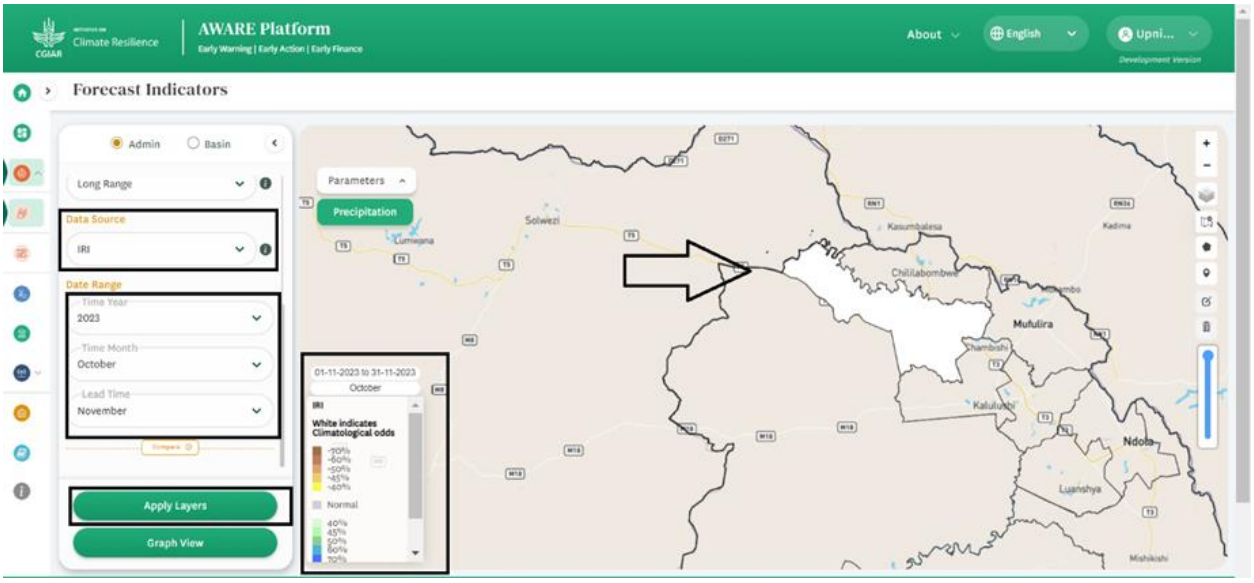

Figure 6: Visualization of Seasonal Forecast Data (IRI) at the Subdistrict Level

Sub-seasonal forecast (Medium range)

The Global Forecast System (GFS) stands as a weather forecast model crafted by the National Centers for Environmental Prediction (NCEP). The extensive GFS dataset encompasses carefully chosen model outputs presented as gridded forecast variables, with GFS-NOAA providing an extensive 384-hour forecast data.

When using the GFS-NOAA data source, users have the flexibility to manually select calendar dates. This dynamic data source exhibits varying information on the map depending on the chosen parameters. To tailor the visualization to specific needs, users can select the desired parameter for GFS-NOAA, revealing the associated legend and data on the map. The available parameters for GFS-NOAA encompass Precipitation, Temperature, Wind Speed, and Humidity, offering a comprehensive view of critical weather variables as displayed in Figure 7.

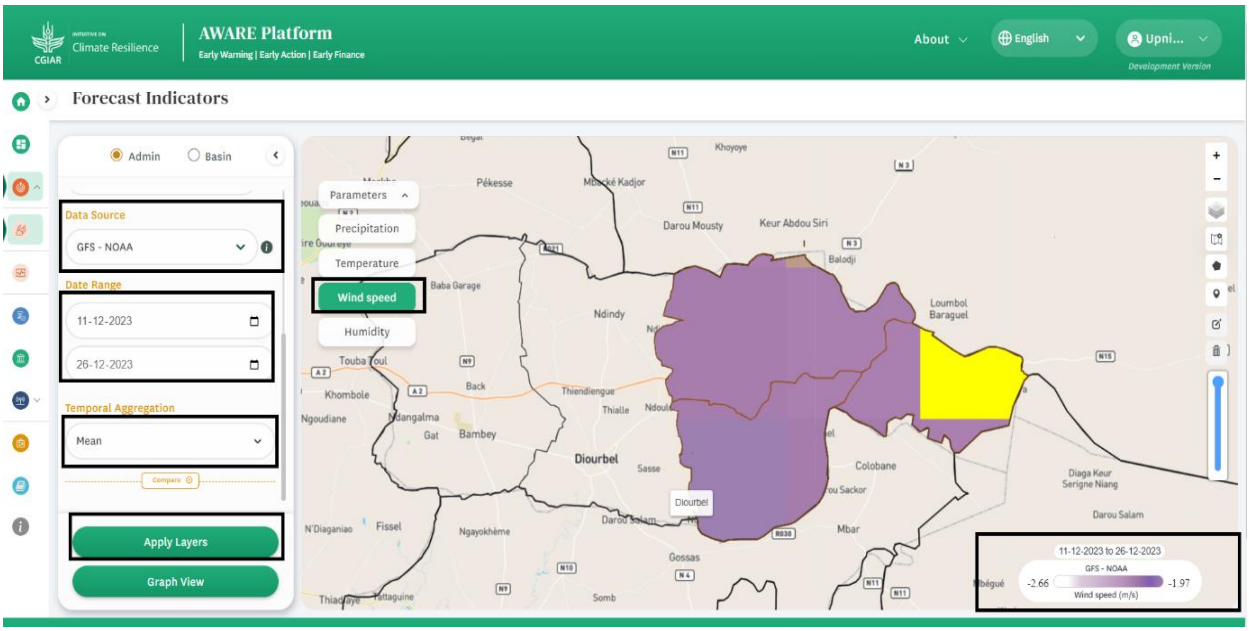

Figure 7: Visualization of Sub-seasonal Forecast Data (GFS-NOAA) at the Subdistrict Level

Short range forecast

The AWARE platform offer easily recognizable weather products to simplify the utilization of weather data. In the case of Open Weather, it's important to note that Calendar data is binding, displaying a fixed range of 7 days from the current date. The Open Weather API provides a comprehensive 7-day forecast covering Precipitation, Temperature, Wind speed, Cloud conditions, and Pressure. As displayed in Figure 8, this feature enhances accessibility and usability, allowing users to seamlessly integrate and interpret vital weather information for a more informed decision-making process.

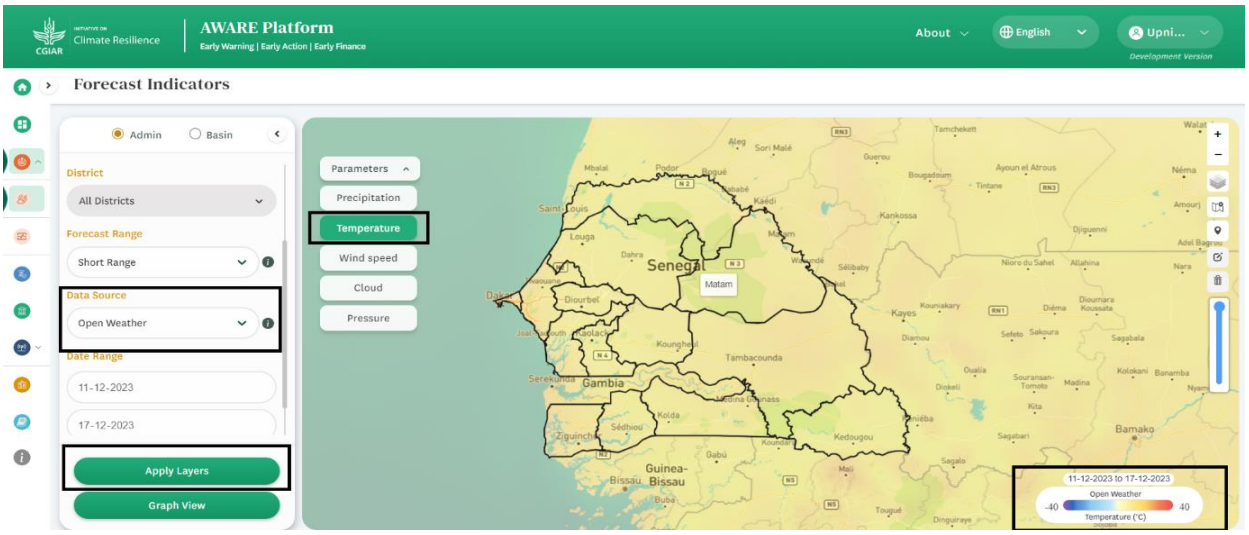

Figure 8: Visualization of short range Forecast Data (OpenWeather) at regional Level

Sub-Seasonal Forecast (Static)

The European Centre for Medium-Range Weather Forecasts (ECMWF) provide medium-range global weather predictions extending up to 15 days and seasonal forecasts spanning 12 months. ECMWF provides medium range forecast data as static information, setting it apart from the dynamic nature of other available forecast datasets in AWARE. Despite this distinction, as displayed in Figure 9, users can employ a uniform visualization approach like other data sources by selecting specific products, facilitating a seamless integration of ECMWF data. This adaptability ensures a solid and comprehensive understanding of weather-related information across diverse products in divers temporal scales.

Major products available in AWARE

- EFI Precipitation – Extended range forecast
- EFI Precipitation
- EFI of 2m temperature – Extended range forecast
- EFI wind gust
- EFI wind speed

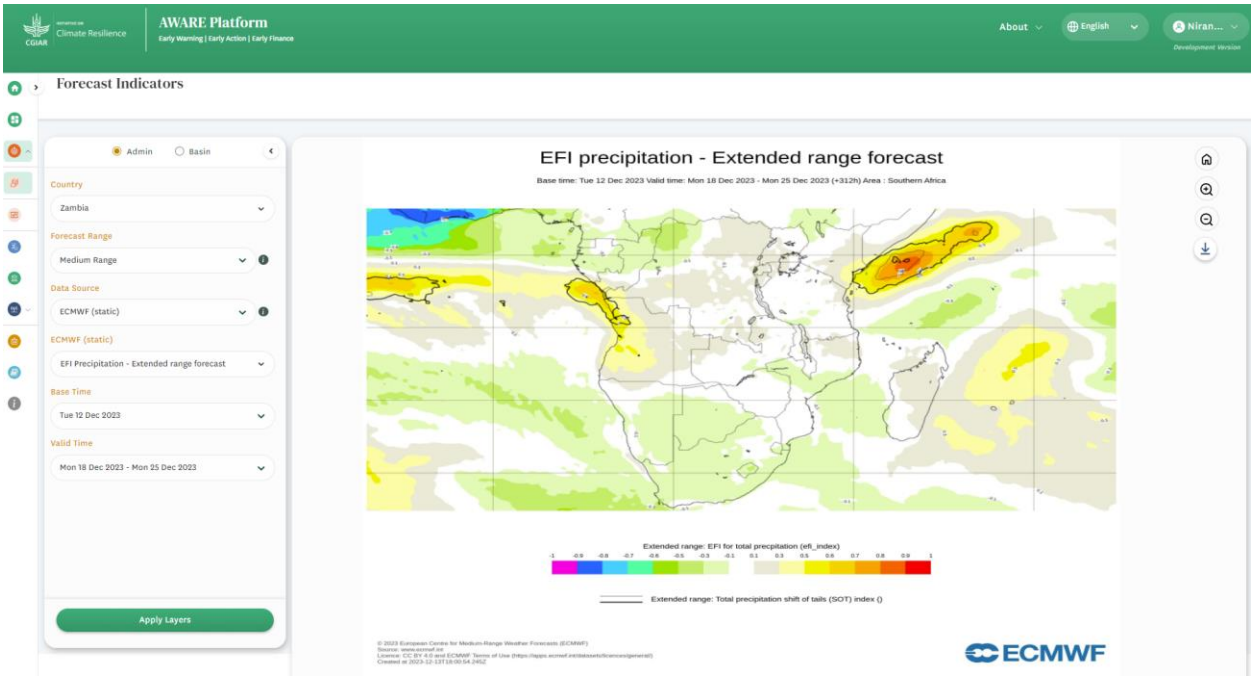

Figure 9: Visualization of Sub-seasonal level Forecast Data (ECMWF) at regional Level

Early Warning - Monitoring Indicators

Monitoring indicators offer users the flexibility to observe the current conditions related to flood and drought hazards within a specific geographical area. The system consolidates key drought indicators, including Dry Spell, Soil Moisture Condition Index (SMCI), and Intigrated Drought

Seviority Index (IDSI). Additionally, flood indicators comprise accumulated rainfall, flood extent derived from both Sentinel-1 and MODIS, GLOWFAS, and GeoGlows.

