

Simplified Approval Process Concept Note

Project/Programme Title: Strengthening Climate Information Services and Impact-Based Early Warning Systems in Uruguay

Country(ies): Uruguay

National Designated Authority(ies) (NDA): Ministry of Environment of Uruguay

Accredited Entity(ies) (AE): National Development Corporation (CND)

Date of first submission: [2023-12-15] [V.1]

Date of current submission: [YYYY-MM-DD] [V.0]

Version:



Eligibility for SAP is determined by the review of the concept note and the ESS screening.

A. Project / Programme Summary (max. 1 page)

A.1. Project or programme	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	A.2. Public or private sector	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector	A.3 RFP	Select
A.4. Indicate the result areas for the project/programme	<p>Check the applicable GCF result area(s) that the proposed project/programme targets. Indicate for each checked result area(s) the estimated percentage of GCF budget devoted to it. The summed up percentage should be equal to 100%.</p> <p>Mitigation: Reduced emissions from:</p> <p><input type="checkbox"/> Energy access and power generation: <u>Enter number</u> %</p> <p><input type="checkbox"/> Low emission transport: <u>Enter number</u> %</p> <p><input type="checkbox"/> Buildings, cities and industries and appliances: <u>Enter number</u> %</p> <p><input type="checkbox"/> Forestry and land use: <u>Enter number</u> %</p> <p>Adaptation: Increased resilience of:</p> <p><input checked="" type="checkbox"/> Most vulnerable people and communities: <u>35%</u> %</p> <p><input checked="" type="checkbox"/> Health and well-being, and food and water security: <u>35%</u> %</p> <p><input checked="" type="checkbox"/> Infrastructure and built environment: <u>30%</u></p> <p><input type="checkbox"/> Ecosystem and ecosystem services: <u>Enter number</u> %</p>				
A.5. Impact potential	A.5.1. Estimated mitigation impact (tCO2eq over project lifespan)	<u>Enter number</u> tCO2eq			
	A.5.2. Estimated adaptation impact (number of direct beneficiaries)	<u>43,054</u> direct beneficiaries			
	A.5.3. Estimated adaptation impact (number of indirect beneficiaries)	<u>3,401,209</u> indirect beneficiaries			
	A.5.4. Estimated adaptation impact (% of total population)	<u>1,3</u> % of the country's total population			
A.6. Financing information					
A. 6.1. Indicative GCF funding requested (max USD 25M)	Amount: <u>17,643,511</u> Currency: USD Financial Instrument: Grants * Please expand the information if needed.				
A.6.2. Indicative co-financing	Amount: <u>1.764.000</u> Currency: USD Financial Instrument: Other (If other financial instrument is opted, please specify: in kind) * Please expand the information if needed.				
A.6.3. Indicative total project cost (GCF + co-finance)	Amount: <u>19,407,511</u> Currency: USD				
A.7. Implementation period:	a) disbursement period: 5 años	A.7.2. Total project/ programme lifespan	30 años.		

A.8. Is funding from the Project Preparation Facility needed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	A.9. Is the Environmental and Social Safeguards Category C or I-3?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
A.10. Provide rationale for the ESS categorization (max 100 words)	<p>The project has been categorized as a risk category C (low) because the proposed activities, such as training, risk analysis, updating maps and climate models, and some minor physical interventions, do not involve significant environmental or social impacts. There is no expectation of land acquisition or displacement, and no areas of high ecological sensitivity or vulnerable communities will be affected. The activities are designed to comply with local and international regulations. Additionally, an inclusive and gender and generational approach will be integrated throughout the project.</p>		
A.11. Has the CN been shared with the NDA?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	A.12. Confidentiality¹	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
A.13. Executing Entity information	<p>The CND will be the Accredited Entity and the Executing Entity of the project. To ensure sustainability and the management of additional resources in line with the project's objectives, the CND will create a management trust, which will include the Ministry of the Environment and other relevant institutional stakeholders in its governance.</p>		
A.14. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	<p>Uruguay faces significant impacts from extreme hydrometeorological events, such as droughts and floods, which cause substantial economic losses, human displacement, and damage to infrastructure. Between January 2018 and January 2019, climate-related losses and damages amounted to over 563 million dollars, with the drought from January to March 2018 responsible for 96% of the total. However, riverine floods also left their mark, causing over 12 million dollars in urban losses in January 2019. Between 2015 and 2019, more than 87,000 people were displaced, of which 97% were affected by floods, a phenomenon that particularly impacts the northern region of the country, where 3% of the population lives in flood-prone areas. Floods lead to mass evacuations, damage homes, and affect urban infrastructure.</p> <p>Climate variability also impacts key sectors such as agroindustry and energy, with floods being one of the greatest risks. In agroindustry, excessive rainfall and floods damage crops and reduce yields, exacerbating economic losses alongside droughts and other extreme events. In the energy sector, floods damage critical infrastructure, disrupt electricity supply, and affect service maintenance. These threats add to the challenges posed by other phenomena such as storms, heatwaves, and extreme winds, which intensify the country's vulnerabilities to climate change.</p> <p>These events are expected to become more frequent and intense due to climate change. However, the country does not have a modern or adequate network of hydrometeorological observation stations to provide high-quality climate information services, nor one that is specifically designed for early warning purposes. The technical and institutional capacities for research, modeling, and prediction, as well as for communicating climate information, are limited, and there is currently no user interface platform that allows information producers to interact with users and provide information services tailored to their needs. A recent study on Early Warning Systems in the country, conducted using the multi-hazard EWS checklist and based on impacts, highlights that most of the country's EWSs have made some progress in the risk knowledge and hazard observation and monitoring components, but face major limitations in components 3 (alert communication) and 4 (prevention and response capacity). Furthermore, the country is not yet making impact-based forecasts, nor does it have experience with anticipatory action mechanisms. Although the National Emergency System was created in 2009, it was not until 2020 that the National Policy for Comprehensive Disaster Risk Management was established, meaning the sector is still under development.</p> <p>The objective of the project is to contribute to the reduction of the impacts of hydrometeorological events by strengthening climate information services and early warning systems, prioritizing the general population and the agricultural and energy sectors, while also</p>		

¹ Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

contributing to improving emergency and disaster risk management. It focuses on enhancing the capacity for preparedness and response to climate risks by modernizing and expanding the hydrometeorological network, improving forecasting models, and developing tools for more effective and sustainable risk management. The theory of change establishes that high-quality climate information and effective early warning systems allow the population and productive sectors to better adapt to climate hazards and increase their resilience to disaster risks.

The project strategy includes three main components: (1) improve climate services through the modernization and scaling of observation networks, strengthen modeling, research, and forecasting capabilities, create integrated climate information platforms by improving the user interface and communication, and advance a national framework for climate services; (2) strengthen multi-hazard and impact-based early warning systems, promoting improvements in risk knowledge, monitoring, and the transition to impact-based forecasting, extending their reach to vulnerable communities, and developing specific pilot projects for anticipatory actions in the energy and water sectors; and (3) Ensure a sustainability and knowledge management strategy through monitoring, evaluation, the generation of evidence on cost-effective measures and benefits of climate information services, and explore financing mechanisms, such as a national fund for climate services and collaboration with the private sector.

The Executing Entity of the Project will be the CND, through a Project Management Unit. Additionally, key governmental and academic stakeholders will participate in a Steering Committee, a Technical Committee, and a Group of Users and Co-producing Experts. The PMU, under the framework of the CND, will be responsible for executing the project activities, including environmental and social aspects, in coordination with the committees. The Steering Committee will oversee the strategic execution of the project, while the Technical Committee, composed of experts from these institutions and other relevant organizations, will coordinate technical activities, ensure the sustainability of methodologies and capacities, and provide guidance to the Steering Committee. Additionally, it will interact directly with the PMU to ensure the technical alignment of the project. Finally, the Group of Users and Co-producing Experts will be an advisory body that will include public, private, academic, and community stakeholders from priority sectors (agriculture, energy, water) to strengthen capacities, address specific needs, and generate synergies with the private sector.

B. Project / Programme information

B.1. Context and Baseline (500 words)

Climate Context

1. According to the Second Nationally Determined Contribution (2NDC), the main characteristics of observed and projected climate in the country are presented.²

Observed climate:

2. Temperature: The observed trends in the annual average temperature indicate an increase of approximately +1°C over the last 70 years. At the same time, a decrease in the number of cold nights and an increase in the number of warm nights have been detected.³
3. Precipitation: The observed trends for accumulated precipitation indicate an increase of between 10-20% over the last 70 years. Additionally, a nearly 10% increase in the frequency and intensity of extreme rainfall events has been recorded.
4. **Sea level rise:** According to the 2NDC and several studies, the sea level rise in Montevideo has been estimated at 11 cm, of which 2-3 cm correspond to the last three decades, with an even more significant variation in the remaining tide gauges along the Uruguayan coast.

Projected Climate:

5. According to the 2NDC, it is explained that, for the climate projections, projections were made based on 10 models run for the SSP245, SSP370, and SSP585 scenarios, for two-time horizons: the short term (2020-2044) and the long term (2075-2099).⁴

² The [Third CDN](#) as of November 2024, it is in stage 3/5 of development. Its final version is expected to be released in February 2025.

³ Ibidem

⁴ [Segunda Contribución Determinada a nivel Nacional al Acuerdo de París](#)

6. Temperature: The climate projection models for Uruguay show, in the short term (2020-2044), an increase in the annual average temperature of 0.3 – 0.5 °C under the SSP245 model and 0.6 to 0.9 °C for the SSP585 scenario. For the long term (2075-2099), the projections show the same positive trends, but with average temperature increases ranging from 1.5°C for the SSP245 scenario to between 2.8 - 3.5 °C for the SSP585 scenario. Heatwaves would increase in frequency and duration by the end of the century, mainly in the northern region.⁵
7. Precipitation: The annual accumulated precipitation in Uruguay shows high interannual variability, ranging from -5 to 10% in the short-term horizon, and from -7 to 35% in the long-term horizon (2075-2099), based on the records from 1961 to 2014⁶.
8. **Sea level rise:** The projected average sea level rise for the RCP8.5 scenario is 80 cm by the end of the century ⁷.

Climate variability

9. The set of CMIP5 models shows that **extreme events associated with ENSO tend to increase in frequency** as global temperature rises ⁸. Additionally, extreme events related to La Niña could become more frequent, especially three-month drought events in the short-term horizon.

Main climate vulnerabilities and impacts in the country

10. Uruguay is in the southeastern part of South America, and its mid-latitude is typical of a climate transitional zone. Disasters are almost exclusively due to hydrometeorological phenomena. The formation of extratropical cyclones is frequent: large storms lead to intense precipitation, accompanied by strong winds that exacerbate the damage. Most of the strong wind events in Uruguay are due to intense gusts resulting from the formation of large convective cells. On the other hand, during summer seasons, significant droughts occur in the country, often intensified by the La Niña phenomenon, which heavily impacts the **agricultural and livestock sectors**, the latter being of great importance to the Uruguayan economy⁹.
11. According to the National Emergency System (SINAE), the main disaster events in Uruguay are caused by hydrometeorological phenomena such as floods, storms, heavy rainfall, strong winds, heatwaves, and cold waves¹⁰.
12. Although there is currently limited quantification of national losses and damages due to climate change and variability, a preliminary assessment was conducted for the period from January 2018 to January 2019, which showed that climate-related damages and losses during that year amounted to over 563 million dollars, of which more than 540 million (96%) were associated with the **drought** that occurred from January to March 2018.¹¹ In urban areas, the total estimated damages and losses were over 19 million dollars, with more than 12 million (63%) associated with the **riverine floods** of January 2019.¹²
13. The total number of displaced people by hydrometeorological events between 2015-2019 were over 87,500, including 97% affected by floods, and the geographical distribution shows that the northern region of the country is the area with the highest number of affected people.¹³ Floods are the climate impact that causes the most evacuations and self-evacuations, as well as the highest number of damaged homes. ¹⁴ To year 2020, over 94,000 people lived in flood-prone areas, nearly 3% of the total population.¹⁵
14. The most important climate events due to the risks they pose to **agricultural production** are droughts, excess rainfall, heatwaves, frosts, storms, strong winds, hail, and lack of chilling hours. The impacts vary in each production system, especially in the case of droughts, where various studies indicate that the worst droughts of the last 20 years occurred in the periods of 1999/2000 (very severe), 2003/2004 (severe), 2008/2009 (very severe), 2011/2012 (severe), and 2017/2018 (severe)¹⁶ with economic losses, linked to lower yields for most sectors of the agroindustry.
15. The threats considered a priority for addressing the **energy sector** in the short term, due to their recurrence and potential for damage, were droughts, due to their impact on hydroelectric generation; heatwaves, due to their impact on demand and the electricity supply capacity; floods, due to their potential damage to infrastructure and energy service; and, more

⁵ Ibidem

⁶ See: [Observed Variability and Climate Projections in Uruguay](#); [Climate Analysis in Uruguay - Scenarios of Change and Climate Variability](#) (2021)

⁷ Ibidem

⁸ [National Coastal Adaptation Plan](#) – 2021

⁹ [Compendium of Risk Maps of Uruguay](#) (2020)

¹⁰ [Historical Events Viewer](#). Comprehensive Risk and Impact Monitoring System (MIRA) of SINAE

¹¹ SINAE (2021), [Pilot Report on Damages and Losses from Climate-Related Events in Uruguay for the Year 2018](#)

¹² Ibidem

¹³ SINAE, [Most Significant Adverse Events Occurred in Uruguay between 2015 and 2019](#)

¹⁴ Ministry of Environment (2021). [National Adaptation Plan for Climate Variability and Change in Cities and Infrastructure](#)

¹⁵ [Voluntary National Report on the SDGs 2021](#). Office of Planning and Budget, National Institute of Statistics, Uruguay International Cooperation Agency (2021)

¹⁶ [Second Nationally Determined Contribution to the Paris Agreement](#) (2022)

generally, extreme events such as extreme winds, extreme precipitation, and thunderstorms, due to their potential damage to critical infrastructure and the resulting disruption of electricity service.¹⁷

16. Table 1 presents the main events that affect Uruguay and their effects on the sectors prioritized for the Project, as well as their impacts.

