

Simplified Approval Process Concept Note

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| Project/Programme title: | Strengthening Climate Information Services and Multi-Hazard Early Warning Systems for El Salvador |
| Country(ies): | El Salvador |
| National Designated Authority(ies) (NDA): | Ministry of Environment and Natural Resources (MARN) |
| Accredited Entity(ies) (AE): | United Nations Environment Programme |
| Date of first submission: | 9/28/2020 V.1 |
| Date of current submission: | 9/28/2020 V.1 |
| Version | 1 |



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

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

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| 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 | Not applicable |
| A.4. Indicate the result areas for the project/programme | <p><u>Mitigation:</u> Reduced emissions from:</p> <input type="checkbox"/> Energy access and power generation: 0% <input type="checkbox"/> Low emission transport: 0% <input type="checkbox"/> Buildings, cities and industries and appliances: 0% <input type="checkbox"/> Forestry and land use: 0% | | | | |
| A.5. Impact potential | | A.5.1. Estimated mitigation impact (tCO ₂ eq over project lifespan) | | | |
| | | A.5.2. Estimated adaptation impact (number of direct beneficiaries) | 2 direct beneficiaries | | |
| | | A.5.3. Estimated adaptation impact (number of indirect beneficiaries) | 6.5 indirect beneficiaries | | |
| | | A.5.4. Estimated adaptation impact (% of total population) | 44% of the country's total population | | |
| A.6. Financing information | | | | | |
| A.6.1. Indicative GCF funding requested (max 10M) | Amount: 9,220,000 Currency: USD Financial Instrument: Grants | | | | |
| A.6.2. Indicative co-financing | Amount: 1,700,000 Currency: USD Financial Instrument: Other (Instrument Description: In-kind) Institution: GOVERNMENT OF EL SALVADOR | | | | |
| A.6.3. Indicative total project cost (GCF + co-finance) | Amount: 10,920,000 Currency: USD | | | | |
| A.7. Implementation period: | disbursement period: 60 repayment period, if applicable: | A.7.2. Total project/ Programme lifespan | 120 | | |
| 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 (100 words) | The proposed Project interventions will focus on capacity development and institutional strengthening of El Salvador's National Environmental Observatory (<i>Direccion General del Observatorio Ambiental, DOA</i>), which serves as the National Meteorological Service and is under the mandate of the Ministry of Environment and Natural Resources, MARN, and key | | | | |

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| | <p>stakeholders for climate monitoring, forecasting and modelling; communication of climate information and early warnings; and a community-based disaster preparedness program. These activities pose minimum to no risk, as categorised under C/I-3 of the GCF SAP ESS guidelines.</p> | | |
| <p>A.11. Has the CN been shared with the NDA?</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> | <p>A.12. Confidentiality</p> | <p><input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential</p> |
| <p>A.13. Executing Entity information</p> | <p>Ministry of Environment and Natural Resources (MARN)</p> | | |
| <p>A.14. Project/Programme rationale, objectives and approach of programme/project (max 100 words)</p> | <p>El Salvador's social and economic conditions make the country vulnerable to the risks associated with climate variability and climate change. Over the last decade the annual meteo-hydrological regime has registered a significant variation, especially in terms of frequency and distribution of precipitation events. Several climate projected scenarios highlight an increase in the annual average temperature of 2 or 3 degrees Celsius in the next six decades creating the conditions for extended periods of severe droughts, which are already affecting the country.[1]</p> <p>The most significant source of climatic variability in El Salvador are the El Niño-Southern Oscillation (ENSO) along with the opposite side of the fluctuation, i.e. La Nina. In addition, the country lies in the path of both Atlantic and Pacific tropical storms, whose frequency and impacts have registered a clear raise in recent decades. The Pacific coastline is also subject to sea level rise and it is expected that 10-28% of the country's coastal zone will be lost by the end of the century. In general, 30% of the population is highly vulnerable to sea level rise and other climate change impacts as they are located in coastal areas.[2] Furthermore, emerging infectious diseases including zoonoses, such as the COVID-19, have increased the vulnerability of the country, and raised pressure towards important institutions; El Salvador may have to confront a major climate-related disaster at a time when they are firmly focused on COVID-19 response and recovery.</p> <p>The project will provide El Salvador with a consistent framework for the sustained production and use of Climate Information Services, including enhanced data capacity and institutional arrangements, impact-based forecasts, and a nation-wide Multi Hazard Early Warning System (MHEWS). The project will support the achievement of a paradigm shift where the use of science-based climate information supports resilient development pathways, optimizing the use of resources, and encourage domestic and foreign investment. Standardized climate risk assessment methodologies and systematic climate risk information services will be adopted and produced to enable the implementation of nation-wide risk reduction policies and reduce the risks of the most vulnerable communities. Information will move from weather predictions to a more accurate identification of potential social, economic and environmental impacts and the urgent activities to be implemented.</p> <p>The project has the ambition to improve the overall management of climate risk in El Salvador, including by enhancing preparedness and resilience of up to 4.6 million Salvadorians (81.5% of total population)</p> | | |

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currently exposed to the risk of climate-related extreme events and hazards[3] such as floods, mudflows and droughts.

A National Framework for Climate Services (NFCS) will be designed and implemented to facilitate the delivery of best practice climate services across the country. The project will provide accurate information and capacities to contribute in the substantial reduction of El Salvador's exposure and vulnerability to climate risks and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, through pilot community-based interventions. The outcomes expected from its implementation are as follows:

National Climate Services and Multi-Hazard Early Warning Systems supported by institutions, coordination platforms, legislation and financial mechanisms;

Enhanced Climate Information and Data;

Strengthened response, adaptive capacity and reduced exposure to climate risk;

Improved use of climate information for investment planning in different sectors.

At the request of the GCF Nationally Designated Authority (NDA) of El Salvador, UN Environment Programme (UNEP) will serve as the Accredited Entity for the project. The AE will work with a range of partners and executing entities, including, regional organizations such as SICA and CEPREDENAC as mentioned above, the regional Offices of United Nations Office for Disaster Risks Reduction (UNDRR) and World Meteorological Organization (WMO) to make the necessary arrangements for the implementation of the project.

[1] Third National Communication to the Conference of the Parties under the United Nations Framework Convention on Climate Change, El Salvador 2018

<https://unfccc.int/sites/default/files/resource/TCN%202018%20REjecutivo%20ingles%20espa%C3%B1ol%20WEB.pdf>

[2] El Salvador Climate Change Risk Profile Fact sheet 2017 (USAID): https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_EI%20Salvador.pdf

[3] Informe nacional del Estado de los Riesgos y Vulnerabilidades (INERV), Demografía. Proyecciones de población 2016 del Censo Nacional de Población y Vivienda 2007.

B. Project / Programme information

B.1. Context and Baseline (500 words)

El Salvador is a small Central American country (21,000 km²) characterized by a typical tropical climate dominated by a prolonged dry season (November to April) followed by a rainy season (May to October). The country lies in the pathway of powerful tropical cyclones, including frequent depressions

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and storms and, in some cases, devastating hurricanes.[1] The country is affected by the high seasonal to inter-annual variability induced by El Niño, causing extended drought periods,[2] whose effects are particularly severe for those areas lying within the so called Central American “Dry Corridor”. [3] Between 2009 and 2011, El Salvador was impacted by five extreme climate events: tropical Storm IDA (2009); Agatha, Alex and Mathew (2010) and 12E storm (2011). The economic losses generated by these events were estimated by USD \$1,300 million.[4] In addition, the country has been struck by a dry season from 2012 - 2015, with significant economic impacts in agriculture totalizing a loss of USD \$75 million.[5]

The Third National Communication to the Conference of the Parties under the United Nations Framework Convention on Climate Change (UNFCCC) made use of five Global Circulation Models[6] to develop future climate projections for El Salvador. Climate scenarios highlighted a potential increase in the annual average temperature of 2 or 3 °C in the next six decades, along with a decrease in precipitation by 10 - 20 %, [7] longer and more intense periods of drought, increased frequency and intensity of water extremes, infectious and zoonotic diseases, including increased rainfall intensity during hurricanes, and sea level rise of 18 cm by 2050 and 37-44 cm by 2065.[8] Shifts in precipitation patterns will negatively affect agricultural production, primarily for basic grains (corn, beans, and rice), but also will bring serious implications to water availability, infrastructure, logistics, electricity generation, health, tourism, and other essential areas for the economic development and well-being of the population.