Drought Early Warning Monitoring Indicators

Dry spell

A dry spell is identified by a series of consecutive days within a one-month timeframe during which daily precipitation falls below a predefined threshold, such as 0.1, 1, 5, or 10 mm (Suppiah, R. and Hennessy, 1998)[1]. This application employs Climate Hazards center InfraRed Precipitation with Station (CHIRPS) data to calculate the number of dry days, enabling the assessment of dry spell durations over the course of a one-month period.

Steps to be followed,

- Select country
- Click on parameter (Dry spell)
- Define threshold (2.5mm)
- Define date range (start – end for a one month)
- Click apply layer

Figure 10 displays dry spell data retrieved by following above mentioned steps. This common approach aplicable for the all the drought indicators.

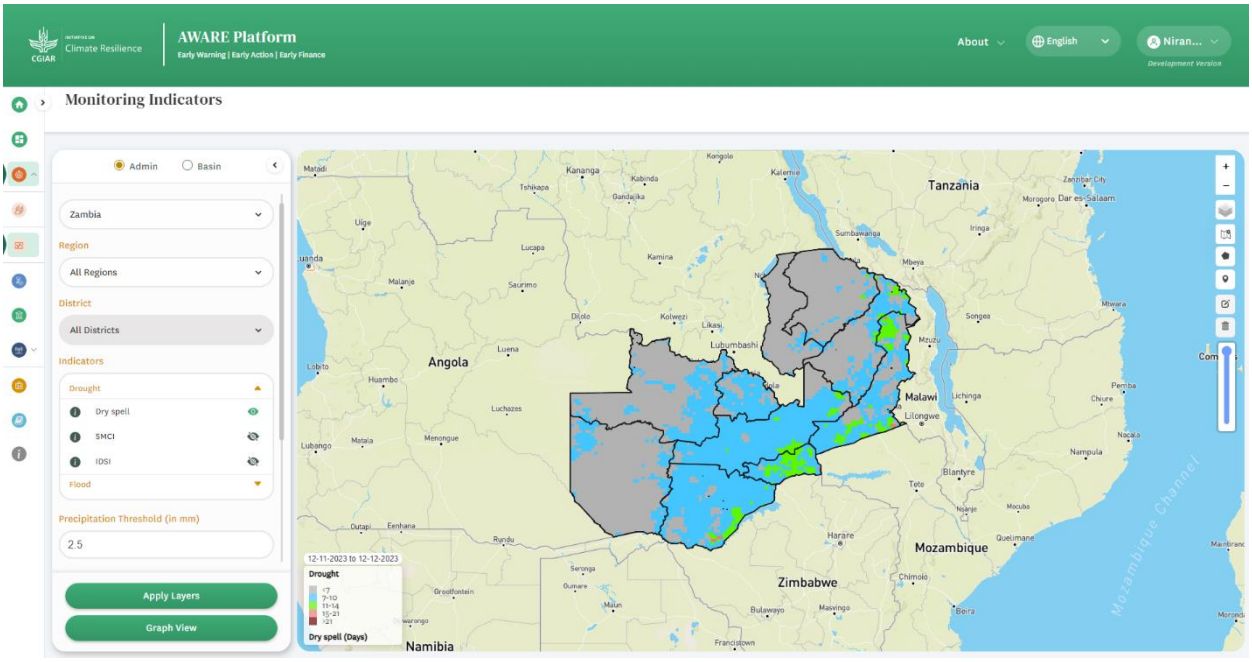

Figure 10: Visualization of Dry spell Data (GPM) in Zambia

[1] https://rmets.onlinelibrary.wiley.com/doi/10.1002/(SICI)1097-0088(199808)18:10%3C1141::AID-JOC286%3E3.0.CO;2-P

Soil Moisture Condition Index

SMCI, denoting Soil Moisture Condition Index, is a metric expressing the soil moisture condition, calculated through the following equation:

$$SMCI = (SM_i - SM_{min} / SM_{max} - SM_{min}) 100$$

SM_i = Current Soil Moisture, SM_{min} = Minumum Soil Moisture, SM_{max} = Maximum Soil Moisture

The SMCI value ranges from 0 to 100, with a value nearing 0 indicating extreme soil moisture stress and values close to 100 representing a healthy soil moisture situation. Here, SMmin and SMmax denote the long-term minimum and maximum soil moisture for a specific pixel, while SMi represents the current soil moisture for the same pixel. Follow the same procedure used in Dry spell to visualize the SMCI data as displayed below in Figure 11.

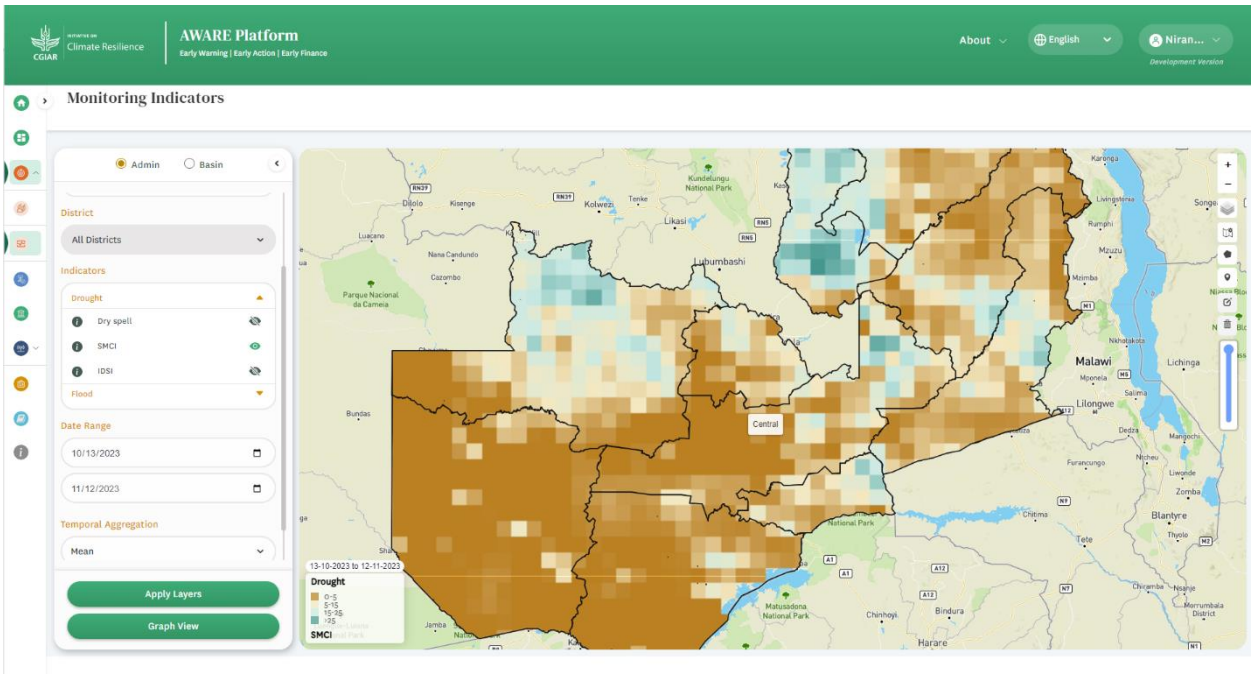

Figure 11: Visualization of SMCI Data in Zambia

Intigrated Drought Seviority Index (IDSI)

IDSI, or Integrated Drought Severity Index, is derived from the fusion of multi-scale Vegetation Condition Index (VCI), Precipitation Condition Index (PCI), Soil Moisture Condition Index (SMCI) and Evapotranspiration Condition Index (ECI) through advanced data fusion techniques. The IDSI values span from 0 to 100, mirroring the scale of previous indices. Near-zero values indicate extreme drought conditions, while values nearing 100 signify robust vegetation health and an absence of drought. The calculation of the Integrated Drought Severity Index (IDSI) is performed using the following equation.

$$IDSI_{ijk} = 0.6 * VCI_{ijk} + 0.1 * SMCI_{ijk} + 0.2 * PCI_{ijk} + 0.1 * ECI_{ijk}$$

$IDSI_{ijk}$, VCI_{ijk}, TCI_{ijk} and PCI_{ijk} are IDSI, VCI, SMCI, ECI and PCI values for a pixel (i) in a composite (j) of a year (k). By following the same steps used in Dry spell, IDSI data can be visualized as shown in the Figure 12.

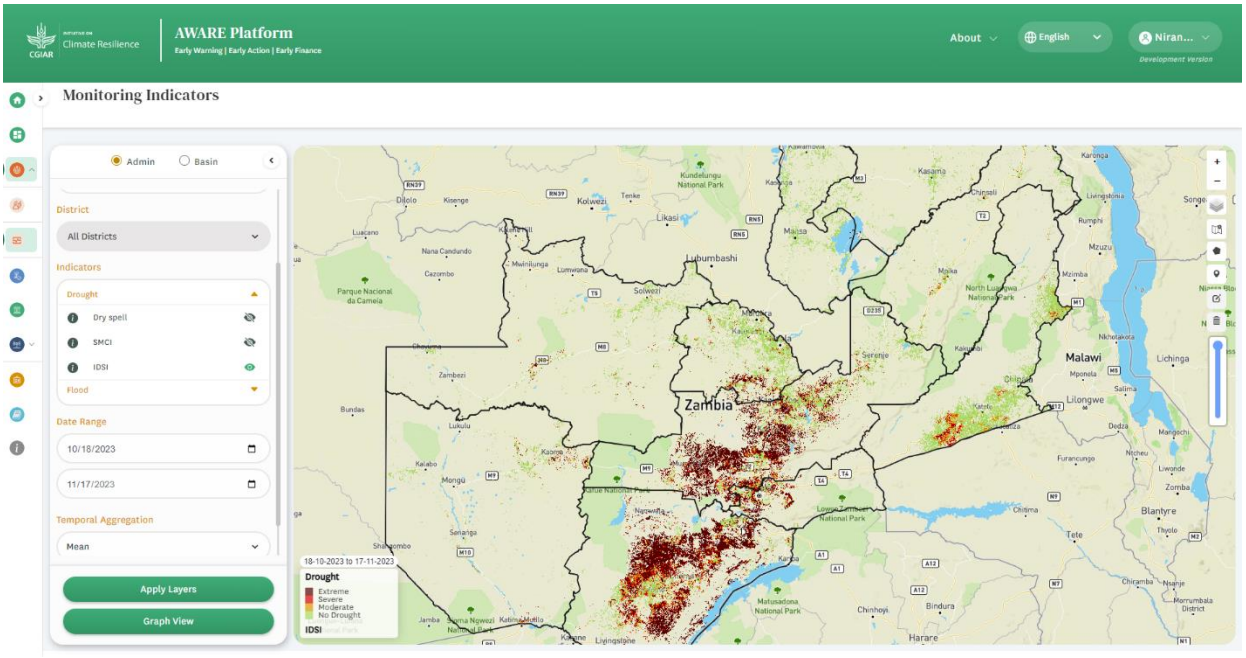

Figure 12: Visualization of IDSI Data in Zambia

Flood Early Warning Monitoring Indicators

To visualize flood indicators, users can follow a similar approach as employed for drought indicators. This involves utilizing the provided parameters for Accumulated Rainfall (GPM), Flood (ESA), and Flood (NASA). Notably, these parameters support a comparative analysis, enabling users to assess and compare different indicators across various timeframes.