Table 1: Impacts and effects of the main climate threats in Uruguay on the prioritized sectors

EVENT	EFFECT	IMPACT
Heavy storms and associated phenomena (intense rains, strong winds, hail) DURATION: Minutes / Hours	HYDRO SECTOR: Flooding of riverbanks and ravines	<ul style="list-style-type: none"> • Evacuated people • Damage to homes • Losses and damage to private and state-owned goods and services
	AGRICULTURAL SECTOR: Flooding, plant overturning, hail impact damage	<ul style="list-style-type: none"> • Losses in production and variation in crop and pasture production • Damage to infrastructure
	ENERGY SECTOR: Impacts from strong winds throughout the entire chain	<ul style="list-style-type: none"> • Damage to infrastructure (wind turbines, towers) • Interruption of electricity supply due to transportation obstacles
Sustained rainfall DURATION: Hours / Days	AGRICULTURAL SECTOR: Rural flooding	<ul style="list-style-type: none"> • Losses in production and variation in crop and pasture production • Livestock diseases • Impassable rural roads
Thermal extremes, cold and heat waves DURATION: Days / Weeks	AGRICULTURAL SECTOR: Frost, thermal stress in plants and animals	<ul style="list-style-type: none"> • Losses in production and crop and pasture production variation • Lower yields for most agroindustry sectors
	ENERGY SECTOR: Increase in energy consumption	<ul style="list-style-type: none"> • Increase in energy demand for heating / cooling
Drought DURATION: Months	HYDRO SECTOR: Decreased water flows, deepening of aquifers	<ul style="list-style-type: none"> • Scarcity of potable water for the population • Impact on navigation and fishing
	AGRICULTURAL SECTOR: Scarcity of water available for crops, pastures, and livestock	<ul style="list-style-type: none"> • Losses in production and variation in crop and pasture production. • Death of animals • Rural exodus

¹⁷ [National Adaptation Plan to Climate Variability and Change \(2024\) - Energy Sector](#)

ENERGY SECTOR:
Decreased reservoir levels

- Decreased energy generation

Source: [Second Nationally Determined Contribution to the Paris Agreement](#) (2022)

Adaptation needs in the network of meteorological stations

- In recent years, Uruguay has made a strong investment in **surface monitoring** of meteorological variables necessary to improve climate information. The World Meteorological Organization (WMO) has set objectives for the Global Basic Observation Network (GBON), which Uruguay has far exceeded in relation to the surface meteorological measurement network. However, altitude measurements are nonexistent.¹⁸
- INUMET provides high-quality information based on observations through a network of surface meteorological stations (18 conventional and 26 automatic) and a rainfall network with more than 300 stations (256 conventional rain gauges and 98 automatic). Additionally, the acquisition of **two meteorological radars** with national funding has been confirmed, which will improve the prediction of atmospheric events such as precipitation, hail, severe storms, among others. The purchase and maintenance of the radars is managed by the Radar Trust, which was created within the National Development Corporation (CND).
- In addition, the National Uruguayan Institute of Meteorology (INUMET) has a Meteorological Warning System for the general public, which is implemented in coordination with the National Alert System (SINAE). The National Emergency Directorate of SINAE (DNE-Sinae) has developed the Comprehensive Risk and Impact Monitor (MIRA), a central information system,¹⁹ created to support decision-making for integrated risk management, that allows the registration of georeferenced information from INUMET on adverse events and their impacts, as well as the generation of statistics and quality indicators. Based on its own data, INUMET also generates an index applied to horticultural insurance.
- The National Institute of Agricultural Innovation (INIA) has 5 conventional agroclimatic stations that provide their data to INUMET. The Agroclimate and Information Systems Unit (GRAS) generates monitoring products of agroclimatic conditions for the entire country, such as useful water content for crops (FAO water balance), and vegetation status (NDVI) The NDVI product is currently calculated based on MODIS images, which are now declining and should be replaced by another option, such as VIIRS/SUOMI-NPP. The useful water content is not yet calculated based on the new soil maps with greater detail (1:40,000) being generated by the Directorate General of Natural Resources. INIA makes forecasts of favorable conditions for the appearance of pests and harmful conditions for livestock. It also calculates indices related to agricultural insurance.
- The National Directorate of Water (DINAGUA) has 90 of its own hydrometric stations that form a network, which is complemented by stations from the dams of the Joint Technical Commission of Salto Grande and the National Administration of Power Plants and Electrical Transmissions (UTE). However, it does not have an organized and operational groundwater network, only isolated data from its own or provided by the National Directorate of Mining and Geology (DINAMIGE / MIEM). It has implemented the Delft-FEWS platform (FEWS-Uruguay)²⁰ since 2019, it has developed a hydrological forecast for the basins of the Cuareim, Yí, Santa Lucía, Olimar, Cebollati, and Yaguarón rivers, as well as hydrological forecasting in flood situations. The implementation of Delft-FEWS as a flood prediction tool, in conjunction with MIRA and the technical human capacities developed in DINAGUA, has provided very successful flood alerts. However, the objectives of components 1 and 2 of the Early Warning for All (WMO) have only been reached so far, and there is a need to update and expand the flood forecasting capacities to other basins in Uruguay. Nevertheless, MIRA focuses on people, and there is an opportunity to complement this system (or another more efficient one) with databases on physical and environmental impacts.
- Since 2018, a Loss and Damage Working Group has been formed, led by DINACC through its National Climate Change Response System (SNRCC) in coordination with the DNE-Sinae. There is also regulation regarding the submission of damage and loss information to SINAE ([Decree 372/2022](#)) which has not yet been regulated nor implemented.
- Additionally, the Ministry of Livestock, Agriculture, and Fisheries (MGAP) is conducting a consultancy to support INUMET in developing and implementing quality control for precipitation data from 150 stations, so that they meet the requirements for probability and risk calculation. Based on this, a geographical database will be created with an official grid of accumulated precipitation, with the aim of completing historical series in geographic areas lacking information. It is expected that this will improve the water storage estimations in the soil of INUMET and INIA and contribute to the insurance and reinsurance market. The MGAP is also conducting a feasibility study for an index-based forage availability insurance, with the support of the reinsurance company Swiss Re. There is evidence of potential progress toward the implementation of Agroclimatic

¹⁸ [Early Warnings for All. Executive Action Plan 2023-2027](#)

¹⁹ [Comprehensive Risk and Impact Monitoring System \(MIRA\)](#)

²⁰ [Euroclima Project](#)

Technical Tables (MTAs), according to the model recommended by FAO²¹, which would facilitate the path toward anticipatory actions for adverse climatic events in agriculture. The MTAs could be integrated into the National Innovation and Rural Development System (SNIDER / MGAP), drawing on its experience in managing its Rural Development Tables²², but the country has not yet made progress in these areas due to the limited availability of resources.

The status of research and modeling in the country.

24. In terms of human capabilities and local knowledge, there is limited dedication to research on mesoscale processes, which are vital for understanding local phenomena and ensuring the continuous improvement of hydroclimatic products and services. Although Uruguay has implemented hydrometeorological tools (Delft-FEWS) for forecasting and data visualization purposes, these tools require updates and training of new human resources to improve their potential. Due to budgetary or human resource constraints, these tools are not properly updated to maintain and enhance the existing technological advancements. Additionally, there are limitations in transferring scientific research into operational services, as not all research generates operational procedures for service generation, and there are weaknesses in the capabilities of the technicians in the Hydrological and Meteorological Services.
25. In relation to the agricultural sector, the link between meteorological phenomena and their impacts has been extensively researched, although there are opportunities to improve predictive models. INIA has created drought risk maps for extensive crops, but there are plans to also create risk maps for excess water and incorporate climate change assessments (droughts and excesses).
26. In the energy sector, there is less research related to the impact of phenomena, their characterization, impacts, and potential damages. MIEM has been working with the Faculty of Sciences, Department of Atmospheric Sciences at the University of the Republic (UDELAR) on the evaluation of the impact of strong winds on distribution lines. The results of this consultancy will serve as input for risk assessment considering climate change.
27. Other threat, vulnerability, and risk maps have been compiled in the Risk Maps Compendium (2020)²³. It presents national maps of drought, flood, forest fire, and strong wind threats. At the departmental level, multi-hazard and risk profiles have been obtained, which include the results of expected annual loss, reflecting physical risk, and the results of the IREE (Index of Risk and Environmental Exposure), at the departmental and census section levels. Additionally, there are flood risk maps developed by the Institute of Floods and Urban Drainage of DINAGUA, which are compiled in the National Atlas of Floods and Urban Stormwater Drainage (February 2022).²⁴

The state of communication and dissemination of climate information:

28. Both INUMET, DINAGUA, and INIA offer monitoring data and products, as well as forecasts of hydrometeorological variables and indicators on their websites. In addition, in potentially dangerous situations, warnings or alerts are issued, which are received by DNE-SINAE and forwarded as alerts to the corresponding CeCoEDs and the public
29. INUMET issues weather forecasts up to 72 hours, an extended 7-day forecast (more simplified), and monthly Quarterly Climate Trends for temperature and precipitation. However, the production of medium-term (weekly), long-term, and very long-term (climate change) climate services is still lacking. It communicates short-term warnings by areas, delineated by polygons with color coding indicating the level of danger. To date, no progress has been made in creating impact-based forecasts due to limited resources and institutional capacities to advance in this regard, but the institution aims to transition to impact-based forecasting.
30. DINAGUA operates a georeferenced viewer where real-time data from its stations (such as water level and flow) can be viewed, along with specific usage permits, etc. It also has a geoportal with basic hydrological information and some products for vulnerability and risk assessment.²⁵ It also generates hydrological alerts, which are communicated to DNE-Sinae and local stakeholders in potentially at-risk areas. These communications have room for improvement, but the institution is unable to take them on due to a lack of resources in the areas of development, communication, and social sciences.
31. INIA presents monitoring and forecasting products, as well as warnings and recommendations, through various web applications. Examples include forecasts of environmental conditions for newborn lambs, an intelligent irrigation manager, fertilization recommendations, disease identification, and others.²⁶ These tools are integrated into the INIA Móvil app, which is currently being reformulated, although they are not yet combined with the recommendations from MGAP, which remains a pending objective.

²¹ FAO, [Mesas técnicas agroclimáticas](#)

²² [Rural Development Tables](#)

²³ SINAE (2020), [Compendio de Mapas de Riesgo](#)

²⁴ DINAGUA (2022), [Atlas Nacional de Inundaciones y Drenaje Pluvial Urbano](#).

²⁵ [Visualizador y Geoportal DINAGUA](#)

²⁶ [App de INIA](#)

32. Since 2013, Uruguay has had a spatial data infrastructure. (IDE)²⁷ from which georeferenced information can be downloaded. There is an ongoing project by the Electronic Government and Society of Information and Knowledge Agency (AGESIC) for the incorporation of open data for climate change into its platform²⁸. Both platforms present some impractical features for downloading data and metadata, among other aspects with room for improvement, due to their technological limitations and user interaction issues.

State of the early warning systems

33. In 2023, a consultancy was developed in the country to support the implementation of the Multi-Hazard Early Warning System (EWS) in Uruguay (2023) (1). The goal was to assess the progress made in the development of Early Warning Systems at the national level and to make recommendations based on the Multi-hazard Early Warning Systems: A Checklist (2018) (2) to evaluate the scope of the 4 components of the 17 identified EWSs. In 12 of them, Components 1 and 2 were mostly available, while Components 3 and 4 were still weak.
34. The first gap identified regarding component 1 is the lack of impact-based forecasts. In relation to component 2, it is recommended to identify the responsibilities of key actors and the designation (or hiring) of a person dedicated to the implementation and operation of this EWS. It is also advised to develop protocols for issuing warnings and early alerts, as well as guidelines for monitoring hazards, and interinstitutional and community dissemination.
35. At the level of early warnings for the **agricultural sector**, INUMET does not generate specific warnings for the agricultural sector. On the other hand, INIA uses freely accessible forecasts to issue warnings about potentially adverse environmental conditions for newborn lambs, low temperatures, thermal stress in cattle, the appearance of fungi, and diseases.
36. In the **energy sector**, the country has no experience with early warning systems
37. Regarding the water sector, there is currently an **Early Warning System (EWS) for riverbank flooding and stream overflow**. This EWS currently covers six basins, and the following strengths have been identified regarding Components 1 and 2: risk knowledge (maps, GIS database), hazards, and vulnerability; existence of regulations and governance for assessing potential risks and local linkages; risk information in planning and early warning; and the presence of a monitoring system, prediction service, operational warnings, and alerts under institutional regulations. Additionally, two other EWSs have been implemented for the Negro and Uruguay rivers in collaboration with UTE and CTM-Salto Grande. However, significant improvements are needed, as Component 4 has been the least implemented. The main gaps and shortcomings identified relate to the dissemination of information. Although there is an SMS messaging service for flooded populations and warnings for vulnerable populations from the Departmental Emergency Coordination Centers (CeCoED), there is room for significant enhancement. Key issues include a lack of citizen participation, periodic drills, and a systematic analysis of the cascading effects of flooding (multi-hazard approach). There is also a need to implement more anticipatory measures.
38. Currently, alerts are transmitted within the MIRA system, operated by DNE-SINAE. The institution is in the process of planning a Situation Room where information from different organizations will be integrated, with MIRA serving as a source for historical data and departmental reports (CeCoED). A new system is projected to be created, with the capacity to integrate georeferenced information (GIS), which will include impact-based hydrometeorological warnings and better vulnerability assessments by sector.

Coordination between climate service actors and early warning systems.

39. Within the framework of SINAE, Uruguay has established an interinstitutional governance for disaster and emergency risk management and reduction, which is in the process of gradual strengthening. This governance includes the subnational level through the Departmental Emergency Committees (CDE) and the CeCoED. As part of the National Water Plan and the Risk Management Policy of Uruguay, the development of EWSs at the national level is included. Currently, each institution has roles and responsibilities in the flow of information from one end (generation of services) to the other end (response). Additionally, there are recent precedents of interinstitutional tables created for the evaluation, monitoring, and decision-making on specific disaster events, and a flood EWS protocol was developed between DINAGUA, INUMET, and DNE-SINAE
40. The WMO published an Implementation Plan for the Global Framework for Climate Services (GFCS)²⁹ in which some of the benefits for the prioritized sectors in the project to be formulated are outlined. The WMO also designed guidelines for the creation of national frameworks for climate services.³⁰ It is defined as an institutional mechanism to coordinate, facilitate, and strengthen collaboration between national institutions in order to improve the co-production, adaptation, delivery, and use of science-based climate predictions and services, focusing on the five pillars of the GFCS.
41. These national frameworks aim to improve the governance of climate services: they determine the structure of a comprehensive national action plan, feasible, with defined timelines and costs. The goal is to align governance in a National Framework, coordinated from the SNRCC together with SINAE, which will allow for the improvement of climate services

²⁷ [Spatial Data Infrastructure \(SDI\)](#)

²⁸ AGESIC, [open data](#).

²⁹ [Global Framework for Climate Services](#)

³⁰ [Step-by-step Guidelines for Establishing a National Framework for Climate Services](#)

with clear and agreed-upon roles, responsibilities, timelines, and budgets. In the report 'State of Climate Services in 2024: Five-Year Progress Report (2019-2024)' by the WMO ³¹, it is established that Uruguay is at 'Step 0' in the process of creating a National Framework for Climate Services.

State of development of risk transfer schemes for climate events

42. According to data from the Central Bank, the insurance market in Uruguay has experienced significant expansion, rising from a penetration rate of 1.8% in 2012 (measured as the ratio of premiums issued to GDP).³² to 3.23% in 2024³³. The insurance sector in the country is composed of 16 active companies ³⁴, of which one is public and holds 70% of the premium market, while the remaining 30% corresponds to 15 private companies.
43. Regarding climate risk insurance, most products in Uruguay are based on damage assessment by experts. In the agricultural sector, some successful experiences stand out³⁵ With index-based insurance, such as parametric ones that use specific indicators provided by INIA, which allow for automatic compensation without the need for on-site inspections. This sector has a broader coverage in terms of the number of products, but they are geared toward medium or large-scale producers. Meanwhile, the commercial and industrial sectors have insurance to protect infrastructure against climate-related damages, while the services sector offers products for events such as the cancellation of shows due to climate phenomena, supported by data from INUMET.
44. However, there are barriers that hinder the expansion of coverage, such as the lack of financial education in certain sectors, which creates a perception of high costs. Additionally, there is a lack of products tailored to specific productive needs and distrust toward insurers, due to the requirement of conducting expert assessments in the event of claims.
45. The country considers the transfer of risks through the expansion of coverage against climate risks to be strategic. An example of this is the recent collaboration between the MGAP and the State Insurance Bank (BSE) in the design and promotion of insurance aimed at small horticultural producers, a segment that traditionally did not insure its crops. This initiative expands coverage to new productive sectors and enhances the adaptive capacities of producers through the transfer of risks to the insurance market.