El Salvador has estimated different climate scenarios that are aligned with the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), using the historical data of 1961-1990 to build scenarios over two periods: 2021-2050 and 2071 - 2100. Estimations were realized for four scenarios - Representative Concentration Pathways (RCP): strict mitigation scenario (RCP2.6), intermediate scenario (RCP4.5 and RCP6.0), and high level of emissions (RCP8.5). In all scenarios, by 2021 - 2030 and 2031 - 2041, the increase in temperature could vary between 0.7°C and 1.5°C. But most of the changes can take place in the scenario RCP8.5. The precipitation at the national level between 2021-2050 could be reduced by 10% to 20% at any RCP scenario, and the change could be higher in a RCP8.5 scenario. Under the 2021-2030 horizon, precipitation reductions could vary from 15 to 25%, with the highest level under the RCP2.6 scenario. (20%-25%) and the lowest under the RCP6.0 (15-20%); 2031-2040 presents reduced values of 10 to 20%, the greatest changes may occur in the eastern of El Salvador and under CPR8.5 scenario. By 2040-2050 the levels of reduction in rainfall may be between 10% and 20%, similar to the previous period. These reductions represent precipitation decreases of at least 300 millimeters in the eastern region of the country by the end of the century. Under all scenarios, changes in precipitation and temperatures are a red flag for the country as they represent potential impacts on the natural and socioeconomic systems that could impact water resources, food and energy security.[9]

The National Environmental Observatory (DOA) identified several gaps that need to be addressed to increase adaptive capacity to climate change. A major gap is related to the climate observation capacity of the country, which is based on an outdated and not evenly distributed meteo-hydrological network originally designed to provide information to the agricultural sector and now largely based on obsolescent and, in some cases, discontinued technology. Current capacities are being exceeded by the increase of hydro-meteorological extreme events recording an increased level of impacts on population and critical infrastructures. These gaps are related to the capacity of DOA to monitor with high quality data the climate variability and the associated vulnerability of different sectors and ecosystems; the lack of local coordination among different institutions and communities in a timely

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manner; the lack of effective monitoring and response strategies for extreme events through innovative meteorological forecasts and climate outlooks and scenarios, and; the lack of updated communication channels to make preventive and/or reactive measures more efficient at different levels. Furthermore, climate information use and production are not adequately supported by specific sectoral policy and financial frameworks, hindering the sustainability of data and information production and posing obstacles to institutional coordination.

[1] US National Oceanic and Atmospheric Administration, National Hurricane Center's Tropical Cyclone Reports, <https://www.nhc.noaa.gov/data/tcr/>

[2] ECLAC (Economic Commission for Latin America and the Caribbean), CAC (Central American Agricultural Council), COMISCA (Council of Ministers of Health of Central America), CCAD (Central American Commission for Environment and Development), COSEFIN (Council of Ministers of Finance/Treasury of Central America and Dominican Republic), SIECA (Secretariat of Central American Economic Integration), SICA (Central American Integration System), UKAID (United Kingdom Department of International Development) and DANIDA (Danish International Development Agency), (2015), Climate Change in Central America: Potential Impacts and Public Policy Options, (LC/MEX/L.1196/Rev.1), Mexico City, Mexico

[3] Third National Communication to the Conference of the Parties under the United Nations Framework Convention on Climate Change, El Salvador 2018
<https://unfccc.int/sites/default/files/resource/TCN%202018%20REjecutivo%20ingles%20espa%C3%B1ol%20WEB.pdf>

[4] Ministry of Environment and Natural Resources, (2018) First Biennial Update Report (BUR) for El Salvador.

[5] Ministry of Environment and Natural Resources, (2018) First Biennial Update Report (BUR) for El Salvador.

[6] Readiness and Preparatory Support Proposal for the Green Climate Fund (2019) "Agreements, processes, and tools to move towards a climate-resilient society in El Salvador" National Adaptation Plan (NAP).

[7] Third National Communication to the Conference of the Parties under the United Nations Framework Convention on Climate Change, El Salvador 2018
<https://unfccc.int/sites/default/files/resource/TCN%202018%20REjecutivo%20ingles%20espa%C3%B1ol%20WEB.pdf>

[8] El Salvador Climate Change Risk Profile Fact sheet 2017 (USAID):
https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_El%20Salvador.pdf

[9] Third National Communication to the Conference of the Parties under the United Nations Framework Convention on Climate Change, El Salvador 2018
<https://unfccc.int/sites/default/files/resource/TCN%202018%20REjecutivo%20ingles%20espa%C3%B1ol%20WEB.pdf>

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

The GCF project will scale-up activities, achievements of the Environmental Observatory (DOA) and complement El Salvador's regional initiatives under the Central American Integration System. By end of the GCF project, DOA, will be institutionally, technically, and technologically equipped and trained to produce and maintain climate information services across the country, reinforcing the Environmental Observatory (DOA) role and capacity in full compliance with the functional pillars of the Global Framework for Climate Services (GFCS). Currently, the DOA is doing its best to upgrade its

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physical resources and operational techniques to provide quality and quantity of hydro-meteorological products and services. However, the observation capacity of the country has lacks efficiency, coverage and technology related to hydrometeorological information which are needed in the development of impact-based forecasting and warning. The expansion of hydro-meteorological observation networks and modelling capacities will provide reliable information on climate-induced hazards, vulnerability and risks. GCF support is critical to calibrate and use numerical weather prediction models for the systematic production of impact-based forecasting and enable additional investments that allow scaling-up of existing efforts for transformative reach and impact across the country. Improving climate risk management systems and enhancing capacities to establish and use impact-based forecasting and early warning are a key priority of the country.

The main initiative that will be scaled-will involve the development and implementation of Climate Services Information System (CSIS) through different institutions to facilitate interaction across sectors and participation of users of data and information at all levels. Through the CSIS, the project will create the conditions for systematic collection, validation, and processing of data with effective face-to-face and remote maintenance to generate products and services to inform policy and decision-making processes across a wide range of climate-sensitive activities and enterprises covering various geographical, temporal scales and different users. The CSIS will engage with the GFCS User Interface Platform to achieve these objectives and will also work with the Observations and Monitoring (O&M) and Research, Modelling and Prediction (RM&P) pillars to obtain the inputs required for its operations.

El Salvador is a member of the Central American Integration System (SICA in Spanish), the institutional framework of Regional Integration in Central America funded by the eight countries of the region (Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama). SICA countries are coordinating efforts towards the achievement of sustainable development in the framework of the Alliance for Sustainable Development (ALIDES). Major objectives of ALIDES include eradicating hunger, facing poverty, social inequality, citizen insecurity, climate variability and change.[1] The GCF project will concretely contribute to the achievement of the national commitments made by SICA countries to the Sustainable Development Goals (SDGs), the Nationally Determined Contributions (NDCs) - under the Paris Agreement - and the goals of the Sendai Framework. In particular, the project will scale-up the integration and harmonization of policy instruments in the region, to enhance their Climate Smart Agriculture Strategy (EASAC - Spanish acronym) for the SICA region through the time framework 2018-2030. The Regional Committee of Hydraulic Resources (CRRH for its acronyms in Spanish) is also part of the SICA framework. It aims to strengthen the policies of national institutions, improve the management of the integral demand for water and transboundary resources, and strengthen Central America's links with regional and global programs dedicated to meteorological surveillance, hydrological cycle, and monitoring of climate change and design of adaptation and mitigation policies.

EL Salvador is also supporting the Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC), which contributes to the reduction of vulnerability and the impact of disasters as an integral part of the process of transformation and sustainable development in the region. This goal will be achieved through the activities developed in the framework of its strategic axe 2: Integral risk management and climate adaptation that is part of the Central American Policy on Comprehensive Risk Management (PCGIR).[2]

In addition, the observation and monitoring strategy implemented through the project will strengthen

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climate and ocean observation to monitor risks from climate change, including infectious and zoonotic diseases, supported by relevant data and metadata, including disaggregated socio-economic data produced through enhanced collaboration between relevant institutions (e.g. the National statistical Offices) and the scientific community both at the local, national and regional level. The project will benefit from a significant inclusion of modelling and forecasting activities, with effective communication strategies to build a solid evidence-base for the impacts of climate variability and change and for the cost-effectiveness of using timely and accurate climate information.