Steps to be followed,

- Select country
- Click on the parameter (Dry spell)
- Define threshold (2.5mm)
- Define date range (start – end for a one month)
- Click apply layer

This common approch aplicable for Accumulated Rainfall (GPM), Flood (ESA), and Flood (NASA)

Accumulated rainfall

The Accumulated Rainfall (GPM) metric offers an assessment of the total precipitation received within a specified area over a defined period. GPM, denoting Global Precipitation Measurement, employs a satellite-based system to measure precipitation. The calculation of Accumulated Rainfall (GPM) involves summing the precipitation measurements recorded at half-hour intervals

over a designated area during a specific timeframe. The result provides a measure of cumulative rainfall, expressed in millimetres. Below Figure 13 visualises the rainfall accumulation in Zambia using the flood monitoring indicators of AWARE platform.

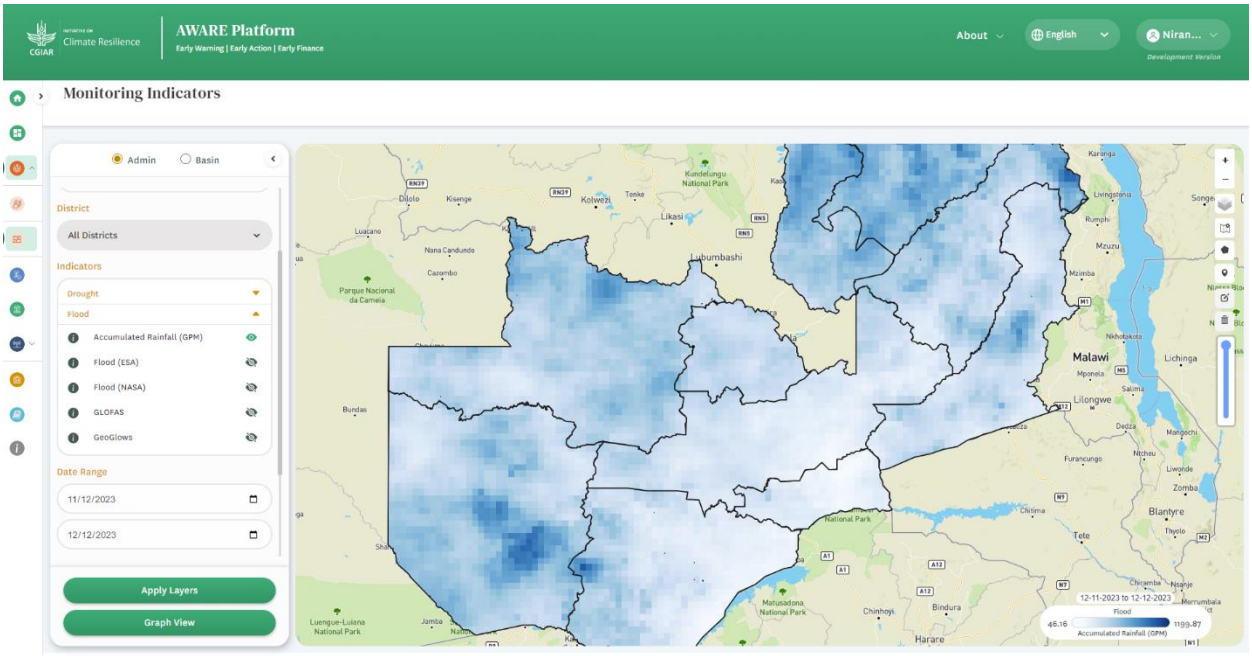

Figure 13: Visualization of rainfall accumulation (GPM) in Zambia

Flood mapping using satellite data

The Flood (ESA) indicator is a method for measuring flood extent, utilizing data from the European Space Agency (ESA) Sentinel-1. The Sentinel-1 satellite employs radar sensors to capture detailed images of the Earth's surface, enabling the identification and mapping of flood extent. This approach is advantageous as it allows for flood monitoring at any time, irrespective of weather conditions, providing a reliable tool for assessing the spatial scope of floods.

The Flood (NASA) indicator measures flood extent by leveraging the capabilities of the Moderate Resolution Imaging Spectroradiometer (MODIS) satellite, which developed by the National Aeronautics and Space Administration (NASA). This system consistently observes the Earth's surface twice daily through its Aqua and Terra instruments, employing moderate resolution optical bands. It can be specifically used for regional-level flood monitoring as displayed in figure 14, the Flood (NASA) indicator proves particularly effective in scenarios without cloud cover. In contrast to Sentinel-1, which excels in monitoring local-level flood occurrences, MODIS-based observations from NASA offer comprehensive coverage suitable for broader geographical areas, making it a valuable tool for assessing flood extent on a regional scale.

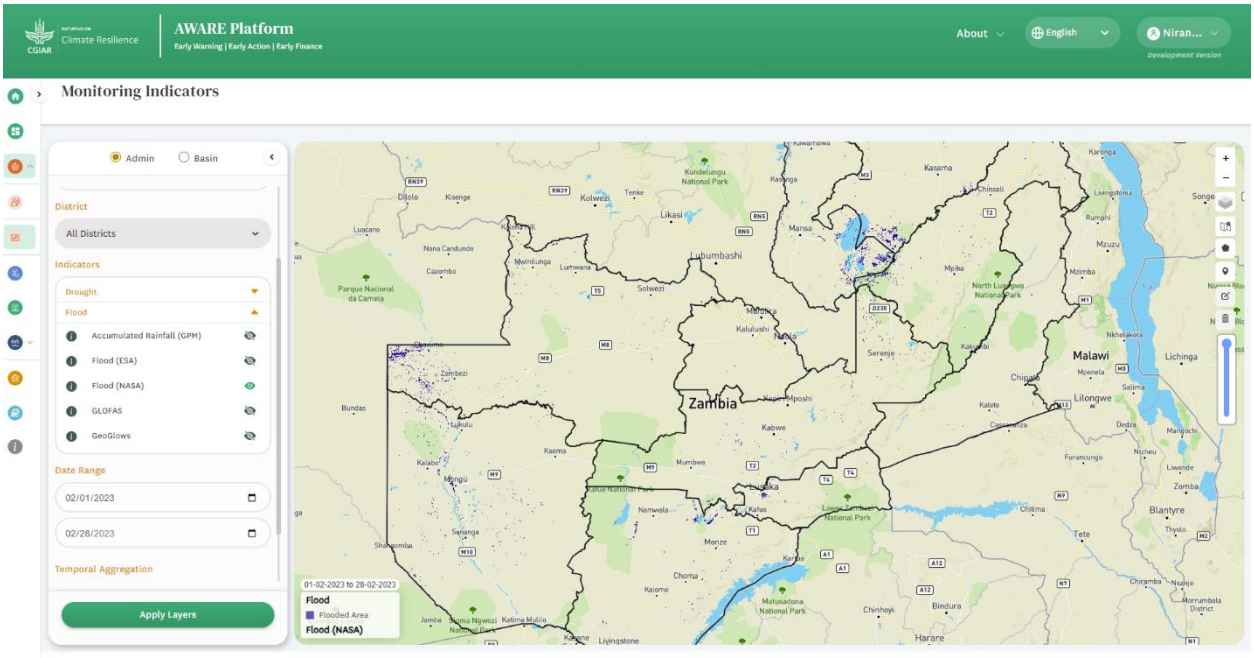

Figure 14: Visualization of Flood Extent Derived from MODIS Satellite Data in Zambia.

Flood forecasting using GLOFAS data

Global Flood Awareness System (GLOFAS) stands as a global initiative offering flood forecasts and early warning systems, facilitating community preparedness and response to floods. The GLOFAS indicator for river discharge relies on a hydrological model that simulates the movement of water within rivers and streams. Measured typically in cubic meters per second, the GLOFAS river discharge indicator assesses the potential for flooding in specific areas. The initiative provides real-time and near-real-time data on river discharge, aiming to enhance the comprehension and management of water resources. By offering timely information, GLOFAS supports communities in their efforts to prepare for and respond to floods. The hydrological model employed by GLOFAS produces daily forecasts of river discharge up to 30 days in advance. This foresight empowers water managers and emergency responders to strategically plan and prepare for potential flooding events.

How to visualize GLOFAS data in AWARE as dispalyed in Figures 15 – 17.

- Select GLOWFAS and Click on “Apply Layer” (available discarge locations will be add together with rivers).

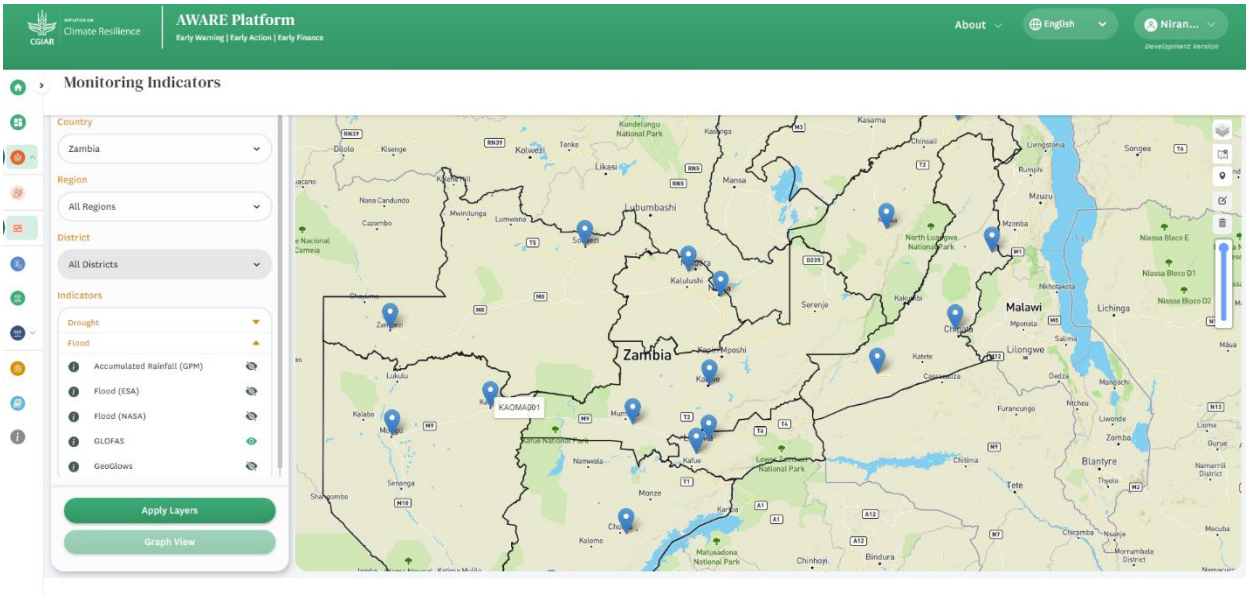

Figure 15: Visualization of Discharge Data Locations in Zambia

- Click on a guage point to visualize the forecast data next 15day.