Alignment with national strategies and priorities

46. As a contextual background for the development of this project and its alignment with national priorities, it is highlighted that Uruguay has established adaptation as a priority in its climate policy and action. The country has adopted policies to adapt to climate change in recent decades, such as the creation and strengthening of public institutions to specifically address issues related to climate change, impact assessment, and risk reduction measures. The National System for Climate Change and Variability Response (SNRCC), created in 2009, includes among its members the Uruguayan Institute of Meteorology (INUMET), the National Emergency System (SINAE), which is coordinated by the National Emergency Directorate (DNE-Sinae), and the sectoral ministries of Livestock, Agriculture, and Fisheries (MGAP) and Industry, Energy, and Mining (MIEM). Within the Ministry of Environment, the National Water Directorate (Dinagua) and the Climate Change National Directorate (DINACC) operate.
47. Within the framework of the SNRCC, the National Climate Change Policy (PNCC) was approved in 2017, along with the first Nationally Determined Contribution (NDC) to the Paris Agreement. In 2022, the second NDC was approved, and the third NDC is currently under development. Uruguay has also developed four National Adaptation Plans (NAPs): the NAP for agriculture, presented in 2019; the NAP for the coastal zone and the NAP for cities and infrastructure, both presented in 2021; and the NAP for the energy sector, presented in 2024.
48. The proposed project is closely aligned with Uruguay's national priorities and action plans by addressing key needs in climate services, strengthening governance, and modernizing the hydro-meteorological network. Within the framework of Uruguay's Nationally Determined Contributions (NDCs), which highlight the importance of climate change adaptation through improved planning and decision-making based on robust scientific information, this project significantly contributes to meeting these commitments by providing reliable and accessible climate data. This data will strengthen the country's capacity to manage climate risks in strategic sectors.
49. Specifically, this proposal aligns with measures #1, 2, 3, 5, 6, 7, 9, 10, 13, 14, 22, 23, and 45 of the Second Nationally Determined Contribution ³⁶
50. At the international level, the project is aligned with the sectoral guidelines of the GCF, the Checklist for multi-hazard early warning systems from the United Nations Office for Disaster Risk Reduction (UNDRR), and the Global Framework for Climate Services of the World Meteorological Organization (WMO).

³¹ State of Climate Services in 2024. [Five-Year Progress Report \(2019-2024\)](#)

³² Document "[Situation and Perspectives of the Insurance Market in Uruguay](#)", Jorge Ponce and Verónica Rodríguez, 2012

³³ [Insurance Market Data as of June 30, 2023.](#)

³⁴ [Insurance Companies](#) of the Central Bank of Uruguay.

³⁵ [Drought Index Insurance for Soybeans, 2017 INIA.](#)

³⁶ Second Nationally Determined Contribution (2022). [Segunda Contribución Determinada a nivel Nacional](#) (2022)

51. The project is also aligned with the sectoral National Adaptation Plans (NAPs), such as those related to energy, agriculture, cities, and coasts. For example, in the energy sector, the project supports the need identified in the Energy NAP to have climate monitoring tools for planning the sustainable production and distribution of renewable energy. In the agricultural sector, it contributes to the goals of the Agro NAP by providing accurate climate information to improve climate risk management in key productive activities, reducing vulnerabilities, and promoting the sustainability of the sector. Similarly, in urban and coastal areas, the project responds to the objectives established in the Cities and Infrastructure NAP and the Coastal Zone NAP, by improving early warning systems and fostering the resilience of the most vulnerable populations to extreme events such as storms and floods.
52. Additionally, the proposal strengthens climate governance through the creation of a robust institutional framework for the provision of climate services, in line with national strategies that aim to strengthen technical and interinstitutional capacities. The creation of a National Climate Services Fund ensures long-term financial sustainability, promoting full ownership of the project by national institutions and ensuring that the improvements achieved last over time. This comprehensive approach also encourages the active participation of key sectors, ensuring a cross-cutting and multisectoral impact.
53. In conclusion, this project not only aligns with Uruguay's national climate priorities but also reinforces the country's leadership in climate risk management and sustainable adaptation, directly supporting the objectives set in the NDCs and the NAPs. By doing so, it ensures full ownership of the concept by the government, key institutions, and the beneficiary communities, consolidating its role as a driver for climate resilience at the national level.

Complementarity:

54. are some initiatives in the country that also contribute to strengthening climate information services and early warning systems. This proposal has been developed taking into account these ongoing and planned actions at the national and regional levels, to ensure the effectiveness of the intervention, avoiding duplications and optimizing resources to complement them. Among the complementary **regional initiatives**, the following stand out:
 - **LACI**: Climate Risk Assessment Program, driven by organizations such as USGCRP, AmeriGEO, and IAI, aimed at improving the capacity to analyze climate risks and vulnerabilities for local and regional decision-making.³⁷
 - **IDMP**: Integrated Drought Management Program of the WMO and GWP, which provides guidance on policies, management, and best practices based on scientific evidence to address drought.³⁸
 - **Regional Climate Center** for South America (CRC-SAS): under the principles of the WMO, it provides climate services focused on the production and dissemination of useful information for sectors sensitive to climate change.³⁹
55. At the **national level**, the project is complemented by multiple recent experiences, with the most relevant being:
 - Radar Trust Fund: A network of Doppler weather radars that improves monitoring, forecasting, and early warnings for extreme events, optimizing resources and strengthening national capacities.⁴⁰
 - REACC COASTS: A project approved by the Adaptation Fund to increase the adaptive capacity of the population and the resilience of coastal ecosystems to the risks of flooding and coastal erosion caused by sea level rise and an increase in the frequency and intensity of extreme events. The project includes a pilot Early Warning System (EWS) in a coastal locality, with plans to expand and scale the experience.⁴¹
 - Binational Uruguay River Project: A project in progress funded by the Adaptation Fund for climate change adaptation in vulnerable coastal cities and ecosystems along the Uruguay River. Among its 4 main objectives, it includes 'Promoting integrated climate risk management in the cities and ecosystems identified for each country, encouraging the implementation of early warning systems.'⁴² As an activity of component 1, a Flood Early Warning System (EWS) has been developed.

Barriers to adaptation

56. Despite the progress and efforts made at the national level, there are several gaps and barriers to the adequate provision of climate services in Uruguay, as well as to improving end-to-end, people-centered early warning systems. The main barriers that the project will address are:
 - **Limited government budget to modernize and strengthen monitoring and observation networks to improve national climate services** results in reduced monitoring of physical variables, which restricts the supply of quality climate information, particularly for short-term and very short-term forecasts. Despite the recent investment made by

³⁷ [Document "Improving Climate Risk Assessment Capacity and Catalyzing Partnerships to Inform Decision-Making in Latin America and the Caribbean" USGEO.](#)

³⁸ [The 2023-2025 IDMP Strategy](#)

³⁹ [Official Website of the Regional Climate Center for South America](#)

⁴⁰ CND [Call for the acquisition, installation, training, and maintenance of up to three meteorological radars for Uruguay - Radar Trust](#)

⁴¹ Adaptation Fund - [Increasing socio-ecological resilience in the Uruguayan coastal zone and strengthening the adaptive capacity of its infrastructure: REACC COSTAS](#)

⁴² [Executive Summary - Adaptation Fund \(AF\) – "Climate Change Adaptation in Vulnerable Coastal Cities and Ecosystems of the Uruguay River"](#)

the Uruguayan government in integrating 2 meteorological radars into the climate information system, the country still lacks an integrated observation and meteorological monitoring network. In other words, the quantity and quality of both physical and soft infrastructure remain inadequate to ensure the acceptance and delivery of climate information. The lack of an immediate prediction system also hinders the development of an associated EWS, especially in urban areas where heavy rainfall could cause urban flooding, or in the agricultural and energy sectors where droughts increase production losses

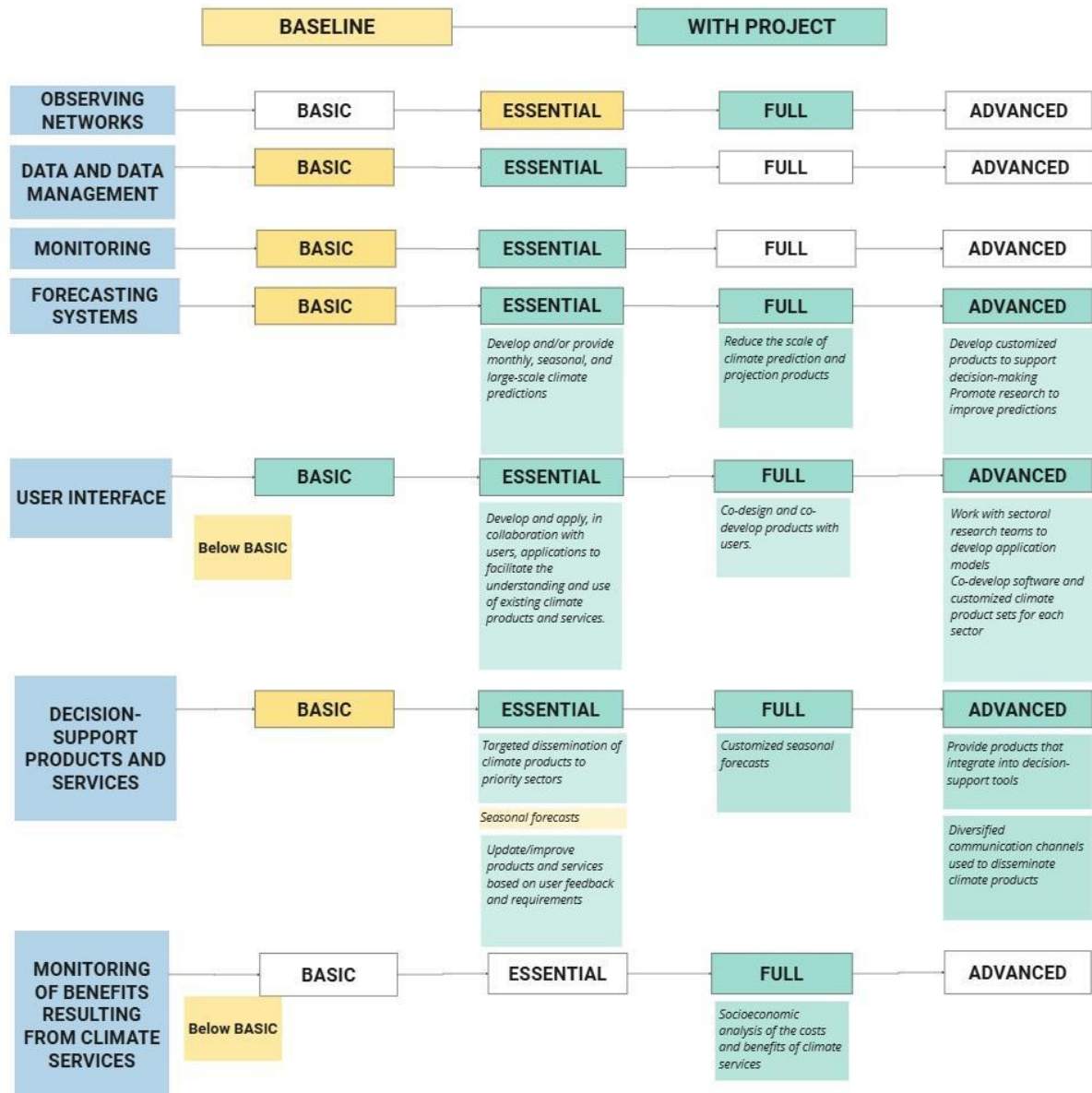
- **Limited institutional and technical capacity to carry out advanced climate research, perform accurate modeling, and strengthen effective communication with the end users** of climate services, commonly referred to as 'the last mile. This implies significant challenges in terms of specialized human resources, technological infrastructure, and information systems that allow for the timely and understandable generation, processing, and transmission of relevant climate data. Furthermore, the lack of effective mechanisms for interaction between scientists, government institutions, and local communities makes it difficult to translate technical information into practical and accessible strategies. Overcoming this barrier requires prioritizing capacity building at all levels and fostering the co-creation of solutions with end users to ensure that climate services are inclusive, useful, and actionable.
- Although Uruguay has created the SINAIE, there is **limited coordination and governance** of climate information services. There is a need to work on the coordination and alignment under a national framework of the different links in the chain, from information producers to users along the entire value chain. There is limited coordination, exchange of information, and data in appropriate formats and timelines between government entities and between government and non-government entities, including productive sectors and the general population.
- **Limited knowledge of exposure, threat, vulnerability, and risk** with considerations of future climate change. This gap mainly stems from limited capabilities and resources to generate this knowledge, which means there is insufficient integration of climate change considerations in risk assessments and strategic planning. There are limitations both in the knowledge of climate threats and in the issues of exposure, vulnerability, damage, and losses, as well as in the generation of risk maps that do not reflect the changing dynamics imposed by climate change, which limits their ability to anticipate impacts and design effective adaptation measures. Additionally, there is a lack of integration of information and accessibility of these tools for effective decision-making, along with a disconnect between information providers and decision-makers, which hinders the development of strategies tailored to future climate scenarios. While work is being done on a situation room to allow for the effective integration of these variables, it is still an ongoing effort due to resource limitations.
- **Limited technical capacities and resources** to implement impact-based forecasting and apply anticipatory actions, as well as to properly manage risks. Currently, the tools and skills needed to generate climate forecasts in terms of their specific impacts on key sectors (such as agriculture, water resources, energy) are insufficient, which restricts informed and proactive decision-making and the establishment of impact-based EWS. This lack of technical capacity is further exacerbated by limited financial and technological resources, making it difficult to implement anticipatory measures to mitigate the adverse effects of extreme weather. Moreover, there remains a need to establish robust systems for evaluating, prioritizing, and communicating risks in a way that is useful for decision-makers and vulnerable communities. Overcoming this barrier requires investment in specialized training, strengthening forecasting systems with impact-based approaches, and promoting interinstitutional cooperation to implement preventive actions and manage risks more effectively.
- **Limited knowledge of the benefits and effectiveness of proposed adaptation solutions.** This includes the lack of systematic evaluation and quantitative evidence that supports the positive impact of specific adaptation measures. As a result, it becomes challenging to prioritize and gain acceptance for these initiatives from decision-makers, communities, and key stakeholders. The scarcity of studies documenting successful cases, coupled with the absence of mechanisms to monitor and evaluate the implementation of strategies, restricts the ability to identify which approaches are most suitable in specific contexts. Furthermore, this knowledge gap creates uncertainty about the cost-benefit relationship of investments in adaptation, which may hinder the necessary financial and institutional commitment. Overcoming this barrier requires promoting studies, developing monitoring and evaluation tools, and fostering spaces for learning and communication to socialize the results and increase trust in the proposed adaptation solutions.

B.2. Project / Programme description (1000 words)

57. The objective of the project is to contribute to the reduction of the impacts of extreme hydro-meteorological events on the general population, as well as on the energy and agricultural productive sectors, through the strengthening of climate information services and early warning systems at the national level, also contributing to the improvement of emergency and disaster risk management.

58. Figure 1 illustrates the baseline situation and how the provision of climate information services is expected to improve with the project. Regarding early warning services, the project aims to transition to end-to-end early warning systems, impact-based and people-centered.

Figure 1: Baseline and with-project scenario



Source: Development based on a [World Meteorological Organization \[WMO\] \(2020\). Checklist for Climate Services Implementation](#)

59. The project's theory of change articulates that: **IF** the modernization of the hydro-meteorological observation network and its scaling are financed, as well as the strengthening of the institutions providing climate information and services and the entities managing the early warning system to reach the last mile, promoting sustainability mechanisms, **THEN** the population of Uruguay, as well as the agricultural and energy productive sectors exposed to climate impacts and disaster risks, will have better information and increased capacity for preparedness and response to those impacts, **BECAUSE** they will have timely, high-quality information and impact-based early warning systems for adaptation to climate-induced hazards.