The project will benefit El Salvador and the region with enhanced technical capacities and institutional arrangements needed to systematically produce effective and timely climate information services to reduce climate risk by enhancing data and information access and use to all possible users, including remote communities that currently have no access to key communication channels. It will reduce gaps in gender equality, addressing the differentiated way in which women and men are affected by disasters and the differentiated roles that are assigned in disaster risk management as well as in development processes. It is necessary to achieve inclusive, accessible and non-discriminatory empowerment and participation with special attention on the promotion of women's leadership and the strengthening of their capacities and resilience.

Through the first component, the Project will strengthen legal and institutional frameworks previously identified for the systematic production and uptake of climate information services at different levels. Climate observation capacity will be significantly improved through enhanced meteorological and ocean monitoring, modelling, and decision making, including the development of a national integrated Multi-Hazard Early Warning System (MHEWS) based on international standards. Relevant authorities along with community groups, civil society organizations, youth, men and women will be involved in the development of comprehensive short to long-term learning and training programs at all levels, including junior and senior staff, including municipality and state levels as well as for all age groups. All these programs will be integrated in existing education and training systems and will be regularly applied after project implementation. The outcomes and components of the project and related outputs are as follows:

Component 1. National Climate Services and Multi-Hazard Early Warning Systems supported by institutions, coordination platforms, and legal frameworks

The National Framework for Climate Services (NFCS) will be established in El Salvador based on the five pillars of the Global Framework for Climate Services (GFCS) and taking into consideration a gender approach that integrates the needs of different groups, including vulnerable groups. The NFCS will aim to coordinate institutions and enable them to work together to co-design, co-produce, communicate, deliver and use climate services for decision making in climate sensitive socioeconomic sectors. The project will promote mechanisms to facilitate the participation of women in the production of Climate Services, notably for community-based data collection and processing. DOA will develop the NFCS based on its unique circumstances and specific needs from different users. The project will develop an essential pillar of the NFCS: the User Interface Platform (UIP), which will provide a structured means for users, climate researchers, and climate service providers to interact at different levels with the main objective of promoting effective decision making where it involves climate considerations. The UIP will be flexible to meet a diverse range of interest and requirements, as they will evolve over time as technologies and science progress and as new environmental and societal challenges arise. Long term sustainability of climate services will be achieved through active maintenance of these stakeholder partnerships and the development of a financial framework.

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Output 1.1: Establishment of Policy and Regulatory Frameworks for the instalment of the National Framework for Climate Services

Under this output the project will establish policy and legal frameworks to enable effective data coordination, data sharing, and co-production of information, while facilitating integration of climate products and services in key policies, strategies, plans and budgets to establish the National Framework for Climate Services. This output will be achieved through active participation of key stakeholders and based on a gender-responsive perspective, with scientific (climate, meteorological and oceanographic) community, providers/producers of data and information, and users from all sectors, including civil society and the private sector. This output will ensure the strengthening and continuous update of the National Meteorological Strategy.

Activity 1.1.1: Assessment of the national, local and sectoral policy documents and available climate information, to identify gaps and opportunities to promote an integrated approach for the use of climate information services. This initial activity will allow the identification of priority actions needed for the establishment of the NFCS. It will be integrated by literature review, interviews, surveys and one workshop to validate each finding.

Activity 1.1.2: Establishment of a National Framework for Climate Services. The NFCS will be developed through the following steps:[3] i) Organise national consultation workshops on climate services to bring together the key stakeholders who link climate knowledge to adaptation on the ground to identify key elements and priorities for NFCS development; ii) Develop a national strategic plan and a costed action plan and timelines to implement the NFCS and improve climate services delivery; iii) Convene a meeting with national stakeholders to endorse national strategic plan and the action plan; iv) Launch the agreed NFCS and initiate its implementation; and v) Implementation will include scheduled monitoring and evaluation: decisions will be revisited each year during the National Climate Outlook Forum and modified according to feedback and learnings. This process will be repeated in the second, third and fourth years with the private sector, NGOs and community representatives respectively and in an evaluation workshop with all stakeholders in the fifth year.

Activity 1.1.3: Mainstream Climate Services into Sectors. Accurate and actionable climate information from DOA can significantly reduce climate risks if the advice has a recognised formal role in disaster preparation, warnings and management and in long term climate change planning by infrastructure, health, tourism, agriculture, fisheries and other sectors. Therefore, the Project will support a systematic four-year process of integrating climate considerations into the decision making and planning of government, private and community sectors.

Activity 1.1.4: Establishment of the User Interface Platform (UIP) as an inter-ministerial and multi-stakeholder coordination platform with an equal representation of men and women for climate services in El Salvador. The platform will be fully aligned to the guidelines of the Global Framework for Climate Services (GFCS) for the UIP. This coordination platform will support policy and decision-making in the country and foster scientific and technical collaboration amongst countries in the Central American region.[4] This platform will be an opportunity to establish partnerships for implementing the Early Action Protocol (EAP) actions (developed in Activity 3.1.1). The sector workshops planned for each year will also form part of the UIP, as will outreach work on making climate information more accessible to communities. In addition, the UIP will convene and coordinate an annual National Climate Outlook Forum (NCOF) as the national contribution to the regional Climate Outlook Forum of Central America, better known as the Central American Regional Climate Forum (CA-COF). The CA-COF started in 2000; since then, it has issued several Regional Seasonal Climate Outlooks. Through this Project, El Salvador will continue contributing to the activities of the CA-COF; in CA-RCOF

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evaluation of the outlooks is considered essential to provide feedback to members on the performance of tools and methodologies used in the forecast.[5] The NCOF will include sessions on preparedness planning, which will help to enhance users capacity to interpret and integrate forecast information of various timescales into their own plans and decisions at different levels.

Output 1.2: Institutional Capacity of El Salvador Environmental Observatory

This output will ensure that DOA will be able to function as an institutional mechanism to coordinate, facilitate and strengthen collaboration among national institutions to improve co-production, tailoring, delivery and use of science based climate predictions and services focusing in their human and technical capacities. The role of WMO in NFCSs is built upon the enhanced capacities of DOA, as WMO support will rely on the infrastructure and human resources of DOA; its strong association with long term partners in climate activities; and establishing new partnerships required for sustainable operations and update of climate services at global, regional and national levels. WMO, through the NFCS, will strengthen coordinated actions with other partners in the United Nations and boundary organizations.

Activity 1.2.1: Development of a staff training program.- Throughout its five year term, the Project will design and manage a robust training program for the DOAs personnel and for all the government staff that is part of the climate information delivery chain, capacity building and modernisation of the organisational structure of the DOA to adapt to new processes and functions and additional human resources.

Activity 1.2.2: The Project will develop a training plan to ensure that WMO certifications are fulfilled to make NFCS ready to develop the necessary activities. In addition, the Project will arrange a training workshop for at least 40 staff in Quality Management Systems (QMS) and to achieve WMO certifications.

The Project will ensure that DOA provides a sound Operations and Maintenance (O&M) program for its expanded meteo-hydrological networks during and after the Project. Development partners (developed country WMO members and regional organisations) have expertise and experience in the deployment and management of equipment in tropical environments and will contribute to DOA's acquisition of skills in maintenance and calibration. This will occur through two weeks of technical training at the technical partner's site, including training on automatic weather stations (AWSs), manual station assembly and calibration, and provision of training materials such as operational competency workbooks. Robust and user-friendly new communications equipment will make it possible to contact remote communities reliably, even in extreme conditions, and will also be covered by the maintenance schedules.

One of the capacities to be strengthened is ocean observation. El Salvador is highly dependent on marine and coastal ecosystems. For this reason, marine observation capabilities will be strengthened so that all monitoring centres have the necessary personnel and equipment. Important alliances will be built with other United Nations agencies and regional organizations to have environmental, social, and economic information that allows the necessary forecasts, projections and scenarios to be carried out in the country's coastal areas.

Component 2. Enhanced climate information and data

This component will focus on strengthening and modernizing the technical capacity of El Salvador

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National Hydro-meteorological and Ocean Observation Service, enabling it to collect higher quality data at higher resolution and from a wider geographical range, including its oceans, and to use the extra data. This will be achieved through the update and installation of new infrastructure and equipment to extend the coverage of climate and weather observations; through training and support for observations, monitoring, modelling and prediction; and through training in maintenance. The project will consider opportunities for implementing innovative technologies and tools when available and to be at the forefront in the production of climate information.