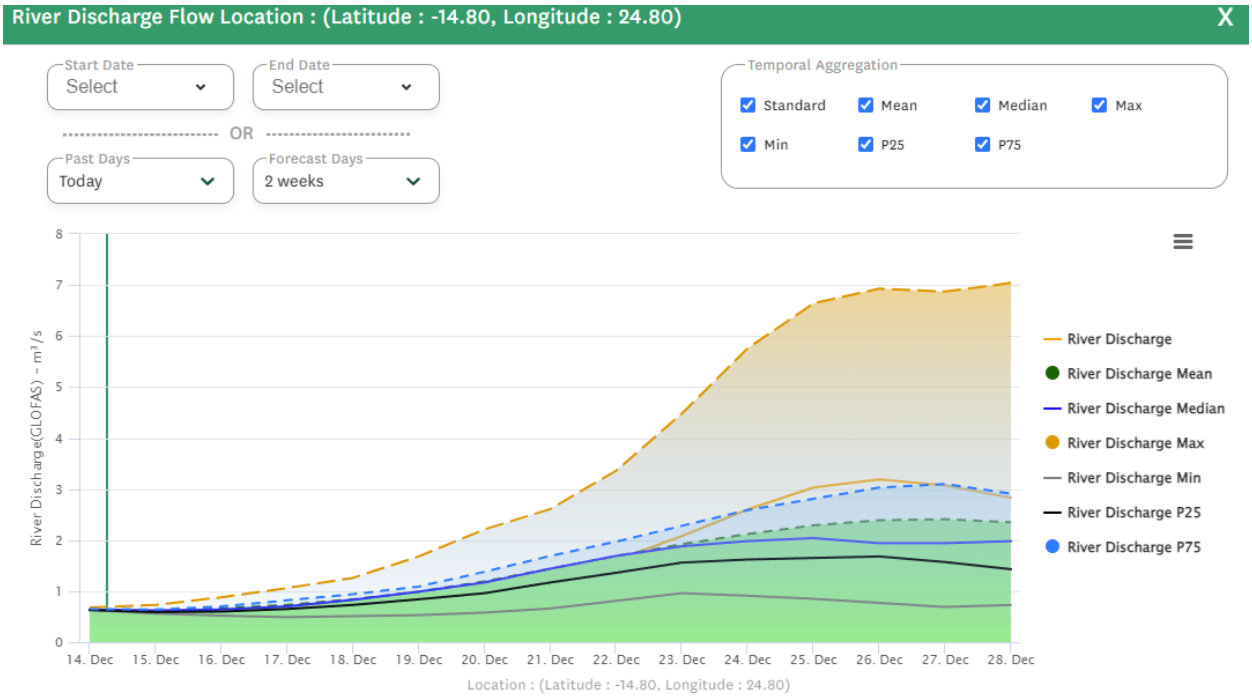

Figure 16: Visualization of Forecasted River Discharge Flow for the Next Two Weeks at the Selected Location in Zambia

It enables users to visualize both the 15-day to 3 month forecast as well as historical records by adjusting the time frame (start and end date) within the panel. Also, the System alows to download the images as well.

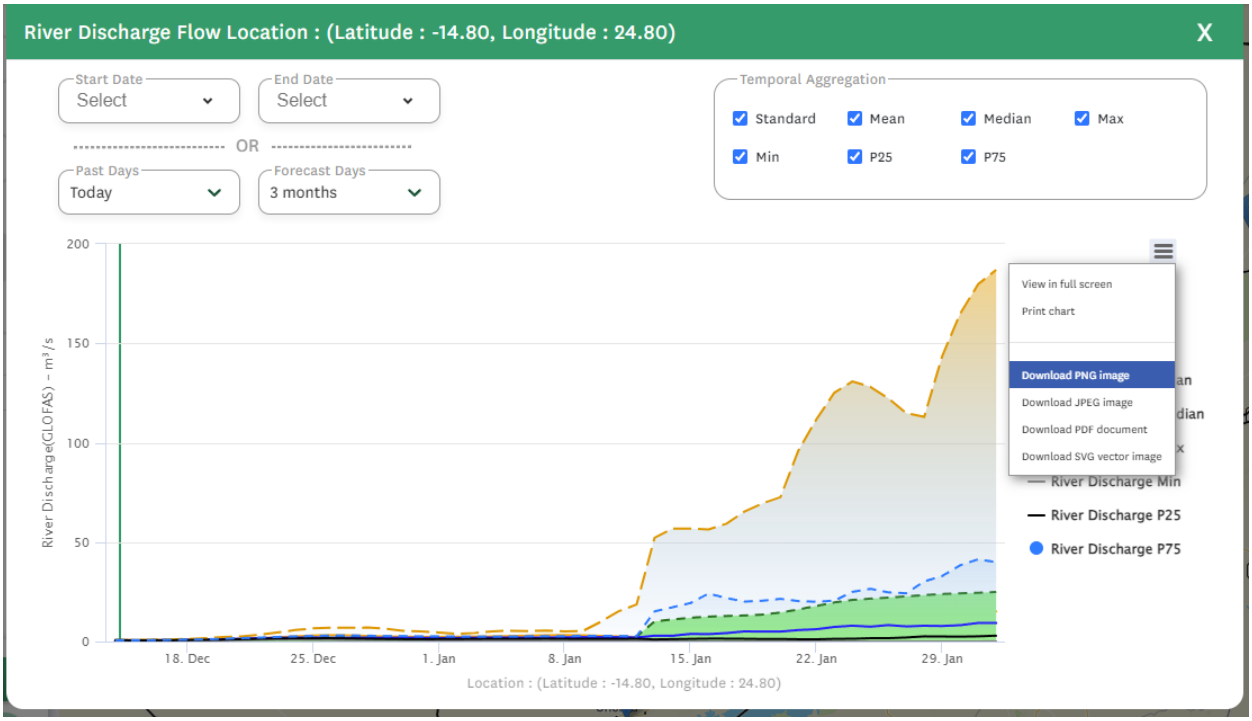

Figure 17: Visualization of Historical River Discharge Flow for the Last Three Months at the Selected Location in Zambia

Flood forecasting using GeoGlows

GeoGLOWS offering real-time and near-real-time data, GeoGLOWS presents a variety of water-related indicators, including river discharge, precipitation, and temperature. This comprehensive dataset aids water managers and policymakers in making well-informed decisions pertaining to water resource management. The GeoGLOWS river discharge indicator relies on streamflow data, typically measured in cubic meters or cubic feet per second. This indicator delivers up-to-the-minute information on the volume of water flowing in rivers or streams. This real-time insight enables water managers to evaluate the overall water availability in a specific region, facilitating informed decisions on water allocation and management strategies.

How to visualize GeoGLOWS data in AWARE as displayed in Figures 18 – 21,

- Select GeoGlows and Click on “Apply Layer” (river network appear)

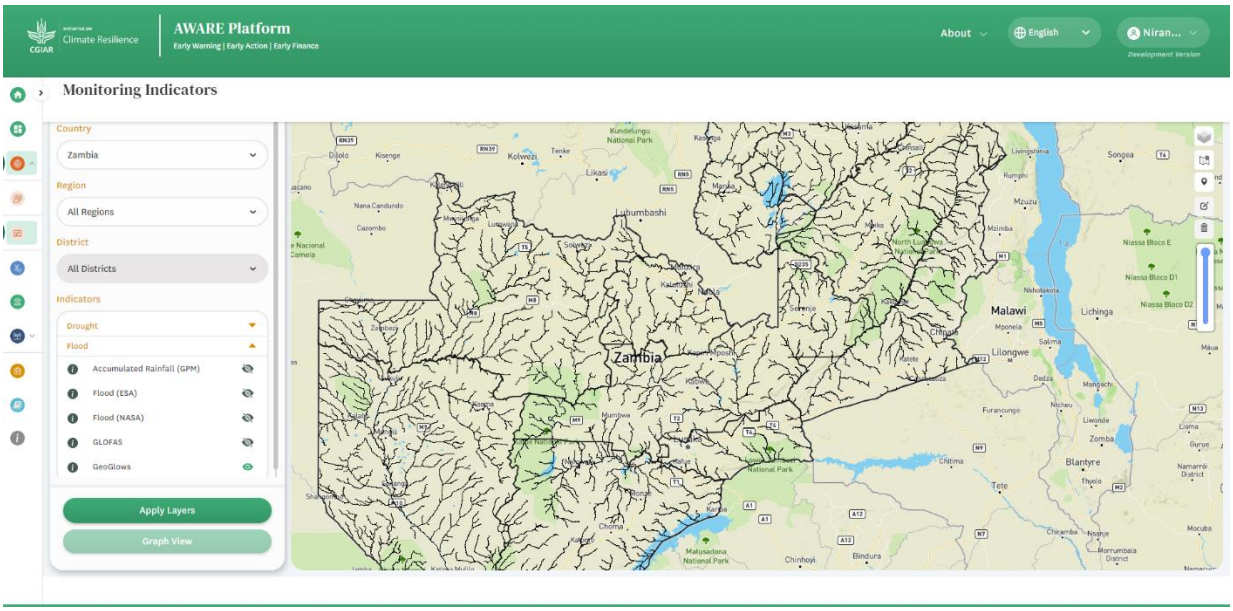

Figure 18: Visualization of River Network Used by GeoGlows in Zambia

- Click on "Draw a marker" to create a point to visualize the forecast data
- Click on any point on the river network
- Start the parameter generation automatically

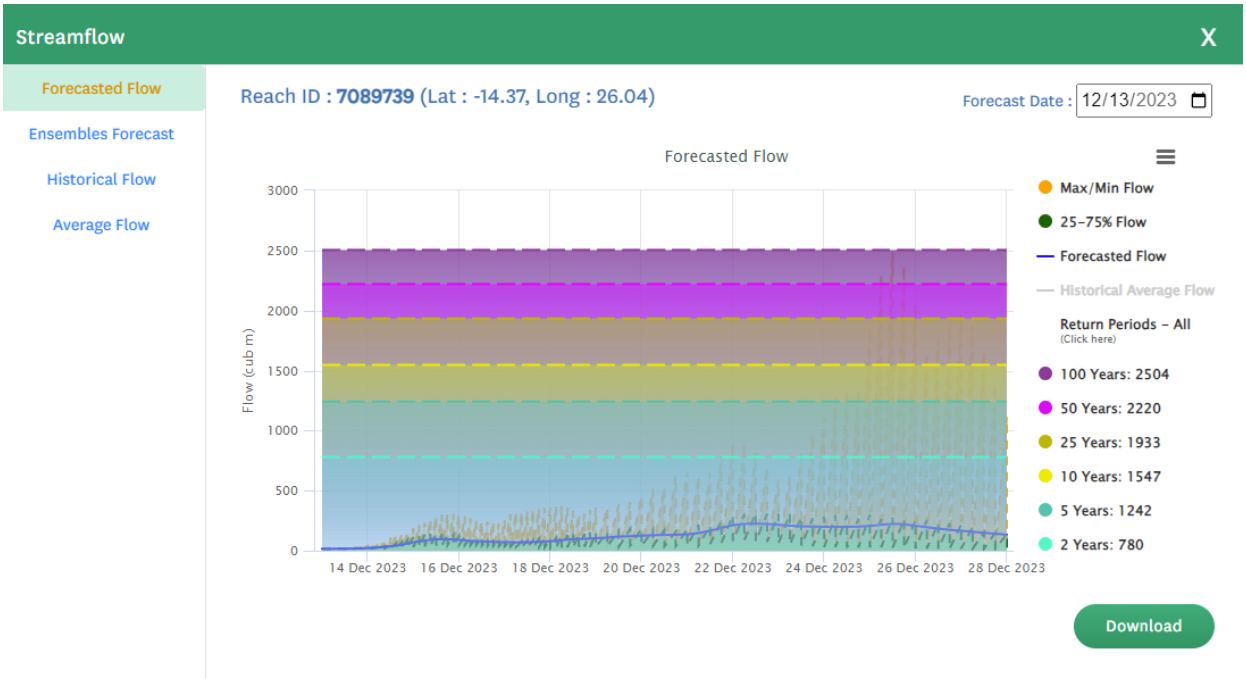

Figure 19: Visualization of Forecasted Flow for the Next 15 Days and River Discharge for Different Return Periods at a Specific Location in Zambia

The system enables users to visualize the forecast for the next 15 days, ensemble forecasts, historical flow data for the past 45 years, and average flow based on historical records.