Transformative and Scaling Potential

60. The **project** will generate transformative changes in the management of hydro-meteorological services in Uruguay, promoting a significant paradigm shift in the financing, provision, and use of meteorological and hydrological services at the national level, as well as in the implementation of impact-based EWS. This proposal to improve climate information services and EWS is ready to scale and has high transformative potential because it offers a comprehensive and coordinated approach, overcoming the fragmentation of the ad hoc interventions currently underway in Uruguay to strengthen climate services and EWS. Unlike isolated projects that focus on specific aspects such as technical analyses or localized EWS, this initiative integrates tools, capacities, and resources within a cohesive framework, maximizing synergies among key stakeholders and sectors affected by climate change. Its design considered previous and planned experiences, as well as international quality standards and paradigm shifts, such as the multi-hazard and impact-based EWS checklist, the World Meteorological Organization's Global Framework for Climate Services, and the GCF sectoral guidance. In this way, the project addresses the identified gaps to align with these international standards and contribute to more efficient and equitable disaster risk management and climate-resilient development. The initiative is also aligned with the strategic objectives of GCF-2 and the EW4All initiative, strengthening the provision of hydro-meteorological services and early warning systems through innovative, inclusive, and scalable approaches. Within this framework, three key sectors have been prioritized for the country due to their exposure and the vulnerability of the population to climate impacts: the water, agricultural, and energy sectors. The goal is to establish a framework for generating information on the effectiveness and cost-benefits of providing climate information services and anticipatory actions, among other measures. This will help scale solutions and instruments while offering a replicable model for other sectors facing similar challenges.

Proposed Components and Activities

61. **Component 1: Strengthening Climate Information Services.** This component aligns with the WMO Global Framework for Climate Services, the two pillars of EW4All—Detection, observation, monitoring, analysis, and forecasting, and Knowledge and disaster risk management—and the sectoral guidance on Climate Services and Early Warning Systems from the GCF in its paradigm shift approach. **1 Strengthening Climate Services - Modernization of the GCF's Hydro-Meteorological Services.** Activities are proposed to strengthen hydro-meteorological observation networks to improve the monitoring of potentially adverse events. Activities are also proposed to optimize INUMET's weather forecasting models, with an emphasis on mesoscale models. Improvements are also proposed for the hydrological prediction models of DINAGUA and future scenarios for water storage from INIA-GRAS. The climate services generated will focus on an integrated governance information system, jointly managed and led by SINAE (situation room). A user interface platform will be created for all involved sectors: agriculture (MGAP), energy (MIEM), and water sector (DINAGUA), as well as for DINACC, SINAE, and INUMET. Additionally, sector-specific climate information products will be developed, along with the availability and accessibility of data for the generated analysis. Efforts will also be made to adapt existing platforms and/or create new spaces for interaction and communication with the end-user to improve access to and interaction with climate information. For the determination of indicators, thresholds, alert levels, and contingency protocols, work will be done collaboratively with academia, government decision-makers, and users from the different prioritized sectors. Efforts will also focus on strengthening the capacities of service-providing institutions and intermediate and end users. Additionally, the initiative proposes to take the first steps toward creating a National Climate Services Framework, aiming to improve its governance.
62. **Component 2: Strengthening Multi-Hazard and Impact-Based EWS** is aligned with the Checklist for Multi-Hazard Early Warning Systems of the United Nations Office for Disaster Risk Reduction. Additionally, it aligns with the sectoral guidance on Climate Information Services and Early Warning Systems in pathway 2: Promote multi-hazard and impact-based EWS, as well as the two pillars of EW4All: Alert dissemination and communication, and Preparedness and response capacities. The paradigm shift that the concept note aligned with this pathway contributes to is related to transitioning to impact-based forecasting, improving the exchange and collaboration between institutions responsible for the early warning systems (EWS) to ensure communication reaches the last mile—vulnerable communities—as well as developing a new EWS for the energy sector. Additionally, a pilot for anticipatory actions and impact-based alerts will be developed for the water sector.
63. **Component 3: Sustainability Strategies and Knowledge Management.** Through the actions of this component, emphasis is placed on promoting the monitoring and evaluation of the benefits associated with the provision of climate services and other instruments such as anticipatory actions and disaster risk management plans, to generate evidence of the importance of these tools in reducing the impacts of disaster events on the general population and the prioritized productive sectors: agriculture, water, and energy, in order to promote sustainability and investment in their maintenance. Additionally, in order to achieve the goal of financial sustainability, efforts will also be made to promote a national climate services fund that will allow for the channeling of investment, while also exploring strategies and opportunities for selling climate products and services to the private sector. The dissemination and management of knowledge, not only at the national level but also regionally, will enhance learning and the capitalization of best practices.

Component 1: Strengthening Climate Information Services

Output 1.1 Strengthened and Scaled Hydro-Meteorological Station Network

Activity 1.1.1 Acquisition and installation of sensors and instruments for the modernization of the surface station network

64. Acquisition and calibration of sensors to replace and/or expand the measured variables in various EMAs. Purchase of equipment for the modernization of communication systems for the EMAs. Acquisition of automatic rain gauges to replace the current conventional rain gauges. Additionally, this activity will support the purchase of new EMAs necessary to improve monitoring and provide better information for the agricultural sector. Involved actors: INUMET.

Activity 1.1.2 Strengthening of high-altitude meteorological measurements.

65. This activity includes the purchase of automatic instruments and the necessary equipment for two daily radiosonde launches at a geographic location (Montevideo) to improve high-altitude measurements by INUMET.

Activity 1.1.3 Expand the meteorological radar network

66. The purchase of a third meteorological radar will be included to complete the coverage of the national territory. Additionally, efforts will be made with INUMET and DINAGUA to strengthen capacities in the use of data generated by the radar.

Activity 1.1.4 Strengthening of the hydrometric network and hydrometric sensors

67. Support will be provided for the acquisition of 3G hydrometric stations and the technological improvement of the hydrometric sensors in DINAGUA's network. Additionally, support will be given to the Technological University of Uruguay (UTEC) in the development of the laboratory for repairing hydrometric stations. Efforts will also be made to strengthen DINAGUA's capacities to work in collaboration with the UTEC repair laboratory and the web development team for water information technology.

Activity 1.1.5 Develop the phreatic network

68. Currently, Uruguay does not have a phreatic network that allows for the analysis of groundwater levels. This activity will finance the executive study for the design of the phreatic network, as well as the purchase of the necessary equipment for its installation and training in the use of equipment and groundwater measurements. This activity will be coordinated with DINAGUA and DINAGIME.

Output 1.2 Improved research and modeling

Activity 1.2.1 Strengthening of modeling capacities

69. This activity will involve working with climate information providers INUMET, DINAGUA, and INIA to strengthen their modeling and future scenario development capacities through the following sub-activities:

- Improvements in mesoscale forecasting models: This activity includes strengthening INUMET's capacity to use radar information and integrate it into forecasting models. It also includes strengthening technological infrastructure equipment to increase computing capacity and expand data storage capabilities. Additionally, technical training will be provided to generate joint products and to model the assimilation of data from radars or stations.
- Improvements in models through the acquisition of ECMWF: Through the ECMWF licenses for INUMET and DINAGUA, the forecasts currently being made will be improved. The aim is to strengthen the modeling capabilities of both institutions and use the generated information to conduct a cost-benefit analysis (see Activity 3.2.1) that will highlight the value of the model products and analyze the benefits to demonstrate the importance of the added value.
- Improvement of hydrological modeling: Additionally, this activity will strengthen DINAGUA's capacity in hydrological modeling, with a focus on hydrometry and hydrological forecasting. These training sessions may take place abroad, depending on the needs of the teams and the available offerings.
- Strengthening of future scenarios for water storage (deficit/excess) and performance: The hiring of a specialist will be supported during the project to incorporate into the INIA-GRAS water balance model the ability to generate scenarios about the future state of water storage (15 and 30 days ahead). Additionally, production system models will be developed or strengthened. A consultancy will be hired for the calibration of the DSSAT model.
- Hiring of a company to scan and organize the digital files of historical meteorological logbooks, which are currently only in paper format (temperature, wind, rainfall), and their incorporation into INUMET's Data Bank. The digitization of the five meteorological stations recognized by the WMO as centennial is planned, which accounts for approximately 30% of the paper data volume currently in the INUMET Data Bank.

70. The participation of women in capacity-building activities and in the hiring of qualified personnel for the digitization of meteorological data will be ensured.

Activity 1.2.2 Incentive for research on key climate-information issues for the country

71. The creation of a scholarship system (for undergraduate and graduate studies) will be supported to encourage research and development in areas of knowledge gaps in Uruguay, such as the application of radar information, mesoscale processes, modeling of storm-related phenomena, among others. The involved actors in defining the knowledge gaps will be INUMET, DINAGUA, National Universities, INIA, MGAP, and MIEM. The project will ensure the participation of 50% women among the scholarship recipients.

Output 1.3 Improved capacity for the communication and dissemination of climate and hydrological information

Activity 1.3.1 Infrastructure for data services

72. Support will be provided to improve the electronic infrastructure for data to systematize all information into a single centralized database and strengthen the general IT infrastructure. This includes generating agreements for data sharing, as well as analyzing how to integrate the information. There is an AGESIC project on open data focused on climate change, which already has an established platform. It is necessary to analyze this initiative to assess its potential integration. The process of extracting records along with metadata needs to be improved to be more aggregated and efficient. Additionally, it is necessary to ensure data updates and improve the existing catalog, as it currently only allows database downloads.
73. Involved actors: INIA, MIEM, INUMET, MGAP, DINAGUA, DINACC, AGESIC, DNE-Sinae

Activity 1.3.2 Development of user interface and communication products for different sectors and INUMET

74. Hiring a consultancy to identify the best dissemination tools and communication products for the generated information. It will also include conducting participatory workshops with end-users from each sector and creating a user interface for presenting the climate information and analyses generated. Adjustments will be made to existing websites to optimize their use and facilitate access to the information by end-users.
75. Additionally, this activity will include hiring a consultancy to strengthen communication through the design of infographics, generation of content for social media, and preparation of direct notifications to users such as CECOED and the media.
76. Training will also be provided to various institutions to improve their communication capabilities with users.
77. It will be ensured that the development of the interface considers and manages gender-disaggregated information, that the participatory workshops with end-users include the participation of women and older people, and that the communication products integrate a gender and generational perspective.
78. Involved actors: INUMET, SINAE/CECOED, MIEM, UTEC, DINAGUA, SINAE, INIA, DINACC.

Activity 1.3.3 Strengthening of a climate services portal

79. Development of an integrated portal with inter-institutional applications. In the feasibility stage, it will be analyzed whether it is necessary to create a new portal or strengthen one of the existing portals in the country. The portal should allow personalized interaction according to profile and area, unifying the experience into a single mobile application. This system will include the ability to offer recommendations and facilitate communication with the "last mile," ensuring effective dissemination of warnings and alerts. The integration will link recommendations with the steps to be taken in response to the issued alerts. Additionally, user profiles will be implemented, adapting content and recommendations to the needs of different sectors, such as agriculture, which require specific information and guidance based on their activities and context.
80. Involved actors: DNE-Sinae, INIA, MIEM, INUMET, MGAP, DINAGUA, DINACC.
81. It will be ensured that the portal manages and provides gender-disaggregated information, and that both recommendations and technological solutions for the dissemination of warnings and alerts are sensitive to the needs and languages of women, older people, and other vulnerable groups.

Activity 1.3.4 Implementation of Agroclimatic Technical Roundtables (MTA) Pilots through the National Innovation and Rural Development System (SNIDER)

82. Based on the work with rural development roundtables, and in coordination with SNIDER, two pilot agroclimatic technical roundtables (MTA) will be implemented (one per region). This will involve coordination with producers, technical entities, and organizations that produce climate information for agriculture, to facilitate discussions with farmers, promoting the understanding and exchange of agro-climatic information as well as the implementation of anticipatory measures for the agricultural sector. The project will ensure the participation of women in the MTAs. The involved actors are: MGAP, INUMET, INIA.

Activity 1.3.5 Dissemination of Climate Information with Considerations of Climate Change Scenarios

Through this activity, support will be provided to the agricultural and water sectors to address identified gaps in communication products. It includes the following sub-activities:

- Unification of the INIA MOVIL App and SNIDER for Alerts and Recommendations: Support will be provided for the unification of alerts and recommendations from INIA (through the INIA Mobile app) and MGAP (through the SNIDER system). The messages will be specified according to the type of production (cattle, sheep, citrus, horticulture). The unified app will also make available manuals on best practices and climate change adaptation with a gender and

generational approach, as well as the results of risk assessment and mapping generated in this Project. Actors involved: MGAP, INIA, DINACC.

- Update of the Small Dam Design Manual incorporating Climate Change Adaptation: This includes the update of the Small Dam Design Manual, with instructions for producers who build them for irrigation and watering purposes. The goal is to update the material by incorporating climate change adaptation. Actors involved: DINAGUA, DINACC.

Output 1.4 Strengthened Governance for the Provision of Climate Services

Activity 1.4.1 Design of Strategic Plan and Action Plan for the National Climate Services Framework

83. This activity includes the development of a baseline on existing climate services and a survey of the actors that make up the national climate services chain. A national consultation workshop with stakeholders will be organized to identify needs, strengthen collaboration, and improve coordination among the different actors involved in providing these services. The participation of women will be promoted in this workshop. A national strategic plan and an action plan for the National Climate Services Framework will be developed. The involved actors are: SINAIE, INIA, MIEM, INUMET, MGAP, DINAGUA, DINACC, and the Academia.

Component 2: Strengthening Multi-Hazard and Impact-Based Early Warning Systems

Output 2.1 Improved Climate Risk Knowledge

Activity 2.1.1 Improvements in hazard assessment incorporating climate change and generation of climate products

84. This activity will include the following sub activities:

- Generation of specific and appropriate products with a gender and generational approach for decision-makers related to climate change (CC) scenarios within the framework of INUMET. The scope of this activity will be further defined in the feasibility stage of the full proposal.
- Statistical evaluation of the frequency of threats using new historical data: Hiring of an expert in Atmospheric Sciences for the completion and homogenization of historical series, as well as for the generation of maps showing the frequency of occurrence of extreme precipitation and temperatures.
- Improvement of the resolution of the INIA-GRAS model for estimating available water: Hiring of a specialist during the project to integrate satellite-based precipitation estimates into the hydrological balance model. Additionally, incorporating more detailed soil mapping based on the ongoing update of the Soil Map of Uruguay (scale 1:40,000), developed by the Directorate General of Natural Resources.
- Development of maps for the frequency of strong winds: Hiring a specialist to create risk maps that identify areas with winds capable of exceeding damage thresholds. This activity will include coordination with INUMET and collaboration with the Academia.

Activity 2.1.2 Information on vulnerability and exposure considering climate change.

82. The design of a standardized system for the assessment of impacts, damages, and losses caused by climate events affecting the prioritized sectors in the project will be supported. This includes the collection of existing data and systems that already record this information, its analysis, and identifying the design of a system that allows for the proper recording of exposure, vulnerability, damages, and losses, along with relevant indicators. A detailed protocol will also be developed, specifying the individuals responsible for data registration and the sources of information for each piece of data, for the prioritized sectors. The objective will also be its integration into a centralized database, ensuring a coordinated and efficient implementation of the registration process. Additionally, the necessary technological development and equipment for its operation will be financed, as well as the strengthening of institutional capacities for the proper recording of the identified indicators and the use of the platform. This may include the development of a new platform or the enhancement of an existing platform.