Output 2.1: Improved infrastructure and technical support for climate observations, hydro-meteorological and ocean monitoring

Design of the requirements for the establishment of an optimized observation network for timely provision of Climate Information Services taking into account vulnerability and exposure of people and assets to climate risk, including gender and age dimensions, and streamlining and optimization of the national hydro-meteorological and oceanographic observation networks. This output will include technological upgrade of the existing network; increased sensor capacity and connectivity (Automatic Weather Stations), spatial coverage and frequency. The project will ensure use of cost-effective technologies and innovation to ensure sustained production of data and information. The updated observation system will measure precipitation, temperature, atmospheric pressure, wind speed and direction to WMO standards for contribution to the Global Basic Observing Network (GBON). The information produced by El Salvador will be a valuable contribution to the Global Climate Observing System (GCOS), which supports the sustained provision and availability of climate observations throughout the world and regularly reports on the adequacy of the current climate observing system to the UNFCCC.[6]

Activity 2.1.1: Enhancement of telecommunication network to support telemetered and automated stations at different levels to facilitate access to different users at national and local level.

Activity 2.1.2: Development of robust protocols for data validation and for their integration and assimilation with other sources of data both of conventional and non-conventional nature, including citizen science and big-data.

Activity 2.1.3: Optimization of the coverage of the hydro-meteorological and ocean observation networks to ensure that all variables are integrated in the monitoring process and with broader coverage of the territory. Access to accurate and timely hydro-meteorological information will be important for initializing models and validating their outputs. This information will provide important inputs during the integration of multi-hazard early warning systems.

Activity 2.1.4: Development of a Climate and Oceanographic Data Strategy - in alignment with international standards, guidelines and regulations, including the Convention on the Law of the Sea (UNCLOS). Adoption of international standards, guidelines, and regulations to produce meteorological, oceanographic and climate data, metadata and information.

Output 2.2: Strengthened modelling and impact-based forecasting

Enhanced capacity is installed for the use and calibration of numerical weather prediction models (e.g., Limited Area Models) and for the systematic production of impact-based forecasting[7] that considers the vulnerability of people, livelihoods and assets and characterized by spatial and temporal scales consistent with the risks' dynamics observed in the country. In addition, infectious diseases are changing due to the environment and altered interactions among hosts, reservoirs, vectors, and pathogens. This is particularly true for zoonotic diseases that infect humans, agricultural animals, and

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wildlife. This situation is taking advantage of the changing environment and the project will work in the generation of data that can be useful to generate risk maps and forecast outbreaks in the medium and the long term.

Activity 2.2.1: Increase awareness, access and utilization of Earth observation satellite data, products and services, including those from R&D satellites and for broad Earth system applications in weather, climate, water, and relevant environmental areas.

Activity 2.2.2: In close cooperation with the scientific community, the project will produce accurate and integrated risk assessment methodologies based both on probabilistic and deterministic modelling over different time-horizons. Climate models will be downscaled to the local community level for medium and long-term planning in disaster risk reduction, land-use planning and other key sectors.

Activity 2.2.3: Generate probabilistic hazard maps for severe wind, storm surge, flood and landslide in the project sites.

Activity 2.2.4: Establishment of impact-based forecasting and undertake risk analysis incorporating hazard, exposure and vulnerability and assess socio-economic and gender vulnerability to identify potential impacts from extreme weather events in the project sites.

Activity 2.2.5: Strengthen capacities to run ocean models and produce marine forecasts. This activity will provide training on ocean modelling and marine forecasting considering a gender approach. In addition, at least one marine buoy will be installed to enable the production of marine forecasts, and training provided on their installation and maintenance.

Activity 2.2.6: Through this activity, the project will generate climate-related data and information to feed into the production of decision support systems, including risk maps of outbreaks from infectious and zoonotic diseases (such as coronavirus, hantavirus, chikungunya, zika, dengue, malaria, yellow fever) and enhancing preparedness and response to potential future events. Dialogues between the scientific community and policy makers will be promoted to identify gaps and opportunities in the generation of reliable data directly related to outbreak risk. When possible, Earth System Models (ESMs) will be considered to simulate the interaction between climate and biogeochemical components (e.g. dynamic terrestrial vegetation and ocean biogeochemistry) to better simulate the feedback of biological systems to the climate in El Salvador.

Output 2.3: Capacity Development and knowledge management

This output will develop national capacity both at central level and local communities for technical follow up, and operation of hydrological, meteorological and ocean monitoring and observation networks and related data processing flows to effectively interpret and analyse measured data to identify climate-related risks and forecast their impacts. In addition, the project will develop the necessary tools and services to improve community resilience and capacity to understand their vulnerabilities, adapt and respond to hazards. Following WMO guidance, the project will also implement a Quality Management System (QMS), enveloping the total value-chain of climate services (institutional, operational infrastructure, human resources, systems and processes). The QMS will include the following elements to be dealt with on a phased basis: WMO technical regulations, QMS, including quality control; and certification procedures. The achievement of QMS certification will contribute to sustained operations and maintenance in the longer-term. The QMS will provide a solid foundation on which to build and expand the suite of products and services delivered by El Salvador.[8]

Activity 2.3.1: Competency training of hydro-meteorological and ocean monitoring networks, and

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certifications based on the Meteorological Training (BIP-MT).

Activity 2.3.2: The project will arrange a week-long training program for 30 staff in Quality Management Systems (QMS) in years 1 and 4, to achieve WMO certification for the trained staff.

Activity 2.3.3: Develop monitoring, evaluation and learning strategies to ensure impact, necessary adjustments and best practices inform future programming.

Component 3. Strengthened response, adaptive capacity and reduced exposure to climate risk

This component will ensure coherence and articulation in the information generated to correctly feed the MHEWS. In addition, this component will establish the necessary mechanisms and strategic partnerships to disseminate and communicate risk information to the population, including vulnerable groups following a gender perspective that allows providing information depending on the needs of men and women, children and elder population. This component will be people-centred, providing climate and disaster risk information through the strengthened and updated MHEWS.

Through this component, an awareness raising campaign will be developed so that the messages are clear and can reflect the risks that are presented and the scope that they may have in the populations of El Salvador. In addition, a working group will be integrated with government agencies, NGOs, Private Sector, and other institutions that are linked to risk management and MHEWS to generate consistency in messages, improve technical capability and extend awareness of risks and effective mitigation measures. The working group will meet periodically to maximize the operation of their work at the local, regional and national level.

Output 3.1: Develop strategic partnerships to promote coherence and complementary to maximize the use and impact of climate information services and products

Institutional partnerships are essential among specialized agencies and stakeholders for the production of relevant climate information and risk analysis. Strategic partnerships among key stakeholders, institutions, universities, research centres, projects and initiatives will be developed to foster potential synergies and effective collaboration to ensure that the best available climate information services and products are available for policy and decision making. A working group will be created and will meet periodically to maximize the operation of their work at the local, regional and national level. DOA has worked with the Salvadorian Red Cross, La Fundación para la Cooperación y Desarrollo Comunal de El Salvador: CORDES, Save the Children and Plan Internacional. They are strong NGOs that are well positioned in the territory. These partnerships will be strengthened through the project and will be part of the activities with local communities.

Activity 3.1.1: Convene technical working groups that are linked to risk management and MHEWS

The focus of this activity will be to coordinate the organizations and convene the creation of the working group. Once responsibilities and activities are distributed to assist with coordination and avoid duplication of efforts, the Working Group will allow for the project to leverage the variety of other community based programs in El Salvador to further raise awareness in their target communities about MHEWS and obtain feedback from communities. This activity will also facilitate to gather continuous formation from different institutions and communities to update and improve the MHEWS.

Output 3.2: Development of a national impact-based Multi-Hazard Early Warning System (MHEWS)

A national impact-based MHEWS is established to enhance timeliness and consistency of warnings through coordinated and compatible mechanisms and capacities, involving multiple disciplines for updated and accurate hazards identification. This activity will also facilitate real time forecasts and

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warnings through the System for Multi-hazard Potential Impact Assessment and Emergency Response Tracking Decision Support System (SMART DSS). SMART DSS is a web-based system for assessing potential impacts of a hazard using weather forecast information, and for evaluating, generating, and disseminating impact management options. SMART also acts as a data management system for managing and processing weather, disaster risk, and emergency response resources data for resource allocation, rapid deployment, and management. The system generates and disseminates weather forecasts, forecast-based risk maps, and accompanying advisories. It can visualise emergency response resource locations and quantities.