Additionally, the system provides the privilege to download the data as a CSV file using the download option shown in the figure above.

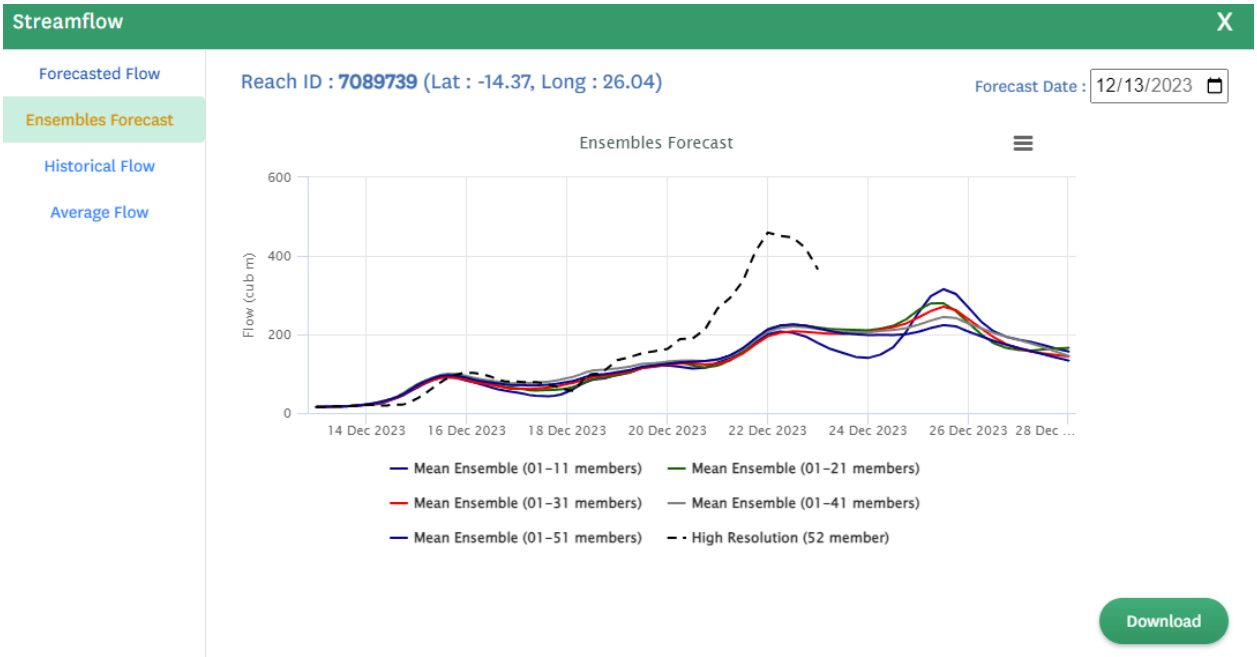

Figure 20: Visualization of Ensembles Forecast for the Next 15 Days at a Specific Location in Zambia

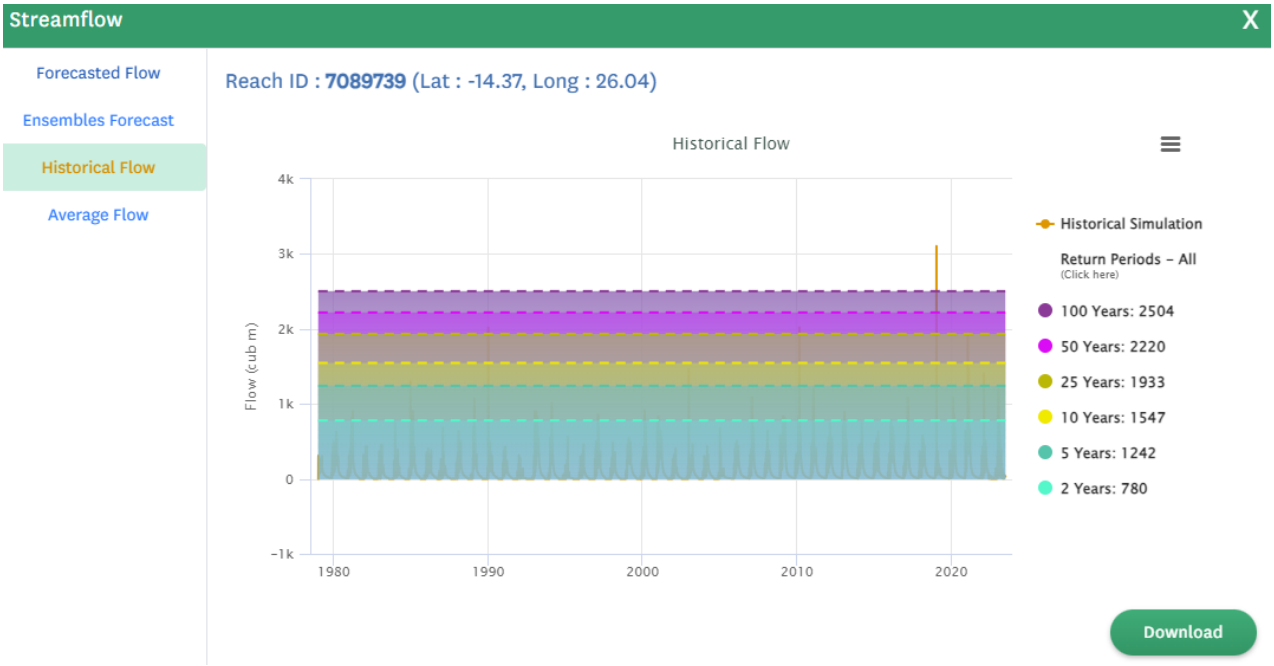

Figure 21: Visualization of Historical flow for Last 40 years at a Specific Location in Zambia

Early Warning (Alert) Dashboard

The Alert Dashboard serves as a crucial decision-making tool for activating the Anticipatory Action (AA) protocols, determined by distinct trigger levels involving Preparedness, Readiness, and Active phases for flood, drought and landslide hazards. This dynamic dashboard thoroughly assesses various forecasts and monitoring indicators. Depending on the activation triggers associated with these parameters, the system generates alert levels, designating whether the situation is in a state of Preparedness, Readiness, or Active intervention. The system then provides corresponding Anticipatory Action protocols to be activated based on the specific phase of the trigger level.

Figure 22 depicts the Alert Dashboard for drought hazards in the Chibombo district, of Central provinces of Zambia. The visualization strongly indicates that, according to Standardized Precipitation Index (SPI) values, there is a necessity to activate the Anticipatory Action protocols for the Active phase. This exemplifies the dashboard's capability to offer timely and targeted responses aligned with the severity of the anticipated hazard.

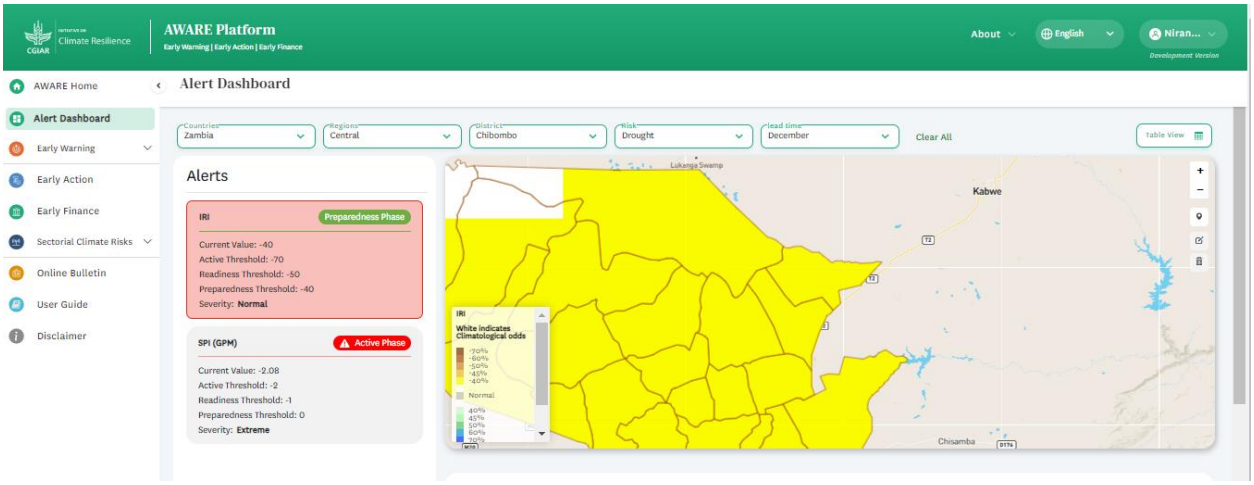

Figure 22: The Alert Dashboard for drought in Chibombo district, located in the Central province of Zambia

EARLY ACTION

Early action within the anticipatory action framework entails the implementation of preventive or preparatory measures prior to the occurrence of an anticipated hazard event. This strategic approach aims to strengthen resilience, mitigate potential damage, and enhance overall response capabilities. In the context of the AWARE platform, early action set up a significant component, offering a digitalized framework for early action protocols across diverse geographical contexts.

The early action process is structured into three important phases: preparedness, readiness, and active. As displayede in Figure 23, AWARE facilitates a step-by-step approach for users to input actions corresponding to each of these phases. Additionally, the platform incorporates access management mechanisms, accommodating varying user levels and administrative roles. Users have the capability to visualize early action protocols, while administrators possess privileges to input these protocols into the system, facilitating seamless coordination and collaboration with partners. The integration of these features within the AWARE platform strengthening its role in facilitating comprehensive early action strategies and promoting efficient communication among stakeholders.

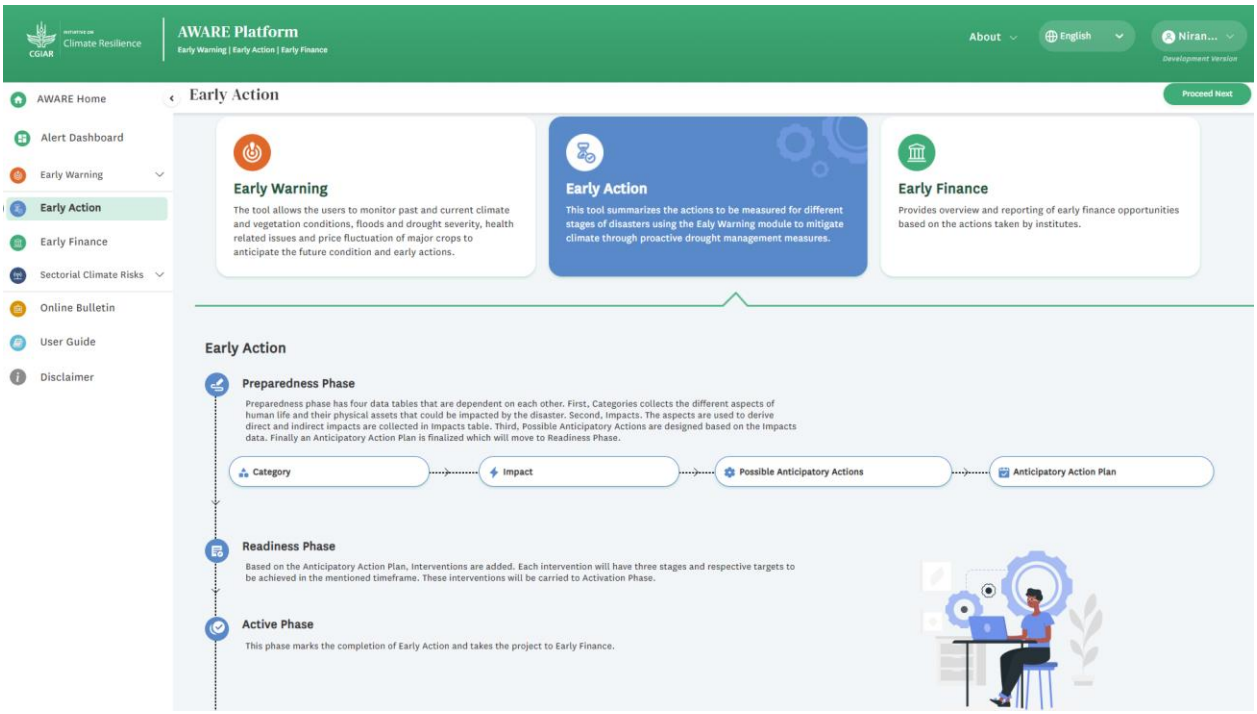

Figure 23: Key Steps in Anticipatory Action

How to add Early action in to AWARE platform

- Upon entering the early action module of the AWARE platform, users can utilize the **"Proceed next"** feature to add Early Action protocols, as illustrated in below Figure 24.
- The system displays previously formulated action plans for various areas, and users can proceed by selecting **"Create Project"** to introduce new early action plans.