83. Data disaggregated by gender and age (children, elderly) will be included to identify how each group is affected differently by climate events. Indicators reflecting specific vulnerabilities will be incorporated, such as the impact on rural women or the response capabilities of youth and elderly individuals. The training will integrate a gender and generational perspective, ensuring that those responsible for data registration understand the different vulnerabilities. To improve exposure information, the generation of an inventory of buildings and critical infrastructures vulnerable to riverine flooding will also be included, with various indicators and characteristics that complement the inventory of coastal infrastructures vulnerable to flooding and coastal erosion.

84. Involved actors: DNE-Sinae, INIA, MIEM, MGAP, DINAGUA, DINACC.

Activity 2.1.3 Produce maps and key indicators for risk assessment incorporating future climate change.

85. Development of maps for analysis of exposure, vulnerability, and risk. This process encompasses historical knowledge and will consider the future effects of climate change. This activity includes the following sub activities:

- Updating the risk assessment and maps for the energy sector: In alignment with wind threat assessments and the vulnerability of the energy system, the risk maps for the energy sector will be updated. These maps will include both historical data and future projections, considering the effects of climate change.
- Updating the assessment and expanding flood risk maps: The update and expansion of riverine flood risk maps, as well as the generation of risk maps for rural flood zones due to excessive rainfall, will be carried out through the hiring of an external consultancy. Both will consider the historical perspective and climate change projections. Communities will be involved in the design and validation of these maps, ensuring the participation of women, elderly individuals, and other vulnerable groups.
- Updating the assessment and risk maps for drought and excess water by INIA: Hiring an agronomist to generate risk maps that include a wider variety of vegetation covers, such as other crops, forage, natural grasslands, among others. The maps will include historical data and future projections, considering the effects of climate change. Producers will be involved in the design and validation of these maps, ensuring the participation of women, elderly individuals, and other vulnerable groups.
- Development of the assessment and risk maps for water supply due to drought for the general population: Exposure, vulnerability, and risk in the water supply to the population, both historical and projected with climate change. Communities will be involved in the design and validation of these maps, ensuring the participation of women, elderly individuals, and other vulnerable groups.
- With the support of the piezometric network developed in Component 1, progress will be made in improving the understanding of groundwater: Hydrogeological research and mapping at the national level will be promoted to enhance the understanding of underground water resources. Although some point measurements exist, no products or services are currently being generated from this data. Support will be provided for the reporting and monitoring of the status of existing wells, in collaboration with DINAMIGE. Additionally, both historical data and future projections will be integrated, considering the effects of climate change on groundwater resources.
- Ecosystem risk assessment and map development: Assessment of vegetation and ecosystem conditions, with the aim of determining how to improve native forest cover to reduce vulnerability and strengthen ecosystems. This analysis will focus on long-term events and target key areas such as natural grasslands and native forests. The work will be carried out through a specialized consultancy.
- In alignment with the risk assessments conducted, a specialized consultancy will be hired to obtain analytical tables that will allow for subsequent monitoring of specific risk indicators regarding infrastructures, production, goods, people, and ecosystems. This will quantify the evaluation and combination of the GIS layers generated in the previous sub-activities. Along with this analytical table, it will improve decision-making and its integration into the Situation Room (see activity 2.2.3).

Involved stakeholders: DINAGUA, MIEM, INIA, DNE-SINAE, DINAMIGE, DINACC, MGAP.

Output 2.2 Integrated impact-based forecasting system and monitoring, warning, and alert protocols implemented.

Activity 2.2.1 Development and implementation of impact-based forecasting.

86. Support and capacity building for the development of impact-based forecasting for the three prioritized sectors. Strengthening the capacities of INUMET, DINAGUA, and SINAE for the implementation of impact-based forecasting services. This will include South-South cooperation, leveraging experiences and best practices from other countries in the region to enhance knowledge and strengthen technical capacities in these services (DNE-SINAE, DINAGUA, INUMET). Participatory workshops with representatives from key stakeholders, including communities and local producer groups, will also be held. This will also involve support for determining **thresholds** of water availability associated with productive impacts, hazard **thresholds** for the energy sector related to impacts, and hazard **thresholds** for coastal/riverine flooding. The participation of women will be promoted in all training sessions. Involved stakeholders: SINAE, DINAGUA, INUMET, MGAP, INIA, MIEM, CECOED, DINACC.

Activity 2.2.2 Review and update of monitoring, warning, and alert protocols.

87. Support for the review and update of **monitoring, warning, and alert protocols** for the prioritized sectors, promoting the coordination and collaboration of the different actors involved, while ensuring alignment with the regulations and roles defined by the regulatory framework. It will be ensured that the warning and alert protocols consider the specific needs of women and vulnerable groups, such as rural women or informal workers, who may be more exposed to risks during extreme climate events. Involved stakeholders: SINAE, DINAGUA, INUMET, MGAP, INIA, MIEM, DINACC.

Activity 2.2.3 Integration of monitoring, warning, and risk information into a Situation Room.

88. Support for the creation and management of the Situation Room within the framework of SINAE for the integration of hydrometeorological event monitoring: Hiring a specialized consultancy for the design and implementation of a platform that compiles and centralizes the information generated on threats, exposure, vulnerability, and risk. This platform will allow

real-time monitoring of the current situation, facilitating informed decision-making in response to hydrometeorological events. The platform will include vulnerability and exposure indicators specific to women and vulnerable groups, enabling a detailed analysis of how these groups are affected by hydrometeorological events.

Output 2.3 Enhanced capacity for planning, preparedness, and risk management.

Activity 2.3.1 Update of Departmental Emergency and Disaster Response Protocols.

89. Description: Hiring specialized consultancies to assist and train in the development of 19 Departmental Emergency and Disaster Response Protocols, integrating the analysis of future climate risks. Involved actors: SINAE, Departments, DINACC.

Activity 2.3.2 Strengthen the communication of alerts to the last mile for flood warnings and the energy sector.

90. Through this activity, support will be provided for the equipment, technical assistance, and strengthening of communication channels for the flood and energy EWSs (Early Warning Systems), in coordination with SINAE/CECOED, MIEM, DINAGUA, UTE, ANCAP, Civil Defense, and hydroelectric companies. This activity includes the following sub-activities:

- Improvement of last-mile communication in the functioning flood EWSs. This will involve hiring consultancy to strengthen communication with CECOED and the media. Additionally, it will aim to improve and expand the information available on the Euroclima portal (Santa Lucía EWS).
- Communication and dissemination of alerts to the energy supply system.

Activity 2.3.3 Design anticipatory actions, contingency plans, and drills for the hydro and energy sectors.

91. Through this activity, the development of anticipatory action protocols, drills, and contingency plans for the energy sector will be included. This will involve determining the measures to be taken in case of warnings or alerts for each energy sector and at all stages of the chain. Coordination with MIEM and SINAE.

92. Additionally, pilot projects for anticipatory action protocols, drills, and funding for anticipatory actions for the riverine flood EWSs currently in operation will be developed. To support this, the visit of experts who have developed these protocols in the region, such as experiences in Peru with the support of the International Red Cross, will be promoted. The goal will be to determine thresholds based on probabilistic models, anticipatory actions with gender and generational considerations, to develop at least one EWS pilot with these characteristics.

93. Furthermore, work will be done to strengthen prevention and response capacity in the different SATs currently operating for riverine flood alerts in DINAGUA. The goal will be to strengthen Component 4: prevention and response capacity in the existing riverine flood EWSs, which currently have a limited scope. Inclusive communication strategies will be developed that consider the needs of communities with limited access to technology or basic infrastructure. Involved stakeholders: SINAE, CECOED, DINAGUA, Civil Defense.

Activity 2.3.4 Improvements in risk transfer schemes for the agricultural sector.

94. The objective of this activity is to improve and scale risk transfer schemes for the agricultural sector, coordinating the activities of INIA and MGAP with the Banco de Seguros del Estado. It includes the following sub-activities:

- Expansion of the horticultural insurance scheme and other fruit production. The project will support the hiring of a software developer to automate the calculation method for excessive and deficient rainfall indices (INUMET). This will include the review and redesign of the insurance policy (thresholds, critical periods) (OPYPA). Additionally, the expansion of insurance in horticultural areas where insurance is not currently available will be analyzed, along with the implementation of a pilot for this purpose.
- Livestock index insurance: forage availability Description: Background: Feasibility study of the insurance (which is already underway). Support the next steps based on the feasibility study. This includes the generation of NDVI (Normalized Difference Vegetation Index) statistics by political division and the review and redesign of the insurance policy.

95. The review and redesign of insurance policies must adapt coverage to the realities of women and vulnerable groups, considering economic and access barriers. In the horticultural insurance pilot, the inclusion of women as beneficiaries will be ensured. Additionally, the livestock insurance policy should consider the conditions of women livestock farmers and facilitate their access.

Component 3: Sustainability Strategies and Knowledge Management

Output 3.1 National Climate Services Fund designed.

Activity 3.1.1 Design, structuring, and implementation of enabling actions for the operation of the National Climate Services Fund.

96. This activity includes the design, structuring, and implementation of actions for the operation of the National Climate Services Fund, with the aim of attracting public and private sector funds to finance investments in the Early Warning System and Climate Services.

Output 3.2 Knowledge on the effectiveness of measures and best practices generated.

Activity 3.2.1 Analysis of the effectiveness and cost-benefit of the project's products and pilots.

97. Through this activity, the project will conduct various studies on the effectiveness, timeliness, and cost-benefit of different instruments implemented and pilots developed within the project, such as climate models, anticipatory actions, departmental risk management plans, among others. These studies will include analysis of how different actions impact or benefit women and other vulnerable groups in distinct ways. Additionally, a market study will be conducted for the sale of climate services to private entities, aiming to identify products and market opportunities for the information and services the country could provide. The information generated by this activity is expected to create evidence that supports the long-term financial sustainability of climate services and early warning systems. Involved actors: SINAE, INIA, MIEM, INUMET, MGAP, DINAGUA, DINACC.

Activity 3.2.2 Knowledge exchanges and dissemination actions on the project's experience and regional experiences.

98. Through this activity, workshops and exchanges with other countries in the region will be promoted in the provision of climate services and innovative solutions. Studies on project experiences and the identification of good practices in areas such as agriculture, gender and generations, energy, and hydrology will be conducted. In addition, national-level workshops will be held to promote exchanges between providers and users, allowing for the sharing of good practices and improvement recommendations. The actors involved are SINAE, INIA, MIEM, INUMET, MGAP, DINAGUA, and DINACC

Implementation arrangements

99. **The National Corporation for Development (CND) of Uruguay** will be the Accredited Entity and the Executing Entity of the Project. It is an excellent choice for this project due to its experience and capabilities in the structuring, management, and execution of strategic projects, including climate and sustainable development initiatives. Additionally, through its subsidiary CONAFIN AFISA, the CND efficiently and transparently manages trusts and funds, which helps reduce management costs for the trust fund proposed by this project. Moreover, the CND has a proven track record in directing infrastructure projects and promoting sustainable solutions in key areas, aligning with the GCF's climate change mitigation and adaptation objectives. Its experience in managing both public and private funds ensures an efficient implementation aligned with Uruguay's national plans. These characteristics strengthen the country's capacity to guarantee the sustainability and impact of the proposed project.

100. Uruguay has significant experience in collaboration between key institutions and a strong government commitment to advancing the project. This commitment is reflected in the allocation of resources and the involvement of officials and technicians as co-financing for the proposal.

101. Within the framework of the CND, a **Project Management Unit (UGP)** will be established, responsible for overseeing the execution of activities in coordination with and under the guidelines of the Steering Committee and the Technical Committee. This Unit will be composed of a coordinator under the direct supervision of the DINACC, an environmental and social safeguards specialist, a water, agriculture, energy, and meteorology specialist. A trust fund will be established for the management of the Project funds, which will act as the National Climate Services Fund. During the execution of the Project, the possibility of its continued operation will be analyzed based on agreements and a design that allows for its sustainability.

102. The key institutions that will be part of the governance of the Project are:

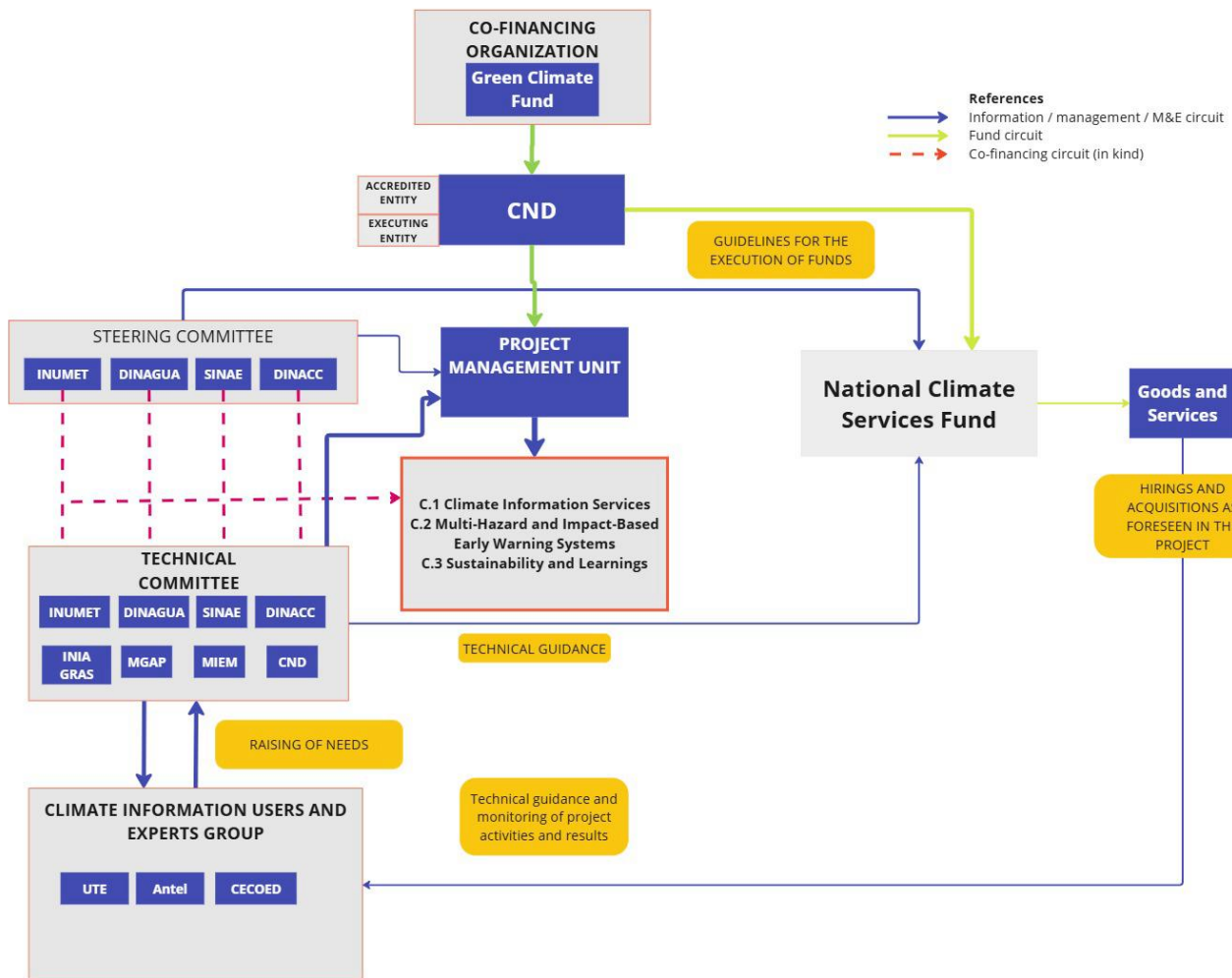
- **DINACC (NDA del GCF):** It is the national designated authority to the GCF. Its role is to fulfill Uruguay's obligations in the context of multilateral agreements on climate change and ozone layer protection. The objectives of DINACC are: i) to propose and implement actions aimed at risk prevention and management, climate change mitigation and adaptation, and ozone layer protection; and ii) to promote coordination between key stakeholders, supporting the Coordinator of the National Climate Change Response System.
- **DINAGUA:** It is responsible for water management and the development of water management policies that ensure the quality and sustainability of this natural resource. It also develops hydrological models for flood Early Warning Systems (EWSs) to ensure the sustainability of the resource.
- **INUMET:** It is the national meteorological service, with the mission and responsibility of providing climate information, implementing climate services, monitoring the atmosphere, and delivering weather forecasts and warnings to society.
- **DNE-SINAE:** Comprehensive management of emergencies and disasters through coordination at the national and subnational levels (CDE and CECEOED). This systemic structure is mandated to coordinate the entire state at its different levels of management, in a transversal manner, across all levels of management for the comprehensive management of emergency and disaster risks in Uruguay, to protect the population, significant assets, and the environment.
- **MGAP:** It is responsible for strengthening the agricultural sector through technology and regulations. Its mission is to protect the health and quality of the national production of plant and animal-based products and ensure food safety. It

generates regulatory and operational instruments that allow economic agents to carry out their activities under appropriate conditions of information and fairness and improves access to the necessary technology and other elements to enhance productivity, quality, and competitiveness in the sector.