This output introduces the key elements of MHEWS in the response and adaptive capacity of the country and ensures that these elements will be updated following national needs and the World Meteorological Organization's guidelines: 1) disaster risk knowledge based on the systematic collection of data and disaster risk assessments; 2) detection, monitoring, analysis and forecasting of the hazards and possible consequences; 3) dissemination and communication, by an official source, of authoritative, timely, accurate and actionable warnings and associated information on likelihood and impact; and 4) preparedness at all levels to respond to the warnings received. Standard Operating Procedures will be integrated to identify robust protocols for the implementation of the routine operation of the system, define the roles of different stakeholders at different levels and facilitate the decision-making process.

Activity 3.2.1: Disaster risk knowledge based on the systematic collection of data and information. Methodologies and institutional arrangements will be introduced for timely and policy relevant climate risk assessment production, including detailed assessment of vulnerability resulting from environmental, social and economic conditions at local level; analyses regarding community adaptation capacity, including presence of vulnerable groups including gender differentiated groups, along with location of critical assets, sectors, infrastructures, and logistics related to the management of the emergencies.

Activity 3.2.2: Detection, monitoring, analysis and forecasting of the hazards and possible consequences. Design and implementation of a nation-wide system for monitoring and detecting hazards in real time or near-real time (e.g. through satellite-derived products) and to provide continuous forecasts and warnings 24 hours a day, 365 days a year. Existing local and/or single-hazard Early Warning Systems (EWS) will be integrated into the IT structure and operational protocols established for the national MHEWS, including capacity for data storage and post-event analysis for improvement of the system over time.

Activity 3.2.3: Increase dissemination and communication, by official sources, of authoritative, timely, accurate and actionable warnings and associated information on likelihood and impact.

In close collaboration with the scientific community and through a multisectoral exercise, a national protocol will be developed and adopted by all actors involved in the Climate Risk area for timely dissemination and communication of warnings and associated potential impacts on different sectors and communities. This activity will incorporate the adoption of the Common Alerting Protocol (CAP) at national and community level.

Many communities do not understand or know how to use early warnings or weather information. As a functional end-to-end EWS is constructed in El Salvador, it will be important to strengthen awareness raising campaigns to support communities to understand and act upon messages to minimise losses and damage during disasters and to ensure that these communities and other members are well informed of the potential risks in their locations, and the possible actions to take

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after receiving early warning information.

Activity 3.2.4: Preparedness at all levels to respond to the warnings received. Individuals and communities will be subject to an inclusive and comprehensive programme aimed at enhancing their capacity to act in sufficient time and in an appropriate manner to reduce the possibility of personal injury and illness, loss of life and damage to property, assets and the environment. Different education and preparedness programs will be developed to make the general audience understand their risks, respect the national warning service and know how to react to the warning messages.

Activity 3.2.5: Develop Standard Operating Procedures (SOPs)

This activity is linked to the MHEWS, as it has to incorporate all aspects of monitoring the risks, communication, dissemination, response and integrating lessons learned. International organizations, such as the Red Cross and Mercy Corps, have developed experience in the application of SOPs, to be able to minimize the false alarms and decide more precisely when it is necessary to take action and follow established procedures considering the chain of interventions. The project will establish a collaborative work with these organizations as they have extensive experience in risk management and disaster response. This activity will also clarify roles and responsibilities through the development of the Early Action Protocol (EAP), across government ministries and other disaster management stakeholders and support monitoring systems to track the effectiveness of implementation.

Activity 3.2.6: Integrate Traditional Knowledge with scientific data for early warning. In El Salvador, there are communities that rely on traditional (or indigenous) methods of forecasting and responding to climate extremes and geo-hazards. Traditional Knowledge is essential during the integration of meteorological data, since it has been passed down from generation to generation, as it has been useful in decision-making. Therefore, it is important that this traditional knowledge is effectively incorporated into the work that this project will develop.

Through this Activity the Project will:

Understand the current use of traditional climate and geo-hazard forecasts, warnings and responses (includes community visits and participation in the Project);

Incorporate traditional knowledge into DOA products and services (including forecasts and warnings and responses);

Develop educational and communication products, incorporating traditional knowledge, such as climate glossaries, seasonal or crop calendars, response booklets to improve communication of climate and ocean information; and

Train and mentor officers to communicate climate products and services. International research has shown that incorporation of traditional knowledge into DOAs products and services greatly increases community acceptance of their materials and at the same time can improve communication and understanding.

[9]

Component 4. Improved use of climate information for investment planning in different sectors

This component integrates the necessary actions to identify and develop a financial strategy to build on the bases of the generated climate information and MHEWS. This component will include the identification of priority actions and their associated financing, as well as the key necessary

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partnerships with public and private sector. This component will introduce the Forecast based Financing (FbF), in which anticipated responses are funded before a climate impact, giving time to key sectors to implement their actions plans based on Standard Operational Procedures (SOPs) that were previously integrated. This component will give a broad overview of the financial elements that must be taken into account to ensure the operation of CIS and MHEWS in El Salvador, as well as a much more accurate forecast of action costs in the medium and the long term.

Output 4.1: Forecast-based Financing

Through this output the project will introduce and develop the conditions for the establishment of FbF - an innovative system designed to automatically trigger community and government actions and anticipated funding responses based on more precise climate forecasts or observations will be developed. This output will use standard operating procedures that contain the mandate to act when these threshold forecasts are issued.[10] It is important to consider that El Salvador has generated a capacity over the years to generate data that could benefit the FbF. However, this information could vary depending on the type of hazard and the availability of data in different periods of time. These gaps and opportunities will be analysed to ensure that an FbF is viable and false alarms are minimized as much as possible. This work will be based on the valuation approach to select which forecasts (magnitude, probability and lead time) should trigger humanitarian actions.[11] For this, three elements should be considered:

The set of early actions (or action plan) to be triggered by the forecasts, whose aim is to avoid losses and damages if an extreme event materialises;

The early warning information derived from forecasts that triggers the early actions; and

The decision criteria to define whether or not it is worthwhile to act based on the available information.

The project will develop a FbF proposal, including a monitoring mechanism and regular revision process.

Activity 4.1.1: Workshop to present the FbF methodology and main components with all actors that should be part of the FbF.

Activity 4.1.2: Identification and elaboration of the local plans to be developed, depending on the pilot sites to be integrated in the project.

Activity 4.1.3: Workshop to match forecasts that are most appropriate given the lead time and the probability to happen with the necessary actions in each pilot site.

Output 4.2: Innovative solutions to scale up climate services in the country and investment mechanisms to support national priorities

The project will support the establishment of a financial framework and long-term business model to provide an evidence base for the cost-effectiveness of using climate information services and products in the priority sectors. This output will promote and support the use of climate-related innovative scientific information and improved observations for key policy decisions and private/public sector investment planning. These activities will be based on the identification of cost recovery options and specialized value added climate product / services considering its viability in the medium and long term.

Activity 4.2.1: Mapping innovative solutions based on climate information that are viable and

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accessible in the country and initiate the necessary arrangements to develop them.

Activity 4.2.2: Development of a financial framework for effective climate services that will facilitate sustainable service provision in the long term by identifying modalities for climate information products and services and promoting integration in the national budget.

Output 4.3: Policy and regulatory frameworks to enhance mobilization of private sector investments at scale for transformational CIEWS is prioritized (barrier removal, affordable finance).

A key barrier to comprehensive forecasting and early warning is the lack of adequate hydro-meteorological monitoring networks, forecasting models and resources for the main sectors of the country. This output will strengthen policy and regulatory frameworks to create the conditions for private sector investments depending on the priority sectors and products needed by the country. Through the financial strategy, mechanisms and incentives will also be identified to promote the use of CIS in different sectors, both locally and nationally.