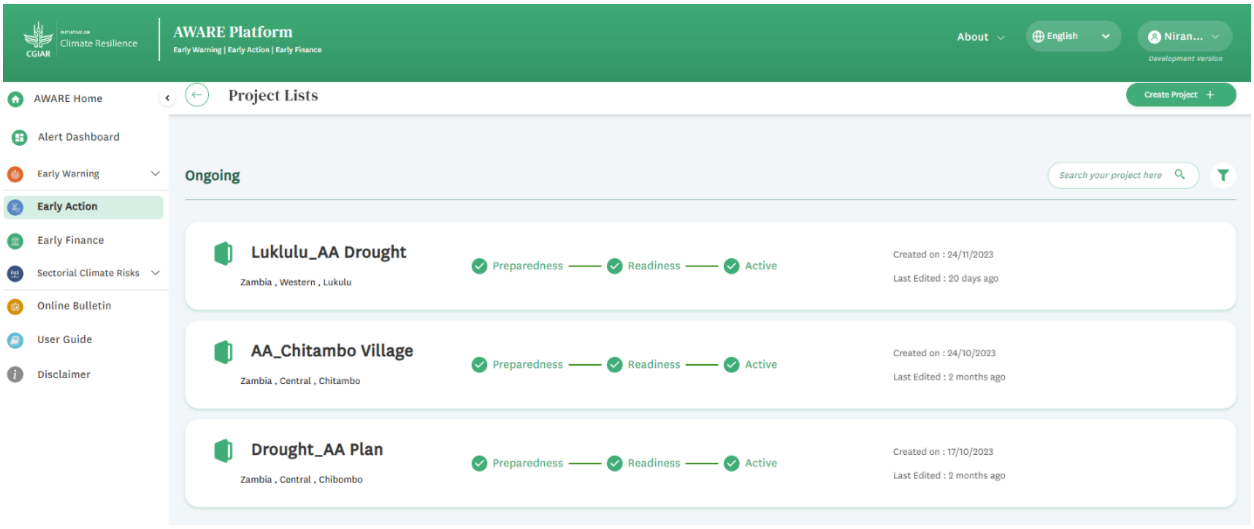

Figure 24: Visualization of Existing Anticipatory Action Protocols in the AWARE Platform

Create Project

- Users are given the ability to choose a country, state, district, and the type of risk, as depicted below. After completing all the fields, click "Create" to initiate a new project template for the insert of new information as illustrated in below Figure 25.

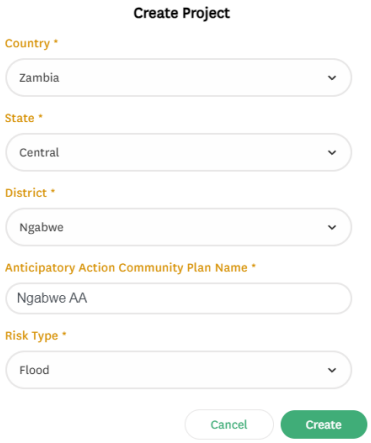

Figure 25: Initiating a New Project for New Area to Updating Anticipatory Action Plans in the AWARE Platform

- The newly created project is incorporated into the system, allowing the user to proceed and input all pertinent information for the preparedness, readiness, and active phases as illustrated in Figure 26.

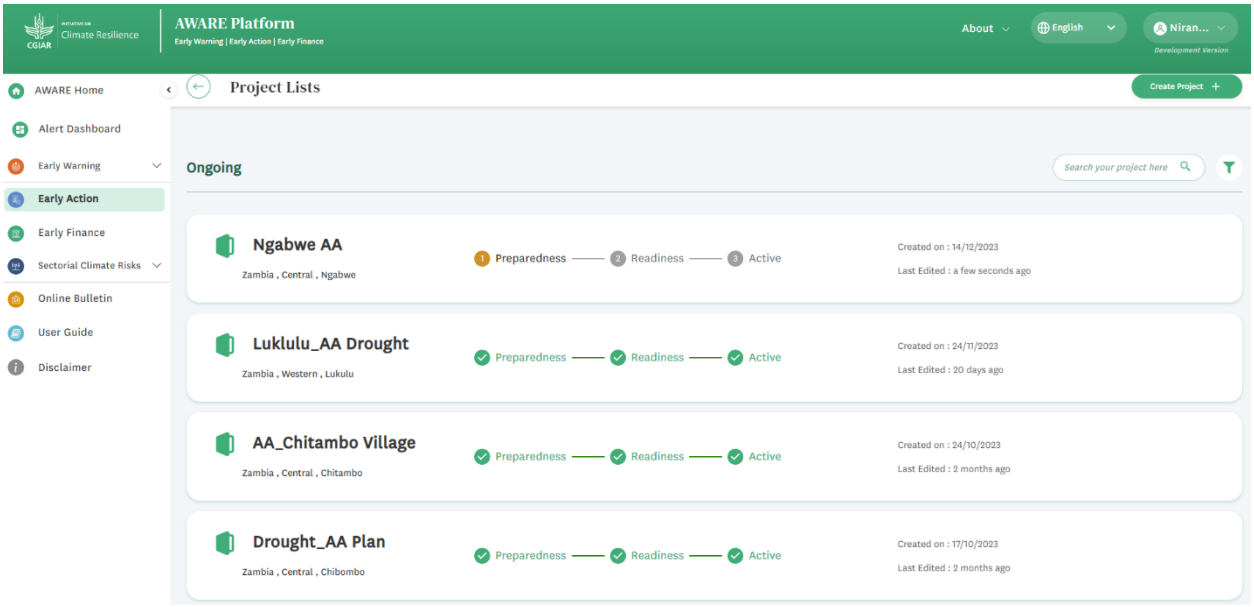

Figure 26: Visualization of a New Project in the AWARE Platform, Including Pending Activities to be Completed

- Click on the new Project to add the new protocoals
- The system offers the necessary documentation required as displayed in Figure 27 to complete the preparedness phase. If the user has already finished the on-ground activities for this phase, they can proceed by clicking on "Proceed Next" after checking the provided checkbox.

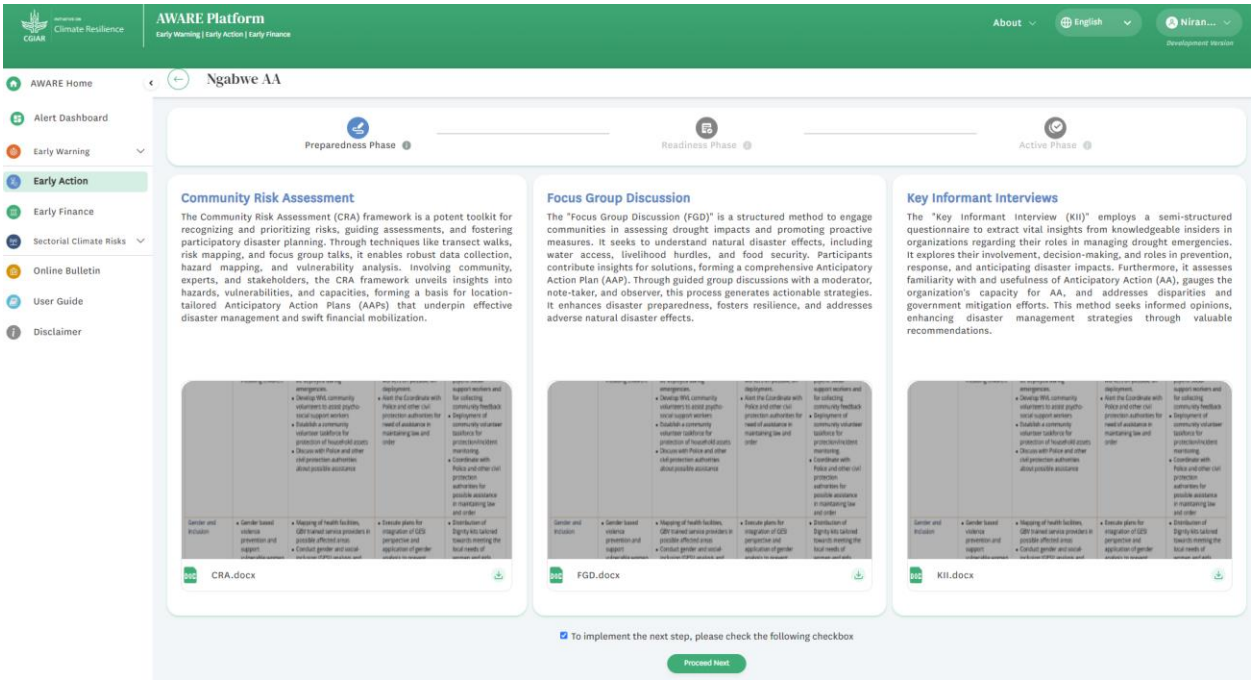

Figure 27: Visualization of the Steps Required to Complete the Community Risk Assessment

- If the user chooses to follow existing protocols, the system provides them with editor access to select based on requirements. Alternatively, if the user needs to add a new action plan, they can proceed with a new action, allowing them to input all new information.
- Users can navigate through the completion of the action plan step by step, either by editing or accepting existing protocols as illustrated in Figure 28. This involves completing categories, impacts, possible anticipatory actions, and finalizing the anticipatory action plan by clicking on "Submit & Next."
- Also it is allow user to add new ítems by clicking on “Add New Row”