- **MIEM:** It is responsible for guiding the strengthening and diversification of the industrial sector, the growth of infrastructure, and the transition towards a sustainable energy development of the energy matrix.
- **INIA:** An institution dedicated to research, innovation, and technological transfer in the agricultural sector, with the goal of improving productivity, sustainability, and competitiveness in the sector. Its work is supported by two main pillars: extension, which promotes the adoption of technologies through the transfer of knowledge to producers and technicians; and INIA GRAS, a specialized unit focused on agroclimatic information systems and analysis to optimize productive management in the face of climate change challenges.

103. The following figure presents the governance structure, allowing to see the interactions between the different institutions and committees that will form it.

Figure 2: Project Implementation Arrangements



104. The **Project Governance** will be structured as follows:

- **Steering Committee:** It will be responsible for overseeing, monitoring, and providing strategic guidance during the implementation of the project. It will review the actions of the UGP and approve its annual operational plans. It will be composed of representatives from the main national institutions related to climate services and early warning systems (EWS), such as INUMET, DNE-Sinae, the Ministry of Environment (especially DINAGUA and DINACC), and CND.
- **Technical Committee:** Its objective will be to monitor activities and results related to its own areas of expertise and to common decisions that require coordination, ensuring the sustainability of activities and acquisitions, methodologies, and developed capacities. Additionally, it will be the body that provides technical guidance to the Steering Committee and will gather information from the User and Expert Group, which will also be a key part of the proposal. It will be composed of technical representatives from national institutions such as INUMET, DNE-SINAE, MGAP, MIEM, INIA GRAS, CND, and the Ministry of Environment (DINACC and DINAGUA). Furthermore, it will be the body responsible for the most active interaction with the Project Management Unit (UGP), as the UGP must ensure that the

implementation of activities aligns with the technical requirements set by each of the institutions in the Technical Committee. They will hold regular meetings with the UGP to ensure the effectiveness of the actions.

- **User and Co-producing Expert Group:** It will function as a permanent consultation group to address its specific needs, strengthen capacities, and generate synergies with the co-producing and private sector. This group will include public and private actors from the prioritized sectors (agriculture, energy, and water) and from key sectors in the implementation of the project (insurance companies, CECOEDs, academia such as CIRCVC), who will act as users and co-producers of climate information.

Operational and financial risks

105. There is a medium technical and operational risk due to the governance of the project, as multisectoral coordination and involvement of multiple stakeholders is a challenge. The project components are designed to strengthen governance, as well as coordination through capacity building; establishment of a solid knowledge base; and awareness-raising projects.
106. The lack of technical capacity for project execution is a low risk for the project. The project activities will help modernize the meteorological sector in terms of technology and human resources, improve institutional coordination, and enhance the capacity to provide effective climate services. The project will strengthen coordination through the Multisectoral Technical Team.
107. There is a medium technical and operational risk due to the limited budget availability from the government to finance the climate information system and early warning systems, which could lead to budget cuts and staff reductions in the state organizations responsible for the project. The project will assist government entities in developing and implementing a sustainable long-term financial instrument for the operation and sustainability of the climate information systems and early warning systems, including a plan to engage the private sector in the area, as well as to access funding from international donors.
108. There is a medium financial risk due to the lack of available funds for the proper operation and maintenance of the climate information systems and early warning systems. In addition to designing and implementing a sustainable long-term financial instrument, the project will create new climate information products and expand existing ones derived from technological and human resources improvements. It will also develop and disseminate products that demonstrate the cost-benefit of these products to increase the interest in financing from both the State and the private sector.

Monitoring and Evaluation

109. The monitoring and evaluation of the program will be organized in accordance with the GCF evaluation policy and the provisions of the AMA. During the full proposal stage, the Monitoring and Evaluation Plan will be developed, which will determine the verification methods, data sources, and methodology to be used for monitoring and evaluation, following (i) the project's theory of change and (ii) the indicators identified in the logical framework. In this context, it is expected that the Project Management Unit (UGP) will include a Monitoring and Evaluation (M&E) specialist, who will be responsible for ensuring compliance with the various commitments and policies of the Project. Technical and financial reports will be requested, including both qualitative and quantitative analysis.
110. Periodic sessions will be held to analyze the progress of the program to measure advancements toward the goals and objectives, review challenges and potential deviations from the goals, delays, and assess the overall efficiency of the program, as well as lessons learned that allow for the incorporation of feedback loops. Additionally, the Annual Progress Report (APR) will be prepared annually and submitted to the GCF. It will be ensured that the technical and financial reports contain all the necessary information to compile the annual APR, as well as the strengthening of the monitoring and evaluation capacity of the actors involved in the implementation of the project.
111. In alignment with the GCF evaluation policy, a mid-term review (MTR) will be conducted in year 3 of execution or when 50% of the funds have been spent—whichever occurs first—and an independent evaluation will take place upon completion of the execution. The results of the MTR will allow for an analysis of progress toward the goals and generate recommendations that will enable adjustments to the implementation of the program in its subsequent phases. The final evaluation will analyze the achievements reached, the effectiveness, efficiency, and sustainability of the results obtained, and will draw lessons for future projects. Additionally, it will assess the contribution to the GCF investment criteria, including the achievement of the anticipated impact toward paradigm shift. Through the dissemination and learning component, this experience is expected to be capitalized on to generate a knowledge management strategy that will allow for the replication and scaling of the lessons learned from this program.

B.3.Expected performance against the GCF investment criteria (500 words)⁴³

⁴³ For more information please refer to Annex XIV of document [GCF/B.07/11](#)

Impact Potential

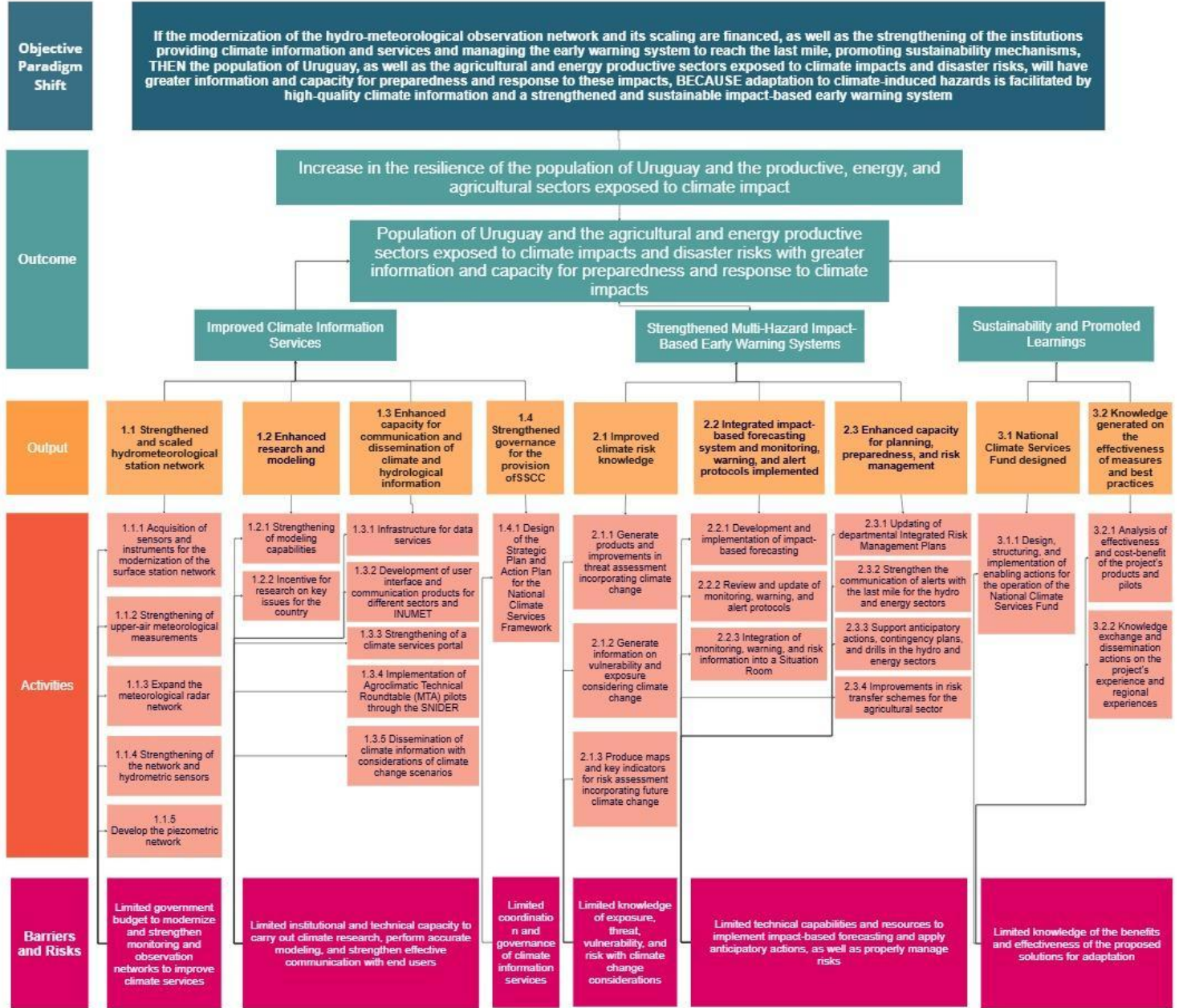
112. The damages and losses resulting from climate phenomena amounted to USD 563,809,097 in just one year, equivalent to 0.94% of Uruguay's GDP in 2018. Of the total amount, 97.5% corresponded to economic losses and 2.5% to direct damages. In sectoral terms, the energy sector was affected by damages amounting to USD 245,700, the agricultural sector suffered losses equivalent to USD 535,654,834, and housing was affected by damages and losses amounting to USD 19,049,577.⁴⁴ Climate change projections suggest that these trends will intensify in the future, further increasing economic and social costs. The project has significant potential to transform Uruguay's ability to adapt and be resilient to the effects of climate change, mitigating the risks and impacts of extreme hydrometeorological events on the general population and key productive sectors such as energy and agriculture. This will be achieved through two main interventions: (i) improving climate information services, and (ii) strengthening multi-hazard end-to-end early warning systems against floods and for the energy sector. Each of the sub activities within the three components of the project will play a crucial role in providing the country with comprehensive and evidence-based data, tailored climate services and products and improved EWS aimed at adaptation and holistic decision-making that reduces the potentially negative climate-impacts.
113. The project will directly promote climate change adaptation through improved forecasting services for extreme weather events, such as rainfall that can cause flooding, benefiting approximately 43,054 people at risk of flooding, of which 52% are women. Indirectly, it will improve the provision of climate services for the entire national population, estimated at 3,401,209 people, with 52% of them being women. Expected benefits include reducing the negative impacts of climate hazards, improving the protection of lives, livelihoods, and the economy against significant damages and losses. Optimized use of cutting-edge climate data and science to promote climate action based on evidence. Sustainability of existing investments in meteorology and hydrology, maximizing their impact and effectiveness. Coordination of hydrometeorological activities, which will allow for the delivery of more relevant and accessible climate products and services to end users through effective communication channels.
114. Overall, the project will strengthen the country's capacity to respond to present and future climate challenges, contributing to the social well-being and climate resilient development of Uruguay.

Paradigm Shift

115. The project has developed its Theory of Change, which aims to achieve a paradigm shift in three aspects: climate services, early warning systems, and sustainability, as well as lessons learned based on the benefits of the measures.
116. The paradigm shift promoted by the concept note regarding **climate information services** includes the development of high-quality national hydrometeorological **services**, sustainable through public co-financing and creating the necessary conditions for the private sector to have investment opportunities. Se espera incluso identificar nuevos productos de transferencia de riesgo, y oportunidades de mercado para servicios climáticos que puedan ofrecerse y venderse al sector privado. It is also expected to identify new risk transfer products and market opportunities for climate services that can be offered and sold to the private sector. Additionally, the proposal aims to improve climate information services in various sectors such as Agriculture, Energy, and Water. The paradigm shift will also lead to innovation in how climate information is communicated, promoting greater interaction with users from different sectors, with an emphasis on feedback and the usability of information for decision-making and adaptation action.
117. Additionally, the project contributes to a **paradigm shift in the EWS**, strengthening risk knowledge and the observation and monitoring capacities, as well as the delivery of alerts and warnings. It supports the transition from information providers from the weather and hydrological services to impact-based forecasting, improving the exchange and collaboration between the institutions in charge of the EWS, the protocols, and inter-institutional coordination at various levels (national-local) to ensure that communication and alerts reach the last mile—communities and the most vulnerable sectors—in a timely and appropriate manner, while also strengthening their prevention and response capabilities to disasters and climate impacts. It has elements of innovation as it will support the development of an EWS for the Energy sector and will develop pilot EWSs with anticipatory actions that will **generate evidence of their cost-efficiency** and best practices on the best ways to implement these actions in the context of Uruguay, promoting their **sustainability**.

⁴⁴ [Pilot Report on Damages and Losses from Climate-Related Events in Uruguay for the Year 2018.](#)

Figure 3: Theory of Change of the Program



Sustainable Development Potential

118. **Environmental** co-benefits: The activities of analyzing and updating risk maps, especially related to water management, will enable better planning and sustainable use of water resources, reducing the risk of contamination and over-exploitation of water sources. Additionally, the project will implement sustainable technologies, ensuring the proper management of equipment and data associated with communication systems, which will minimize the environmental impact related to the use of technologies (energy consumption and materials). The project activities will indirectly contribute to the protection and improvement of natural resources, such as water, soil, and biodiversity. Although they are not specifically focused on environmental protection, interventions such as strengthening impact-based alerts and forecasts promote better preparedness for extreme weather events, which in turn can reduce the pressure on natural resources.
119. **Economic** co-benefits: Strengthening climate services and EWS will significantly contribute to reducing the costs associated with climate disasters by minimizing economic losses and expenses resulting from delayed emergency responses.