Project Governance and Implementation

At the request of the GCF Nationally Designated Authority (NDA), UNEP will serve as the Accredited Entity (AE) for the project. The AE will work with a range of partners and executing entities, including, regional organizations such as SICA and CEPREDENAC as mentioned above, the regional Offices of United Nations Office for Disaster Risks Reduction (UNDRR) and World Meteorological Organization (WMO) to make the necessary arrangements for the implementation of the project. UNEP's comparative advantage on climate change lies in its broad role regarding environmental issues within the UN system. UNEP has more than 25 years of experience working on climate change. It brings a comprehensive approach to climate change mitigation and adaptation that is grounded in both natural and economic science and is tied to the environmental and development concerns of countries such as pollution, natural resource depletion and ecosystem degradation. Through the Science Division, UNEP has longstanding expertise in environmental and climate change information management and early warning systems. UNEP's experience working with the GCF is unique as together have ensured the protection and sustainable use of the environment and the resilience to the impacts of climate change of different countries throughout the support of an increasing climate information services portfolio.

The Ministry of Environment acting through the Environmental Observatory (DOA) will serve as the Executing Entity (EE) responsible for the execution of all the activities identified in coordination with key national partners, and will keep the coordination among all the institutions in charge of producing hydrometeorological and ocean data related to climate change. The Environmental Observatory (DOA) is a technical body (Direction) of MARN mandated with the monitoring of the environment and risk management through the systematic observation of risks related to hydrometeorological, geological, and oceanographic risks. DOA will act as EE of the project and will assume overall responsibility for the effective delivery of required inputs to achieve the expected project outputs. UNEP as the AE will work with the EE to build their capacity to execute this project and to develop all the necessary arrangements before the start of the project. The AE and the EE will enter into an appropriate agreement (Project Cooperation Agreement) for the execution of the project, establishing clear roles and responsibilities for both parties, the schedule and conditions of instalments, the determination of the prevailing fiduciary standards and the terms and conditions for arbitrations and termination of contract.

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The Environmental Observatory (DOA) is a General Direction of the Ministry of Environment and Natural Resources, according to the executive decree of October 25, 2019. The Observatory has five regional offices for Meteorological Observation: in the cities of Santa Ana, San Miguel, La Unión, in the Port of Acajutla and at the International Airport in Ilopango. For the execution of projects, in addition to the technical and project personnel that the Observatory has, it is always supported by a Planning Unit, the Project Management, the Administration Unit that has its Purchasing and Acquisitions Unit, the Audit office. Internal and of course, a Legal unit attached to the minister's office.

DOA has extensive experience in the management of international and national projects. The list below shows the most recent projects that had or have a direct relation with the Observatory:

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| N° | Name of the Project | Objective | Total amount in USD | Source of Cooperation | Execution period | Implementation |
|----|--|--|---------------------|--------------------------------|------------------|----------------|
| 1 | Orthophotography and LiDAR coverage of El Salvador | Surveying with LiDAR and multispectral orthophotos at the national level to improve the mapping of risks and natural resources | 3,800,000.00 | BCIE | 2016-2018 | Direct |
| 2 | Integrated water, sanitation and environment program: Integral Management of Water Resources | Contribute to improve health and hygiene conditions, through the provision of drinking water and sanitation services in the intervention areas. | 8,493,069.18 | AECID/FCA S | 2010-2021 | Shared |
| 3 | Strengthening of Monitoring Stations of Natural phenomena that Generate Information for Early Warning, Risk and Environmental Management | Strengthen MARN; with equipment for stations used in monitoring natural phenomena throughout the national territory | 426,700.00 | Japan, Imported Assets 2006 | 2018-2019 | Direct |
| 4 | El Salvador <u>Readiness Proposal</u> TF0A8848 | Assist El Salvador in the implementation of key REDD+ readiness activities including: i) institutional arrangements and participatory processes, ii) development of an ENA-REDD +, and iii) establishment of a national forest reference level | 2500,000.00 | Forest Carbon Cooperative Fund | 2019-2020 | Shared |
| 5 | Comprehensive management for the improvement of the <u>Lagunas el Olomega</u> and <u>Jocotal</u> wetlands | Promote the comprehensive management of the <u>Olomega</u> Lagoon and the <u>El Jocotal</u> Protected Natural Area, establishing a main management system and a model approach for comprehensive and sustainable management of wetlands. | 4,500,000.00 | JICA | 2015-2020 | Shared |
| 6 | Definition and construction of indicators for monitoring, reporting and verifying progress in the implementation of nationally determined contributions to the Paris Agreements. | Support for monitoring and verification of progress in the implementation of NDCs | 216,600.00 | <u>Euroclima+</u> /FIAPP | 2018-2020 | Shared |
| 7 | Nations Prepared for Climate, Impact-Based Forecasts and Warnings | Support in preparing forecasts and warnings about the impact of the weather. | \$ 700,000.00 | USAID-OFDA-NOAA | 2017-2019 | Shared |

Financial and operational risks

The financial management and procurement within the project will be guided by UN financial regulations, rules and practices, as well as UNEP's programme manual. The financial rules of UNEP, which follow international Public Sector Accounting Standards (IPSAS), are promulgated pursuant to the Financial Regulations and Rules of the UN. Within this context, funding allocation mechanisms are managed as per UN rules and procedures, including eligibility criteria, proposal evaluation processes, quality assurance and control, project monitoring and supervision. UNEP is audited annually by the UN Board of Auditors and has established dedicated trust funds for GCF resources.

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A brief description of possible risks is as follows:

| RISK | PROBABILITY | RISK IMPACT LEVEL | MITIGATION |
|---|-------------|-------------------|---|
| Limited knowledge about the use and benefits of climate information services and early warning systems could represent potential conflict with different users. | Medium | Low | Capacity building actions, awareness raising among different actors about the importance of producing more accurate and timely information to take better decisions based on scientific evidence. Development of communication strategies considering different user needs. |
| Lack of capacity, engagement and cooperation among national institutions that limits prioritization of project objectives. | High | Low | The project will ensure the full engagement of ministries, institutions and key stakeholders in climate services, as well as the enhancement of interaction between producers and end users of climate information. The project will coordinate the creation of national bodies and committees to ensure the representation of all voices. |
| Changing administrations can delay or stop the implementation of the project and have negative redesigns in the structure and budget of the project. | Medium | Low | The establishment of the National Committee, the External Non-binding Advisory Committee with the support of the NDA, will be crucial in ensuring the sustainability of the project even if there are changes in the government structure. |
| Delays in implementation due to procurement of consultants | Low | Low | The project will ensure that all institutional arrangements are in place before initiating procurement processes of consultants, and it will identify during the design of the project national and international capacities to develop the activities planned. |
| Delays due to lack of government support or engagement | Medium | Low | The proposal and all associated documents have been designed in joint coordination with the relevant national counterparts to avoid lack of support and appropriation. The national and technical committees will ensure that all comments and recommendations are always taken into consideration and that corrective measures are incorporated. The country has showed high interest in this proposal since the beginning. |
| Operation and Maintenance of infrastructure and equipment | Medium | Low | The project will develop a strategy to ensure long term operation and maintenance of equipment. In addition, training courses will be coordinated with different universities to keep knowledge in different research centers. |
| Limited capacity to access new financial resources. | Medium | Low | The project will identify options and then scale up public and private investments for climate information services. A financial strategy for CIS and EWS will be designed and approved by all key stakeholders, including the private sector. |
| Crime and violence threaten social development and economic growth and negatively affect the sustainability of weather stations as they continuously suffer from vandalism. | Medium | Low | The country has suffered from crime and violence during the implementation of previous projects. This has forced the government authorities to develop effective strategies to suppress the risks, and the project will base its strategy on previous experiences, ensuring that lessons learned are fully integrated. A vandalism reduction policy has been implemented by DOA to ensure a smooth operation of the observation networks. |

Monitoring and Evaluation (M&E)

UNEP through the implementation of more than 200 projects across the world, has experience in developing monitoring and evaluation strategies to ensure that projects are effectively monitored to

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accomplish goals and objectives. The strategies implemented will be previously discussed and validated by the MARN / DOA and executed in joint coordination with UNEP. The activities included in the proposal will pay significant attention to gender inclusion, monitoring, reporting, and evaluation and indicators and all necessary tools to monitor the progress of the project, will be identified since the design phase of the project. The project will create an M&E framework and build the capacity to conduct M&E activities. In this sense, the project will establish mechanisms to learn from the process of preparing, developing and implementing climate information services and the project will be continuously reviewed following GCF rules and regulations.

[1] The Climate Smart Agriculture Strategy for the SICA Region (2018-2030). Available at: <http://www.cac.int/sites/default/files/Resumen%20EASAC.%20Ingl%C3%A9s.pdf>

[2] PCGIR-MSRRD 2015-2030/CEPREDENAC/SICA-001-2017. First edition, 2017. Central America.