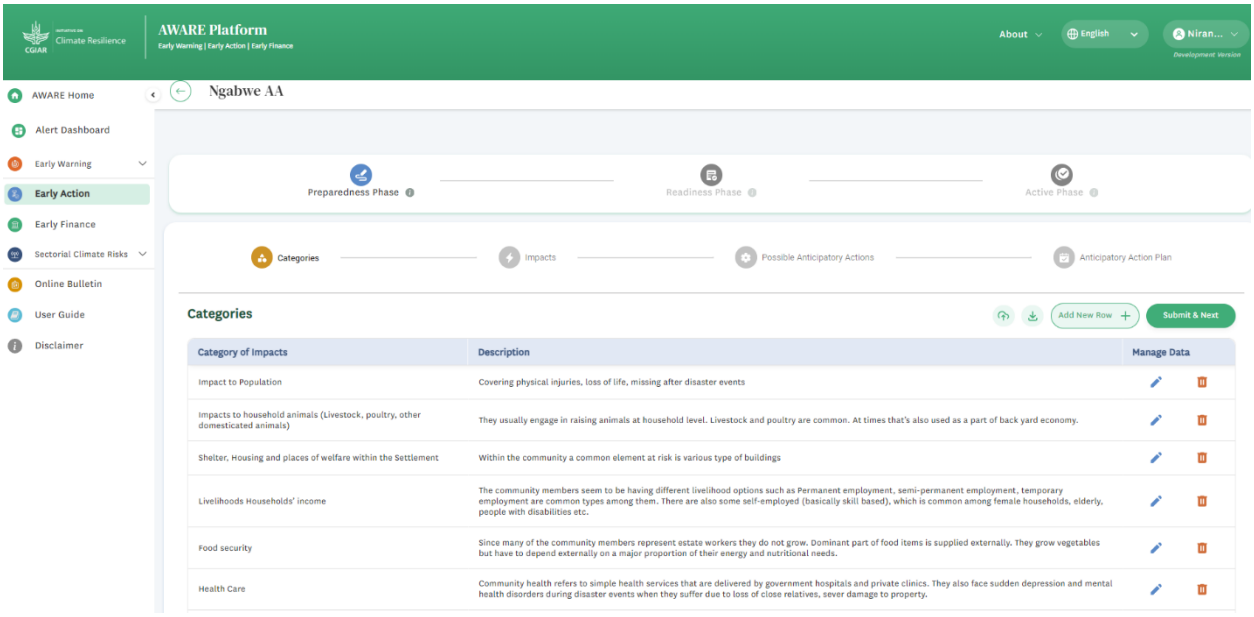

Figure 28: Editing the New Anticipatory Action Protocol by Incorporating Existing and New Activities

Edit Project

Once user reaching the conclusion of the Preparedness Phase, the categories, impacts, possible anticipatory actions, and anticipatory action fields turn green, guiding the user to input actions for the Readiness Phase. As illustrated in Figure 29, the visual cue signals the successful completion of the Preparedness Phase, prompting the user to transition seamlessly to the next phase of the process.

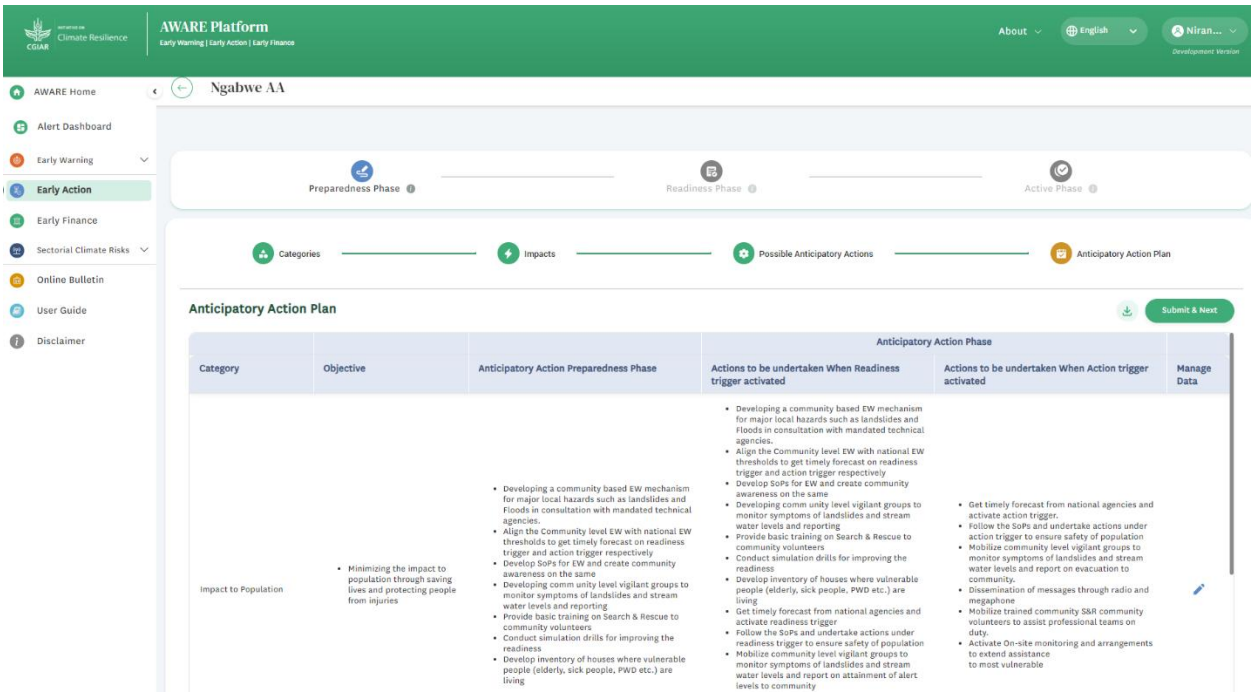

Figure 29: Editing the New Anticipatory Action Protocol by Incorporating Existing and New Activities in Prardness phase.

- In the rediness phase user has privilages to add new intervention or edit existing intervention as displayed in the below Figure 30.

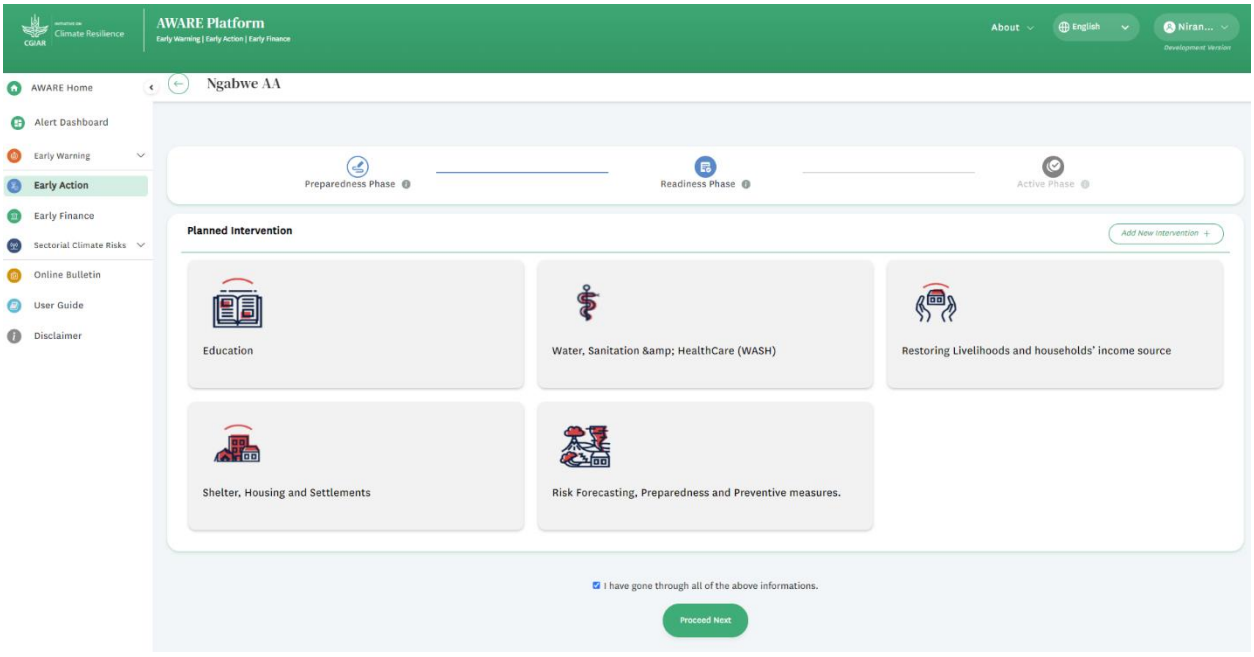

Figure 30: Editing the New Anticipatory Action Protocol in the Readiness Phase, Incorporating Both Existing and New Activities

- After the user completes the addition or editing of all interventions, they can confirm the interventions and proceed by clicking on "Proceed Next" to move Active th eprotocoals.
- Then user can actívate the plan as illustrated below in the Figure 31.
- Once actívate the action plan user directly take in to Early Finance modules.

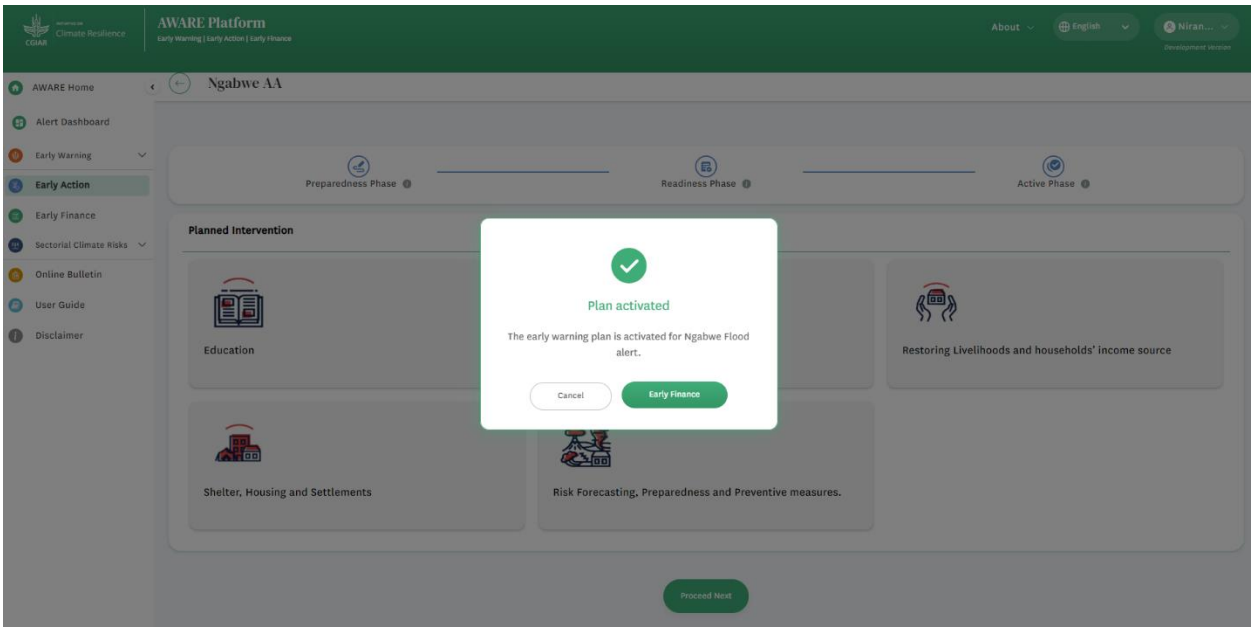

Figure 31: Finalization of Early Action Protocols and Entry into Early Finance Module

EARLY FINANCE

Early Finance within the scope of Anticipatory Action involves supplying financial resources in advance of predicted events or hazards. This proactive financial support is strategically designed to facilitate prompt and effective preparedness, response, and recovery phase, especially in anticipation of impending disasters or crises. To analyse the financial sources for each intervention, users are required to advance to the next step by selecting "Proceed Next." This step ensures a thorough assessment and verification of the financial backing associated with each planned intervention. Figure 32 and 33 illustrates the context of the early finance modules.