120. Climate risks, such as floods and droughts, not only reduce agricultural yields but also negatively impact soil fertility, increasing adaptation costs. For farmers, these adverse conditions directly affect their consumption and investment decisions, generating a cascading effect on local economies. The energy sector also experiences significant impacts from climate shocks. Accurate and up-to-date information on variables such as temperature, wind speed, and river flow is crucial for improving demand forecasts and system planning, optimizing operations, and reducing costs. These accumulated losses over time represent a significant economic challenge for developing countries like Uruguay, potentially hindering government efforts to reduce poverty and inequality. This project, by investing in hydrometeorological systems, will help mitigate these effects, fostering more sustainable economic growth. Additionally, the project will promote the design and improvement of economic tools for risk transfer, such as climate insurance, which strengthen consumption and investment decisions in vulnerable sectors.
121. The project will also generate economic co-benefits through the creation of jobs and the strengthening of local technical capacities, thereby promoting more inclusive economic development.
122. **Social co-benefits:** The **social** benefits derived from strengthened meteorological services will be reflected in better climate-related human decisions, reducing vulnerabilities and protecting the population from natural disasters.
123. Among the main social co-benefits are the prevention of loss of lives and/or injuries/illnesses caused by extreme weather events; greater safety for travelers through reliable information on weather conditions; strengthening of scientific knowledge by providing meteorological data and information to the academic and technical community; and improving the quality of life for the population by ensuring greater safety, comfort, and daily well-being.
124. The project will have a direct impact on reducing social vulnerabilities and gender inequalities, ensuring that women and other vulnerable groups are prominent beneficiaries. Through early warning systems and the provision of climate information, the health, safety, and protection of communities most exposed to hydrometeorological risks will be improved.
125. Additionally, the increase in public awareness and the capacity to respond to climate risks will foster social resilience, enabling communities to be better prepared for future climate challenges. As a result, the number of households affected by climate disasters will be reduced, thus improving overall well-being and strengthening social cohesion in the country.
126. **Gender co-benefits:** The gender and generational approach will be cross-cutting to all project activities, ensuring that the needs and priorities of women and other vulnerable groups are integrated into each phase. It will be specifically implemented in several project activities. For example, in training on risk management and the use of early warning systems, it will be ensured that both men and women participate equitably, addressing potential access barriers such as timing or resources. Furthermore, in risk analysis activities, consideration will be given to how gender factors affect the vulnerability and response capacity of communities, particularly in the case of women in situations of social or economic vulnerability. As for interventions related to infrastructure for alerts and the improvement of communication services, efforts will be made to ensure that women, especially in rural or isolated areas, can access and benefit from these improvements. The activities will also include specific consultations with women's groups to ensure that their needs are reflected and their voices heard in the project's decisions, thereby strengthening the resilience of the entire community.

Recipient's needs

127. The project will improve the registration, quantification, and assessment of losses and damages from hydroclimatic events in the country, which is still underdeveloped. For example, in the agricultural sector, improving the prediction of hydroclimatic events and their interrelation with crop predictions can facilitate the estimation of losses. The lack of quality data on the impacts of climate change, including losses and damages, prevents Uruguay from addressing specific climate risks, increasing ambition, and accessing international funding for adaptation. By improving and scaling the national hydro-meteorological information system, the project will also generate essential data that will enable the implementation of new adaptation measures and strengthen the country's climate ambition and commitments. The project can also generate co-benefits in climate change mitigation, as it increases the climate resilience of the national renewable energy generation matrix.

Ownership of the country

128. The development of this Project has involved a wide range of key institutional actors. It has been led by 8 government agencies that formed a working group on climate services, and the Accredited Entity, which is a national entity: the CND. This group includes representatives from various key areas for the NC, such as the National Directorates of Water (Dinagua) and Climate Change (DINACC) from the Ministry of Environment, INUMET, DNE-SINAE, as well as representatives from productive sectors such as INIA, MGAP: Office of Agricultural Programming and Policy OPYPA - MGAP, and MIEM. Additionally, representatives from economic and financial sectors were involved to address financial sustainability aspects, including the Office of Planning and Budget (OPP) and the Ministry of Economy and Finance (MEF). This reference has been included in the relevant section.
129. This project is built on a strong government and institutional commitment, established and formalized in the National Climate Change Policy and the first NDC (2017): *"By 2025, there will be an integrated system for the design and management of climate services aimed at decision-making in the public and/or private sectors for relevant sectors,"* and *"There will be a network of radars in the territory – complementing the existing regional network – a radiosonde station, and*

a national network of telepluviometers that will support the monitoring of flash floods, among others". The project will expand on current initiatives being carried out with national public budget, such as the meteorological warning system, including the acquisition of 1 meteorological radar that will complement the 2 already acquired through the Radar Trust Fund, and will enhance the effectiveness and efficiency of the progress made by the country in the field of climate services. The project will also contribute to the following measures from Uruguay's second NDC presented in 2022: measures n°1 to 6 in Information and Climate Services, and measures n°7, 10, and 11 in the area of Disaster Risk Reduction Management. Additionally, it contributes to the prioritized measures and tools in the National Emergency and Disaster Risk Management Policy for 2030 (Decree No. 66/020) approved in 2020, aligned with the Sendai Framework for Disaster Risk Reduction, related to: risk identification and estimation, uncertainty management, and the implementation of the national information system for integrated emergency and disaster risk management and reduction. The project also aligns with the National Adaptation Plans in various sectors such as agriculture, coastal areas, cities and infrastructure, and energy, which have identified needs related to short-term forecasting and nowcasting by public and private stakeholders.

Efficiency and effectiveness

130. This project represents a highly profitable investment in the resilience of Uruguay. By leveraging the lessons learned and existing capabilities, an efficient and effective implementation is ensured. The early warning systems and climate information provided by the project have demonstrated their ability to save lives, protect property, improve quality of life, and mitigate losses and damages from climate events in numerous contexts.
131. Unlike traditional reactive approaches, which typically respond to disasters once they occur, this project promotes proactive risk management. By investing in knowledge, prevention, and preparedness, long-term costs associated with recovery and reconstruction are significantly reduced. Furthermore, the project encourages the involvement of local communities and strengthens institutional capacities, ensuring the sustainability of results in the long run.
132. The creation of a trust fund, managed by the National Development Corporation, will ensure transparent and efficient management of resources. This, combined with the blend of public and private financing, will maximize the impact of the investment and ensure its financial sustainability.
133. cost per direct beneficiary in the case of flooding is USD 414, and for the total number of beneficiaries, it is USD 6. However, the assets in the energy sector protected by the EWS in this sector should also be calculated, which will be reported in the Complete Proposal stage. Each dollar invested will generate multiple economic and social benefits, contributing to the sustainable development of Uruguay.

B.4 Stakeholders consultation and engagement (300 words)

134. The DINACC coordinates, under the SNRCC, the working group on climate services established for the design of this project, which is composed of INUMET, DINAGUA, and the DNE-Sinae, as well as the Interdisciplinary Center for Climate Change and Variability Response of the University of the Republic (CIRCVC) and the National Development Corporation (CND). Since the establishment of the working group on climate services in 2019, around 35 group and bilateral meetings have been held during the process. The first task of the working group was to conduct an analysis of the progress and existing gaps to improve climate services and early warning systems. In 2019, an initial bilateral meeting was also held with each of the following sectors to gather information on the needs and expectations of climate services: health, agriculture and food security, water, and risk reduction. A workshop was organized with the SNRCC, where the framework and objective of the project were presented, as well as the main findings and proposed strategies to improve climate services. In 2023, the project's concept note was shared with the MGAP and MIEM to receive initial feedback and validate the interest and commitment of both sectoral ministries in the project's objective and activities.
135. In 2024, a new process of review and restructuring of the concept note was carried out. In this context, consultations were conducted in two main stages: First, through periodic meetings with the working team where progress was presented, and general topics of the NC and its organization were discussed. Second, bilateral interviews were held with key stakeholders to gather specific information that would contribute to the development of the components of the note.
136. The recurring meetings with the working group, which is made up of 8 institutions (CND, DINACC, SINAE, INUMET, DINAGUA, INIA, MGAP/OPYPA, and MIEM) and 12 people (58% women), allowed for the exchange of information on the paradigm shift paths of the GCF regarding the climate services sector and early warning systems, as well as to understand the opinions and preferred approach for this concept note. Relevant stakeholders to contact were defined, and the possibilities for approach were explored based on the available focus and funds. In parallel, as a second method for gathering information, bilateral interviews were conducted with the previously mentioned institutions, as well as with the MEF and OPP as key economic actors to validate component 3. In total, 10 institutions were consulted, with the participation of 21 people (71.4% women).
137. With all these stakeholders, the needs for strengthening, requirements for the enhancement of climate services and the development of the EWS, coordination gaps, and capacity issues were validated, as well as the studies required to validate feasibility that have been included in the PPF. Institutional strengthening needs and the monitoring of various

meteorological variables were identified, and the topic of insurance for the agricultural and energy sectors was also explored in greater depth.

138. During this stage of the concept note review, progress was made in an engagement process focused on institutional aspects to concentrate on the needs and alignment with the mentioned international standards (MNSC, Multi-Hazard Early Warning System Impact-Based Checklist). However, in the full proposal development phase, conversations will continue with the aforementioned stakeholders, and grassroots and community actors will be involved, including community organizations, producer organizations, and key players from the energy sector. In addition, a Stakeholder Consultation Plan will be developed in line with the provisions of the GCF's Environmental and Social Policy, which will guide communication and meaningful engagement with all stakeholders, including the public disclosure of information.

139. Part of the limitations analyzed are specifically related to communication with end users. Therefore, the focus of this project is to strengthen work on the user interface, information systems centered on the last mile, and to reinforce components 3 and 4 of the early warning systems, which include last-mile alert communication and prevention and response capabilities. Workshops will be held with communities and community organizations.

C. Indicative financing information (max. 2 pages)

C.1. Financing by components

Please provide an estimate of the total cost per component and disaggregate by source of financing.

Component	Output	Indicative cost (USD)	GCF financing		Co-financing			
			Amount (USD)	Financial Instrument	Type	Amount (USD)	Financial Instrument	Name of Institutions
C1	1.1	5,008,388	4,900,388	Grants	Public Source	108,000	In Kind	DINAGUA, INUMET
C1	1.2	1,436,524	1,209,724	Grants	Public Source	226,800	In Kind	DINAGUA, INUMET, INIA
C1	1.3	3,743,952	3,074,352	Grants	Public Source	669,600	In Kind	DINAGUA, DINACC, INUMET, MIEM, MGAP, INIA, SINAE
C1	1.4	82,567	82,567	Grants	Choose an item.		Choose an item.	Click here to enter text.
C2	2.1	2,126,611	1,757,611	Grants	Public Source	369,000	In Kind	DINAGUA, DINACC, INUMET, MIEM, MGAP, INIA, SINAE
C2	2.2	786,828	693,228	Grants	Public Source	93,600	In Kind	DINAGUA, INUMET, MIEM, MGAP, INIA, SINAE
C2	2.3	4,144,240	3,847,240	Grants	Public Source	297,000	In Kind	DINAGUA, INUMET, MIEM, MGAP, INIA, SINAE
C3	3.1	269,853	269,853	Grants				

C3	3.2	577,548	577,548	Grants				
PMC		1,231,000	1,231,000	Grants				
Indicative total cost (USD)		19,407,511	17,643,511				1,764,000	

For private sector proposal, provide an overview (diagram) of the proposed financing structure.

C.2. Justification of GCF Funding Request (300 words)

140. As a developing country with limited public resources, Uruguay faces significant constraints in investing in the improvement and expansion of climate services, as the majority of the budget is allocated to maintenance. According to ECLAC, the country faces a considerable investment gap in infrastructure and urgent needs, resulting from fiscal adjustments and low levels of national savings, with figures notably lower than those of other developing regions as a percentage of gross domestic product.⁴⁵ Furthermore, its capacity for external borrowing is limited, as the gross public debt is equivalent to 71% of GDP.⁴⁶ In this context, addressing the needs for improvement in the climate information system would require diverting resources from other areas, which could compromise the provision of other essential public goods and services. Although Uruguay is a middle-income country, with a GDP of 77 billion dollars,⁴⁷ the average household income is only 778 dollars.⁴⁸ On the other hand, its development has been affected by external shocks, especially climate-related ones. In 2018, the estimated macroeconomic impact of losses and damages associated with climate events amounted to 199 million dollars, which represented 0.33% of that year's GDP. This amount is broken down into 97 million dollars related to the wage bill (48.8% of the total), 76 million in capital income (38.1%), and 26 million due to a reduction in indirect tax revenue (13.1%). In labor terms, the loss in the wage bill is equivalent to approximately 8,104 jobs, considering an average monthly salary of 1,000 dollars in 2018.⁴⁹
141. Given the limited national financial capacity, existing technical, knowledge, and capacity barriers, the Government of Uruguay is not able to fully finance the development and implementation of early warning systems (EWS) or the generation of relevant climate information. This limits its ability to fully implement essential disaster risk reduction and climate change adaptation measures. Therefore, the support of strategic partners is essential. Given the clear climate justification, the Green Climate Fund (GCF) is a natural partner to help the country move towards more resilient and sustainable economic development in the face of climate change.
142. The GCF funding will significantly contribute to the resource needs to strengthen meteorological services, facilitating resilient and inclusive national planning with a gender perspective in priority sectors such as disaster risk reduction, agriculture, and energy. In particular, the establishment of a climate information center as public infrastructure will address the current gaps in the collection, dissemination, and use of climate information. This center will ensure that Uruguayan communities are better prepared to adapt to the effects of climate change and will complement the country's existing capabilities.
143. In addition, the proposed project will support Uruguay's commitments to the National Climate Change Policy (PNCC), including the implementation of its Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs). Strengthening the country's capacity to generate relevant and timely climate information will not only increase its resilience but also introduce income opportunities through internal and external cost recovery mechanisms, promoting inclusive and climate-resilient development.
144. The participation of the GCF is crucial to strengthening the resilience of people, infrastructure, and the built environment against climate risks. Without its financing, Uruguay will continue to face significant economic losses due to climate-related disasters, and more than 94,000 people will remain exposed to flood risk.

⁴⁵ CEPAL, [The Middle-Income Countries. A New Approach Based on Structural Gaps](#). 2012

⁴⁶ Catholic University of Uruguay, Economic Situation Observatory, 2024. Available at: https://www.ucu.edu.uy/aucdocumento.aspx?1457_3924

⁴⁷ World Bank, World Bank National Accounts Data and OECD National Accounts Data Files. Available at: <https://datos.bancomundial.org/indicador/NY.GDP.MKTP.CD?locations=UY>

⁴⁸ National Institute of Statistics, Technical Bulletin Household and Personal Incomes, Quarter 3, 2024. Available at: https://www5.ine.gub.uy/documents/Demograf%C3%ADayEESS/HTML/ECH/Ingresos/2024/Informe_Ingresos_T3_2024.html

⁴⁹ Euroclima, Implementation of a Damage and Loss Assessment Mechanism Attributed to Climate-Related Events: The Case of Uruguay, 2022. Available at: <https://www.euroclima.org/idiomas/implementacion-de-un-mecanismo-de-evaluacion-de-danos-y-perdidas-atribuidos-a-eventos-de-origen-climatico-el-caso-de-uruguay>

145. Despite the potential for generating income through climate services, such as weather and agrometeorological warnings, the private sector is currently not interested in financing these initiatives, either through grants or loans. Except for the potential generation of income from providing climate information services to ensure the sustainability of the intervention, the activities do not have other interventions that might generate additional cash flow to cover loan repayments.
146. Additionally, the public good nature of these investments requires public financing to overcome the barriers limiting the country's ability to expand its climate information services. Gaps in domestic financing are hindering the implementation of necessary adaptation measures. Without grant resources, the proposed interventions cannot be carried out, which requires a 100% grant scheme to expand climate information and EWS systems in Uruguay and improve the resilience of its population to climate risks.
147. By combining in-kind counterpart resources (USD 1,884,000) from the project's stakeholders, potential funds from regional programs associated with the project (described in the "Complementarity" section, with which synergies will be sought in the full proposal stage), and GCF financing, the Government of Uruguay will be able to implement transformative policies and measures for climate change adaptation and disaster risk reduction. These actions will reduce current and future climate-related risks, promoting an integrated risk management approach and ensuring the active participation of vulnerable communities in the process. Without GCF support to cover the incremental costs of adaptation, it is unlikely that the necessary transformation for inclusive and effective climate management will be achieved.