[3] WMO, 2018. Step-by-step Guidelines for Establishing a National Framework for Climate Services

[4] World Meteorological Organization (2014) "ANNEX TO THE IMPLEMENTATION PLAN OF THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES - USER INTERFACE PLATFORM COMPONENT". Chair Publications Board.

[5] <http://www.wmo.int/pages/prog/wcp/wcasp/meetings/documents/rcofs2017/CA-RCOF2017.pdf>

[6] WMO, IOC-UNESCO, UNEP and ISC. About GCOS. Available from: <https://gcos.wmo.int/en/about>

[7] https://www.wmo.int/pages/prog/www/DPFS/Meetings/ET-OWFPS_Montreal2016/documents/WMOGuidelinesonMulti-hazardImpact-basedForecastandWarningServices.pdf

[8] World Meteorological Organization, 2017 "Guide to the Implementation of Quality Management Systems for National Meteorological and Hydrological Services and Other Relevant Service Providers". WMO No. 1100

[9] Bremer, S. et al. Climate Services, 2019. Towards a multi-faceted conception of co-production of climate services

[10] E. Coughlan de Perez et al., (2015) "Forecast-based financing: an approach for catalyzing humanitarian action based on extreme weather and climate forecasts" Nat. Hazards Earth Syst. Sci., 15, 895-904, 2015

[11] Lopez, Coughlan de Perez, Bazo, Suarez, Van den Hurk, Van Aalst, 2018: Bridging forecast verification and humanitarian decisions: A valuation approach for setting up action-oriented early warnings <https://www.sciencedirect.com/science/article/pii/S2212094716300172>

B.3.Expected performance against the GCF investment criteria

Impact Potential

Strengthened use of evidence-based planning, decision-making and response actions to inland and coastal climate risks will increase resilience and enhance livelihoods of El Salvador. Expected mortality rates and economic losses will decrease due to enhanced climate information services, including the establishment of a Multi-Hazard Early Warning System and the adoption of Impact based forecast services (IBF) The project will provide the country with a fully integrated observation, forecasting, and communication system, with positive and measurable impacts on society, including the most vulnerable communities, and the economy.

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The project will deliver climate change adaptation benefits through **improved resilience of up to 4.6 million people (81.5% total population) exposed to the risk of climate-related extreme events and hazards[1] such as floods, mudflows and droughts.** Direct beneficiaries were considered according to the National Report on the Status of Risks and Vulnerability, and most of them are exposed to multiple threats. The population considered as Indirect constitutes the total population, since the information is generated and transmitted nationwide by various means capable of reaching all inhabitants.[2]

In addition, enhanced ocean monitoring will provide critical data to characterise risk from sea level rise and related risk reduction measures relevant to the most vulnerable population of El Salvador living on coastal zones (26.6% of the population). Impacts will be achieved through a variety of project interventions including a nation-wide MHEWS and community-based early warning schemes that will enhance community response capabilities to secure their lives, assets and livelihoods. Increased safeguarding of key assets (such as agricultural land, properties, logistics, infrastructure) from climate-related hazards will be facilitated through the use accurate, timely and actionable information and MHEWS. Climate information services for agriculture, maritime, infrastructure, insurance, tourism, logistic and water management sectors will increase sectoral resilience, reducing the risks from climate-related hazards and thus reduce losses and damage to crops and other assets.

Paradigm shift potential

El Salvador will mainstream climate information into decision and policy making. In addition, climate information will be shared with neighbouring countries in Central America to enable prompt and cost-effective interventions in case of large-scale climate related emergencies. A key paradigm shift is that information use will be scaled-up from generating weather predictions to its systematic use to inform potential social, economic and environmental impacts and the urgent (early warning actions?) to be implemented. Hence, the introduction of impact-based forecasting, central database web/GIS-based platform and DSS/tools, and innovative dissemination mechanisms (e.g. mobile app, User Forums) will help DOA frame forecasts in formats that are better understood and acted on by institutional and community end-users considering a gender distinction, to increase community resilience and adaptive capacities.

Innovation. An enabling environment will be created through the establishment of a National Framework for Climate Services and User Interface Platform that will include donor and partners coordination. Use of international standards (WMO) will have a transformative impact on managing climate and weather risks in El Salvador as standardized information and protocols will be available for different comparisons in the short, medium and long term. The project will allow the country to develop innovative solutions based on the support and experience of WMO, while the installed capacities will also be leveraged - El Salvador already has institutions that have strengthened the production of hydro-meteorological information, proof of this is the technical support that El Salvador provides to the Central American Regional Climate Forum, CA-COF.

This proposal will promote the adoption of innovative solutions for the production of national Impact Forecasts, aiming at bringing the information closer to the population and strengthening the level of understanding and incorporating the risks that an event may generate in the different stages of warnings (surveillance, attention, preparedness, and response). This process will produce a

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permanent change in the way in which the Environmental Observatory works, as it enhances the Observatory's technical and scientific capacity for analysis and interpretation of information. In addition, the project will improve the technical requirements of the equipment to continue generating key information of interest and bringing it closer and in a timely manner to the population. These capacities will be sustained and supported through the Innovation, Development and Research Management Unit, which concentrates a specialized support team and is transversal to the Environmental Observatory.

The main innovation that will be introduced by the adoption of a Forecast Based Financing is the paradigm shift from a reactive to a proactive approach, which has never been fully implemented in the country for several reasons - including the increasing financial restrictions that the government is facing, along with other restrictions such as the consequence of the frequent extreme events and their effects on the availability of funding. FbF releases humanitarian funding for pre-agreed activities for early actions to be performed quickly and efficiently before disaster strikes, funds are allocated automatically when a specific threshold is reached.

Potential for Scaling up. The project is expected to achieve transformational change in the understanding, implementation and use of climate information and multi-hazard early warnings from national to community level. The National Framework for Climate Services (NFCS) to be developed will be designed to facilitate delivery of best practice climate services across the country. The main aim of the NFCS is to establish a national coordination mechanism to link the various actors having a mandate relating to climate services production, provision, and implementation. The NFCS will benefit from the scientific knowledge existing in the country and the region to support national institutions with the required technical capabilities to develop effective climate services. The implementation of the project will improve the coordination among institutional stakeholders working on climate services at national and local level to link climate knowledge and information to planning, preparedness and recovery by sectoral planners and vulnerable communities. The project will leverage on the work carried out by MARN on the 20 catchments where EWSs are already operational and by extending and tailoring community disaster risk management and community-based adaptation measures to the entire national territory. The project will define a sectoral approach to promote the systematic use of climate services to reduce the vulnerability of people and economy to disaster risk and climate change identifying key element for increasing the resilience of livelihoods both to slow onset and rapid onset climate related disasters. In addition, the project will provide key elements for increased regional cooperation, especially in the area of capacity development and technical assistance, through mechanisms already in place in Central America, such as the CA-COF. The Project's approach to development of climate products and services tailored to specific end-user needs has replication potential, as does the development of methodologies and protocols (e.g., for the operational implementation of MHEWS), standard operating procedures (SOPs) and early action mechanisms. The project will support the country towards the establishment of policy incentives and regulatory frameworks to facilitate partnerships, easy access to affordable financing for the private sector as well as a neutral mechanism that help mediate conflict and facilitate discussion between public and private sectors.

Potential for Knowledge and sharing. Knowledge and learning will be a key focus of Project interventions - from technical training for DOA and MARN to local volunteers, farmers field schools and community-based water management workshops. Knowledge will be built through different workshops, webinars, meetings and continuous update of national and subnational officers, then knowledge will be transferred at the national and regional level to institutions and beneficiaries promoting behavioural

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changes. Engagement with communities to develop localised SOPs and contingency plans will integrate both traditional and modern scientific climate knowledge to improve community understanding of climate science, and general understanding of how traditional knowledge is used. Involvement of communities in the development and implementation of Project interventions will ensure local appropriateness of international best practices. Besides, at the national and sub-national level, the National Climate Outlook Forum will function as a knowledge management platform between climate information providers and end-users to facilitate exchange of knowledge and lessons learned. Knowledge will be safeguarded through different participating universities and research centres with whom memorandums of understanding will be signed ensuring sustainability beyond the Project implementation period. In addition, the mid-term review and final project evaluation will have a strong component to capture lessons from the implementation of the Project.