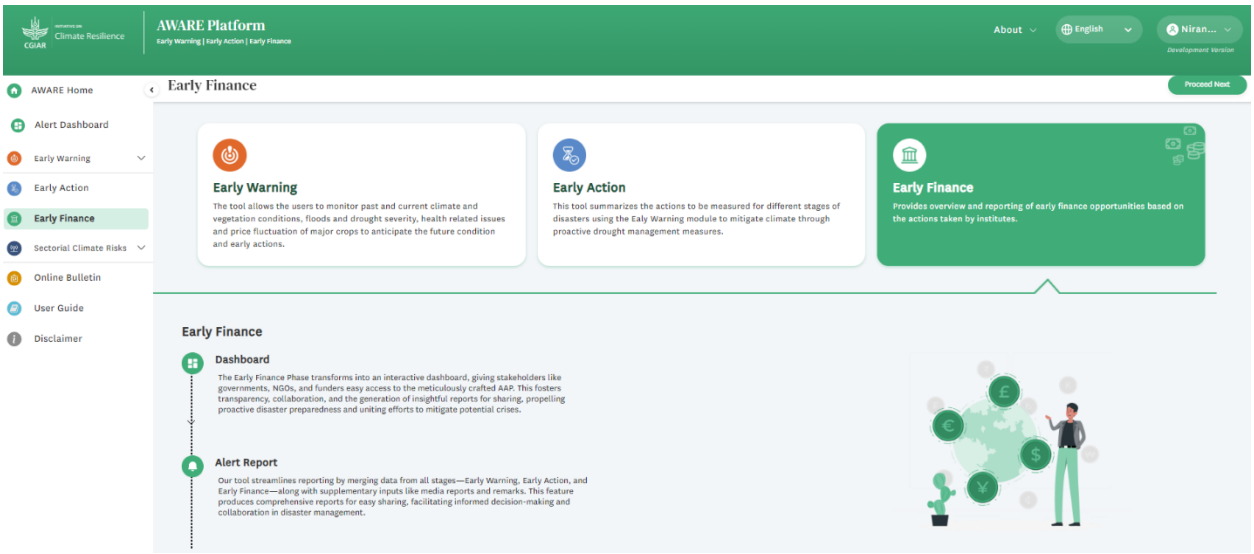

Figure 32: Context of the Early Finance Module

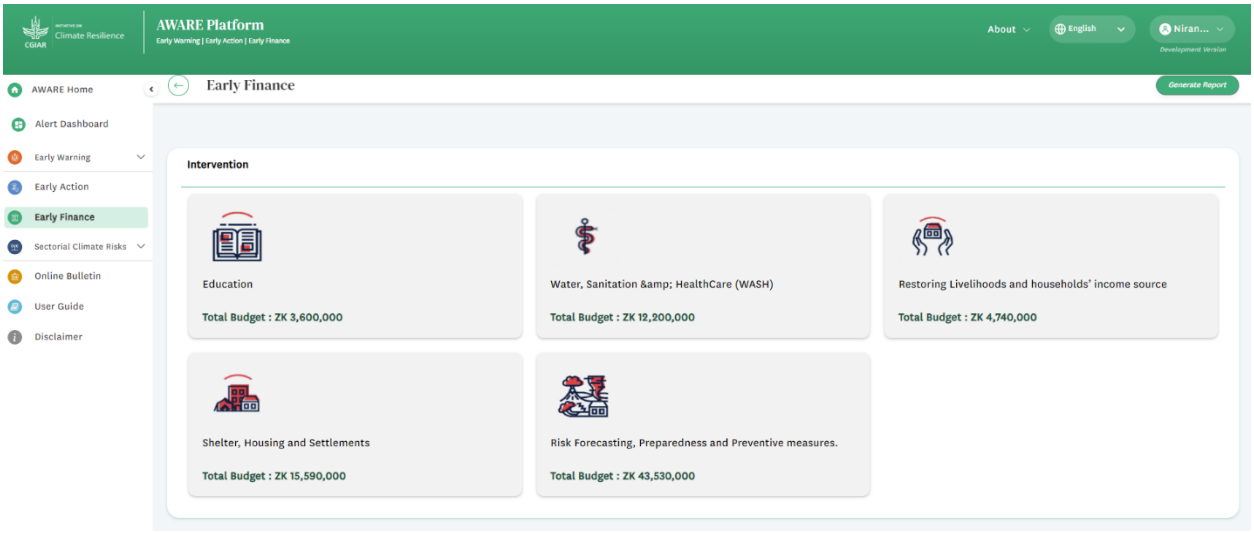

Figure 33: Early Finance Interventions Based on Community Perspectives and Strengths

- Users have the option to carefully manage each intervention by selecting either the edit or visualize function based on their specific needs. Opting for the edit function empowers the user to add new elements or remove existing items as necessary, providing a flexible and customizable approach to intervention management as mentioned in the below Figure 34.

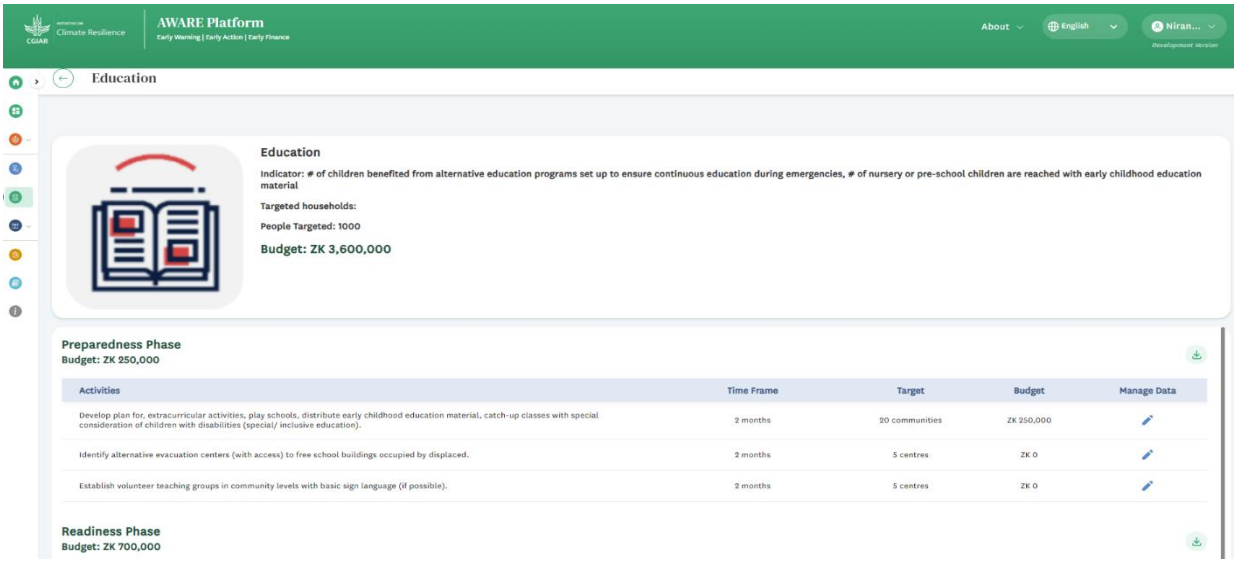

Figure 34: Editing Early Finance Interventions Based on Community Perspectives and Strengths

Upon the user's completion of all edits within the intervention, the system offers the capability to generate a comprehensive report as disaplyed in Figure 35. This report incorporates all anticipatory action protocols alongside the budgetary requirements, providing a consolidated overview of the planned actions and associated financial needs.

- Click on “Generate Report”
- During report generation use can add Photos, Maps and attachement base on the requirement.

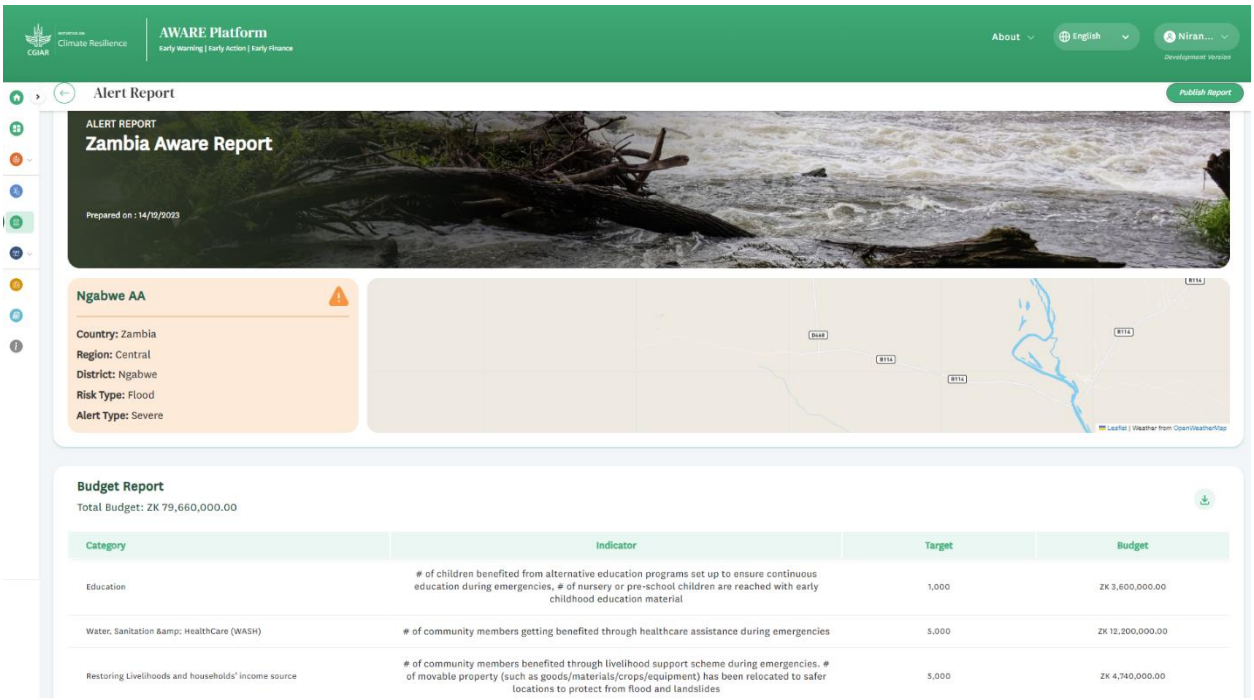

Figure 35: Generation of Reports for Anticipatory Action Protocols.

Upon finalizing all the necessary information for report generation, users can click on "Publish Report." This action enables users to seamlessly share the report directly with other stakeholders or download it as a PDF, offering flexibility and convenience in disseminating crucial information.

Example 1: AWARE Development in Senegal and Zambia

The AWARE platform has undergone significant development and implementation in Senegal and Zambia, providing a robust framework for disaster preparedness and response in these regions. The AWARE platform serves as a key tool for decision-makers, leveraging advanced technologies to analyze various forecast and monitoring indicators in both countries. This allows for the activation of Anticipatory Action protocols at different trigger levels, enhancing the country's resilience to flood and drought hazards. The development of AWARE in both Senegal and Zambia reflects a commitment to leveraging technology for disaster risk reduction and management. By tailoring the platform to the specific needs and contexts of these countries, AWARE contributes to building a more resilient and adaptive response system for communities facing various climate challenges.

Example 2: Anticipatory action simulation in Sri Lanka

Anticipatory Action (AA) serves to empower communities through precautionary measures, and a recent three-day collaborative simulation of AA involving World Vision Lanka, the International Water Management Institute (IWMI), and government partners aimed to comprehensively enhance community resilience. The simulation focused on holistic empowerment, resilience-building, coordination strengthening, and heightened awareness. During the AA simulation, which included preparedness, readiness, and activation triggers, early warnings were instrumental in activating AA protocols. Community engagement efforts included awareness campaigns, evacuation planning, and resource pre-positioning. As rainfall intensified, readiness triggers prompted activities like canal cleaning, slope stabilization, and household preparations. The active phase involved an efficient evacuation alert communicated by Mr. “Early Warning”, leading community members, supported by various stakeholders, to safety centers with special attention to vulnerable groups and diverse services to ensure their well-being. Feedback highlighted positive responses to early warnings and potential practical impact, though confidence levels varied regarding future disasters. Community satisfaction with services indicated room for improvement, emphasizing the need for enhanced inclusivity in disaster preparedness, particularly for vulnerable groups. This collaborative simulation effort among key agencies showcased a comprehensive approach, providing valuable insights for future initiatives in disaster resilience.