C.3. Exit Strategy and Sustainability (300 words)

148. To ensure the sustainability of the project, various elements have been incorporated into the design of activities aimed at strengthening capacities and best practices, monitoring the impacts of climate change, and making evidence-based decisions, thus improving preparedness and response to such impacts. These activities include the following aspects, which are expected to contribute to the long-term sustainability of the project's outcomes:
- **Strengthening the hydrometeorological network:** The aim is to improve data recording, expand the radar network, and develop the piezometric network. These actions will optimize the country's baseline, allowing for future capitalization for studies, modeling, program design, and guidelines. As a result, capabilities for information modeling, as well as communication and dissemination of this information, will be strengthened.
 - **Design of the Strategic Plan and the Action Plan for the National Framework of Climate Services:** These tools aim to strengthen the capabilities of decision-makers and improve the coordination and governance of climate information services. At the same time, through better planning, preparedness, and risk management, both the population of Uruguay and the agricultural and energy sectors will benefit. They will have greater access to information on climate impacts and disaster risks, as well as last-mile alerts, which will enhance their preparedness and response capacity, reducing risks and vulnerabilities.
 - **Design and implementation of coordinated activities:** The proposal was developed ensuring complementarity with existing programs, aiming to modernize and strengthen monitoring and observation networks. This will contribute to improving climate services and impact-based multi-hazard early warning systems. An example is the integration of information into the SINAE Situation Room, which will serve as a space to monitor, issue alerts, and manage emergencies.
 - **Improve risk knowledge:** This will generate key evidence to support decision-making and encourage investments in climate information services and early warning systems. Additionally, understanding the risk significantly contributes to improving planning processes and designing measures to reduce risk and adapt to climate change.
 - **Learning and evidence on the cost-benefit of measures:** Through an **analysis of the effectiveness and cost-benefit of the measures**, the goal is to promote knowledge, monitoring, and understanding of the benefits associated with these actions. This will facilitate informed and strategic decision-making aimed at strengthening resilience to the impacts of climate change.
 - **Financial sustainability:** To ensure the financial viability of the project, the creation of the National Climate Services Fund is proposed. This activity includes the design, structuring, and implementation of enabling actions for its operation. Additionally, a **market study will be conducted to assess the possibility of commercializing climate products and services to the financial sector.**
149. Long-term monitoring of activities will be guaranteed, as the climate services working group will be part of the project's technical committee. This will allow for the involvement of government institutions and mainstream long-term monitoring into permanent institutions in the country.

D. Annexes

- ESS screening check list (Annex 1)
- Map indicating the location of the project/programme (as applicable)
- Evaluation Report of previous project (as applicable)

Annex 1: Environmental and Social Screening Checklist⁵⁰

Part A: Risk Factors

Please indicate your answers to the questions below and provide an explanation on the response selected. In cases when the TBD response has been selected, please explain briefly why you are not able to determine now and when in the project cycle the question will be addressed.

If the criteria is not applicable to the project you may write N/A in the justification box.

Risk Factors	YES	NO
Will the activities involve associated facilities and require further due diligence of such associated facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>1. <i>Please provide a justification of your answer:</i></p> <p>No, the activities described will not involve associated facilities that require additional due diligence. In the design of the activities, all relevant factors, such as the location of existing infrastructure and compliance with local regulations, have already been considered.</p> <p>For the only new construction included in the project, the meteorological radar, no additional due diligence is required, as various key factors have already been considered in the design of the activity. First, the location of the radar has been evaluated to ensure that it does not impact sensitive ecosystems or conservation areas, selecting zones that have been previously approved from an environmental standpoint. It will also not generate a significant landscape impact. Additionally, nearby communities will not be affected, as no displacement or alteration of local activities is anticipated. The necessary infrastructure will be implemented using existing resources and access, without the need to open new roads that could generate additional impacts. Finally, all activities comply with local sustainability regulations. Therefore, no additional due diligence is considered necessary.</p>		
Will the activities involve trans-boundary impacts including those that would require further due diligence and notification to affected states?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not involve transboundary impacts that would require additional due diligence or notification to the affected states. The described activities focus on climate risk management within the national territory, with no expectation that they will affect neighboring countries or generate effects beyond the borders.</p>		
Will the activities adversely affect working conditions and health and safety of workers or potentially employ vulnerable categories of workers including women and children?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not negatively affect labor conditions or the health and safety of workers, nor will vulnerable categories of workers, such as women or children, be employed. The design of the activities ensures compliance with labor and safety regulations, and the recruitment of workers in vulnerable situations is not anticipated. Additionally, measures will be taken to ensure a safe and healthy working environment throughout all phases of the activity's implementation.</p>		
Will the activities potentially generate hazardous waste and pollutants including pesticides and contaminate lands that would require further studies on management, minimization and control and compliance to the country and applicable international environmental quality standards?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not generate hazardous or polluting waste, such as pesticides, nor will they contaminate land that would require additional studies on their management, minimization, and control. The design of the activities is aimed at complying with national and international environmental standards, and the generation of hazardous waste or substances that could negatively impact the</p>		

⁵⁰ In answering this checklist, you may refer to Annex 1: Guidance on Part A ESS Screening of the "[Guidelines for the environmental and social screening of activities proposed under the SAP](#)"

<p>environment is not anticipated. Practices will be implemented to ensure sustainability and compliance with current environmental regulations.</p>		
<p>Will the activities involve the construction, maintenance, and rehabilitation of critical infrastructure (like dams, water impoundments, coastal and river bank infrastructure) that would require further technical assessment and safety studies?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not involve the construction, maintenance, or rehabilitation of critical infrastructure such as dams, water reservoirs, or infrastructure along coastlines or riverbanks that would require additional technical evaluation or safety studies. The activities focus on risk analysis and monitoring, as well as improving alert communication, with no large-scale infrastructure projects anticipated that would require further safety studies or technical evaluation.</p>		
<p>Will the proposed activities potentially involve resettlement and dispossession, land acquisition, and economic displacement of persons and communities?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the proposed activities will not involve relocation, dispossession, land acquisition, or economic displacement of individuals or communities. The design of the activities focuses on climate risk management and the improvement of existing infrastructure, without affecting local communities or requiring changes in land use or displacement. It is ensured that no negative impacts will occur in communities that could result in displacement or loss of livelihoods.</p>		
<p>Will the activities be located in or in the vicinity of protected areas and areas of ecological significance including critical habitats, key biodiversity areas and internationally recognized conservation sites?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not be located in protected areas or zones of significant ecological importance, such as critical habitats, key biodiversity areas, or internationally recognized conservation sites. The design of activities, such as the installation of a meteorological radar or monitoring stations, ensures that areas of high ecological value or conservation areas will not be impacted.</p>		
<p>Will the activities affect indigenous peoples that would require further due diligence, free, prior and informed consent (FPIC) and documentation of development plans?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not affect indigenous peoples in Uruguay, as the country does not have officially recognized indigenous communities. Therefore, no additional due diligence is required, nor is it necessary to obtain free, prior, and informed consent (FPIC), or document development plans related to indigenous peoples.</p>		
<p>Will the activities be located in areas that are considered to have archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values or contains features considered as critical cultural heritage?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not be located in areas considered to have archaeological (prehistoric), paleontological, historical, cultural, artistic, or religious values, nor in places containing features considered critical cultural heritage. The design of the activities takes into account existing locations to avoid potential impacts on these types of sites. Furthermore, no interventions are planned in areas recognized for their cultural or historical significance.</p>		

Part B: Specific environmental and social risks and impacts

Assessment and Management of Environmental and Social Risks and Impacts	YES	NO	TBD
Has the E&S risk category of the project been provided in the concept note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Has the rationale for the categorization of the project been provided in the relevant sections of the concept note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are there any additional environmental, health and safety requirements under the national laws and regulations and relevant international treaties and agreements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>In principle, there are no additional environmental, health, and safety requirements under national laws and regulations, nor under relevant international treaties and agreements that need to be considered for these activities. However, this is subject to the review of specific regulations during the implementation of the activities and will be determined in the next phase of proposal preparation. All activities are designed to comply with current national regulations on environmental, health, and safety matters, and align with applicable international standards.</p>			
Are the identification of risks and impacts based on recent or up-to-date information?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>Yes, the identification of risks and impacts is based on recent and updated information. The activities are supported by recent climate and environmental data, including climate change projections, as well as updated risk assessments. However, in the next phase of the project, it will be necessary to ensure that the information remains up-to-date at all times, ensuring that risks and impacts are evaluated with the most recent data available at the time of implementation.</p>			
Labour and Working Conditions	YES	NO	TBD
Will the activities potentially have impacts on the working conditions, particularly the terms of employment, worker's organization, non-discrimination, equal opportunity, child labour, and forced labour of direct, contracted and third-party workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not have negative impacts on labor conditions, terms of employment, worker organization, non-discrimination, equal opportunities, child labor, or forced labor for direct workers, contractors, or third parties. It will be ensured that all activities comply with national and international labor rights regulations and respect the principles of decent work, promoting fair and safe working conditions for all those involved.</p>			
Will the activities pose occupational health and safety risks to workers including supply chain workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not pose risks to the occupational health and safety of workers, including those in the supply chain. Adequate measures will be implemented to ensure a safe and healthy work environment, in compliance with national occupational health and safety regulations as well as applicable international standards. Additionally, training and necessary protective equipment will be provided to mitigate any potential risks during the execution of the activities.</p>			

Resource Efficiency and Pollution Prevention	YES	NO	TBD
Will the activities generate (1) emissions to air; (2) discharges to water; (3) activity-related greenhouse gas (GHG) emissions, (4) noise and vibration; and (5) wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not generate significant air emissions, water discharges, or greenhouse gas (GHG) emissions. It is also not expected to produce high levels of noise or vibrations, nor generate waste that requires additional management. The activities will be carried out in accordance with regulations that minimize these effects.</p>			
Will the activities utilize significant amount of natural resources including water and energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not use significant amounts of natural resources, such as water or energy. Most interventions, such as risk mapping, training, or capacity building, do not require significant resource consumption. In the case of installing the weather radar, measures will be taken to ensure resource efficiency, minimizing energy consumption and other resources during its implementation and operation. The activities will be designed to be efficient in the use of these resources, complying with local sustainability regulations.</p>			
Will there be a need to develop detailed measures to reduce pollution and promote sustainable use of resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, it will not be necessary to develop detailed measures to reduce pollution or promote the sustainable use of resources, as the activities are designed to not generate significant environmental impacts.</p>			
Community Health, Safety, and Security	YES	NO	TBD
Will the activities potentially generate risks and impacts to the health and safety of the affected communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not generate risks or impacts on the health and safety of the affected communities. Furthermore, it will be ensured that all activities are carried out in compliance with local health and safety regulations, and no alterations to living conditions or adverse effects on the communities are anticipated.</p>			
Will there be a need for an emergency preparedness and response plan that also outlines how the affected communities will be assisted in times of emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, there is no anticipated need for a detailed emergency preparedness and response plan specifically for these activities, as they do not involve risks that require emergency intervention. The project's activities focus on planning and prevention, without creating immediate risks for the communities. On the contrary, the activities will contribute to improving emergency response capacity related to climate change by providing key information and strengthening early warning systems, benefiting the communities in the long term.</p>			
Will there be risks posed by the security arrangements and potential conflicts at the project site to the workers and affected community?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p>			

<p>No, it is not expected that there will be any security-related risks or conflicts at the project sites that could affect workers or nearby communities. Additionally, precautions will be taken to ensure that the interventions do not impact the communities or generate tensions, ensuring that local regulations and the rights of those involved are respected.</p>			
Land Acquisition and Involuntary Resettlement	YES	NO	TBD
<p>Will the activities likely involve land acquisitions and/or physical or economic displacement?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not involve land acquisition or physical or economic displacement of people or communities. The planned interventions will be carried out without affecting property rights or causing alterations in land use or community resources. There is no anticipated need for resettlement, and the activities are not expected to cause changes in the economic conditions of the affected communities.</p>			
Biodiversity Conservation and Sustainable Management of Living Natural Resources	YES	NO	TBD
<p>Will the activities potentially introduce invasive alien species of flora and fauna affecting the biodiversity of the area?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities do not involve any intervention that could introduce invasive species of flora or fauna, as they do not include planting species or direct alterations to local biodiversity. The planned actions, such as infrastructure installation and risk analysis, do not require the introduction of new species, so there is no risk of negatively affecting biodiversity or generating impacts related to invasive species.</p>			
<p>Will the activities have potential impacts on or be dependent on ecosystem services including production of living natural resources (eg. agriculture, livestock, fisheries, forestry)?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>No, the activities will not have negative impacts on ecosystem services, nor will they depend on the production of living natural resources such as agriculture, livestock, fishing, or forestry. On the contrary, the project's actions are designed to support sectors like agriculture by providing tools and data that enable better management of climate risks, such as droughts or floods. The development of risk maps and the strengthening of early warning systems will contribute to the resilience of productive sectors, promoting more efficient and sustainable management of natural resources.</p>			
Indigenous Peoples	YES	NO	TBD
<p>Will the activities potentially have any indirect impacts on indigenous peoples, ethnic minorities, or vulnerable and marginalized groups?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><i>Please provide a justification of your answer:</i></p> <p>Although the activities will not have direct impacts on indigenous peoples or ethnic minorities, the project is committed to ensuring that vulnerable and marginalized groups, such as women, people with disabilities, and rural communities, receive alerts and have access to participation opportunities. Specific measures will be implemented to ensure these groups are included in decision-making processes and the dissemination of information, thereby reducing their vulnerability to climate risks. This is part of the project's inclusive and equitable approach, ensuring that all sectors of the population benefit from the activities without being left behind.</p>			
Cultural Heritage	Yes	NO	TBD
<p>Will the activities restrict access to the cultural heritage sites and properties?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please provide a justification of your answer:

No, the activities will not restrict access to cultural heritage sites or properties. The project focuses on enhancing the capacity to manage climate risks and collecting climate data, without intervening in cultural heritage areas or affecting access to them. Furthermore, it has been ensured that the activities will not be located near culturally significant sites, adhering to national and international regulations related to the preservation of cultural heritage.

Will there be a need to prepare a chance-find procedure in case of the discovery of cultural heritage assets?

Please provide a justification of your answer:

There is no expectation of needing to prepare a "chance-find" procedure (for accidental cultural heritage discoveries) in the case of cultural heritage findings, as the project's activities do not involve excavation, construction, or other processes that could alter the soil or environment. Furthermore, the locations of the activities have been carefully selected to avoid areas of recognized cultural or historical value. However, should an unforeseen situation arise, necessary measures will be taken in accordance with local and international regulations to protect any cultural heritage discoveries.

Stakeholder engagement and grievance

Yes

NO

TBD

Will the activities include a continuing stakeholder engagement process and a grievance redress mechanism and integrated into the management/implementation plans?

Please provide a justification of your answer:

Yes, the activities will include an ongoing process of stakeholder engagement with a gender and generational focus, as well as a grievance redress mechanism, which will be integrated into the project's management and implementation plans. This will ensure that the concerns and needs of communities and other key stakeholders are consistently addressed throughout the project's lifecycle, allowing for effective management of any potential disputes or issues that may arise.

Part C: Sign Off

Sign-off: *Specify the name and designation of the person responsible for the environmental and social screening and any other approvals as may be required in the accredited entity's own management system.*