· **The scalability of the project** has been considered high, as the Project has the capacity to generate knowledge, lessons and products to be developed and managed by DOA, which will be the custodian agency of the knowledge and lessons generated that afterwards will be used in different climate interventions in the country and the region.

· **Contribution to the creation of an enabling environment.** An important focus of the Project is to support the establishment of an enabling environment, including governance frameworks for climate services, multi hazard early warning systems and disaster risk management. This includes the development or strengthening of policy, legal and regulatory frameworks conducive to increased political commitment, and to awareness in public and private sectors of disaster risk reduction and management as a strategic development priority. This will facilitate the allocation and mobilisation of the resources required to sustain resilience building. This project will have a strong component for the design and operation of a financial strategy that will involve all the actors that could be benefited from a strengthened and efficient climate information system. Behavioural changes of institutions, communities, and individuals will be part of the enabling strategy and will be monitored during the implementation of the project.

· **Overall contribution to climate resilient development pathways.** Climate services are becoming an important strategy for delivering climate information to key decision makers in developing countries. In El Salvador, the responsibility of DOA to provide climate services to diverse audiences means great responsibility, particularly now where potential risks are already impacting societies, such as pandemics, hurricanes, floods, dry seasons, among others. In this sense, climate information services are very important to foster adaptation to climate risks and reducing vulnerability in specific regions of the country. The production and delivery of user oriented climate services in El Salvador will require new skillsets, partnerships, and infrastructure and the project will ensure that all this is taken into consideration in the medium and the long term. To achieve a contribution to climate resilient pathways it will be necessary to support the co-production of climate information while also addressing prevailing legal, political, and institutional disconnects and human resource constraints to strengthen the provision of climate services. The development and dissemination of targeted and actionable climate information products will be transformational in building the climate resilience of key economic sectors in the long term, particularly agriculture, but also water management, shipping, tourism, insurance and disaster management.

· **Contribution to the regulatory framework and policies.** The main priority of the project will be to create and strengthen the legal and political frameworks that will support sustainable land use

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planning and coordination of climate information systems in the country. The contribution to regulatory frameworks will directly benefit and coordinate with other projects that work to strengthen the risks of climate change. The integration of climate information services into key policies, decision-making and operational processes of government entities will bring systemic change. This will be facilitated by establishing institutional, policy, planning and regulatory frameworks to optimise coordination between DOA and other governmental agencies. The data developed will support the formulation of well-informed adaptation policies, regulations and planning for adaptation to climate change and disaster risk reduction. The National Meteorological Strategy will facilitate that recommended policies, are applied at the national, subnational and local level.

Sustainable Development Potential

The Economic Commission for Latin America and the Caribbean (ECLAC) pointed out that from 1980 to 2008 there was an average of 1.5 natural disasters per year in the country that killed almost 7,000 people, affected 2.9 million more and had an estimated cost of US \$470 million annually, equivalent to 4.5% of the Gross Domestic Product (GDP). Annual economic damages related to weather events are high; between November 2009 and October 2011 only, more than USD \$ 1.3 billion or its equivalent to 6% of 2011 GDP was lost.[3] El Salvador's work in climate action is contributing to accelerate the achievement of the sustainable development goals. Contribution to the SDG 13 is clear as the country has reported significant progress in the implementation of the United Nations Framework Convention on Climate Change (UNFCCC), and its commitment to the work of the Paris Agreement. Besides, MARN has developed a solid and harmonized framework of policies and strategies such as the National Strategy for Climate Change (2013), the National Plan for Climate Change (PNCC, 2015), and innovative sectoral policies developed by the Ministry of Agriculture and Livestock (MAG), such as the climate change policy (MAG 2017) and an environmental strategy of adaptation and mitigation (MAG 2015).

Economic benefits are also expected from optimized management of resources due to the use of impact based forecasts and actionable climate information. These benefits will be translated into better national capacity to invest in climate-resilient development. Social co-benefits include improved public safety due to early warning, better health care services for vector-borne diseases as their outbreak could be predicted, and general well-being with better access to food and freshwater from forecast-informed production. Co-benefits, such as energy conservation through targeted fishing and precision agriculture, will be articulated in the full proposal. The availability of accurate and timely data will also bring environmental co-benefits during the sustainable management and conservation of natural capital, marine, and terrestrial ecosystems.

The country will have better preparedness to climate-induced hazards with the use of improved forecast and warning information and will develop information useful to report to SDGs 1, 11, and 13, and will produce important information to report to the Sendai Framework. In addition, as emerged from the meetings held for the elaboration of the concept note, the importance of mainstreaming gender in the development of the components of the project will be considered as a priority for the country. During the meetings held with staff officials, more than nine coordination (virtual) meetings, and other stakeholders, the different roles and responsibilities that women and men should play during project interventions were analysed. A high percentage of women and girls have been affected by extreme weather events as they do not have access to different communication tools to receive climate alerts. However, the project will have to work in the development of accurate data to identify

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and monitor the number of women and men benefited by climate information products/services including those based on specific gender needs. In development of the full proposal, the collection of sex-disaggregated data will be integrated with the support of gender experts, including a detailed gender analysis and gender strategy.

Needs of recipients

The project has identified the essential needs of recipients through the review of country priorities and consultations with representatives of different sectors and local communities. As mentioned in previous paragraphs, a large part of the territory of El Salvador, where 85% of the population is located, is at risk from different impacts from climate change. The government has identified the following priority areas of interest where the production of climate information should be focused: agroindustry, food security, beverages, chemical products, plastics, electronics, textiles, footwear, manufacturing, handicraft exports, paper products, business services, logistics, research and development, medical services, creative industries, aeronautics and tourism.[4]

Some of the institutions that are part of the entire service delivery chain need to be strengthened or even created. There are still several areas that need to be developed and/or reinforced, within which is public access to hydrometeorological and ocean information.[5] To address this situation, the project will strengthen institutional capacities of the key players that have an important role in the management of climate information services.

The project will ensure that meteo-hydrological and ocean information is effectively intertwined between programmes and initiatives that seek to reduce the impacts of climate change through the provision of climate information with solid scientific bases. The project should ensure that data is collected in those areas where the government has prioritized its interventions. In the case of the fishing industry, for example, weather conditions also have an important effect on the ability of fishermen to capture fish and other aquatic organisms, and on the safety of fishermen. Meteorological data can be used in attempts to explain observed changes in fisheries production and distribution.[6] The use of hydrometeorological and ocean information for the infrastructure sector will bring large benefits to different users as it will maximize building resistance and in terms of assets and properties, it is anticipated that damages can be reduced by up to 50%.

Country ownership

The Government of El Salvador enshrines climate risk management and climate change adaptation as a top priority in its national development agenda. However, current interventions are insufficient, and the existent legal framework still requires improvements to mainstream and establish responsibilities to the corresponding institutions. One of the project objectives will be to ensure that there are institutional and regulatory frameworks that lay the background for a coordinated operation and effective implementation of climate information services. The project proposal addresses key country priorities and is fully aligned with the following laws, policies, plans, and national commitments:

- The National Policy for the Environment (2012) - The PNMA (for its acronym in Spanish) aims to reverse degradation and reduce environmental vulnerability to climate change.
- Civil Protection, Prevention and Mitigation of Disasters Law (2005) - The purpose of this law

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is to prevent, mitigate and effectively deal with natural and anthropic disasters in the country. It also indicates the deployment of the civil protection public service, if necessary, to guarantee the life and physical integrity of people and private and public goods.

- The Cuscatlán Plan for 2019-2024 - The objective is the reconstruction of a modern, efficient and transparent state at the service of people that allows to promote structural reforms for construction.
- The National Climate Change Plan (2015) - Road map for adaptation and mitigation actions that the country must carry out, in addition to the restoration of critical ecosystems.
- Integrated Water Resource Management Plan (2017) - The objective of the PNGIRH (for its acronym in Spanish) is to protect ecosystems in harmonization with the social and economic development of the country to meet water demands.
- The National Determined Contributions, NDC (2017) - El Salvador has a number of contributions in order to establish a legislative and institutional framework that can guide economic and social development towards low emissions and adaptation to climate change. Additionally, it presents some targets by 2025 and 2030, which will be quantified, agreed upon, and presented before COP22 or COP23[7].

Efficiency and Effectiveness

The Government of El Salvador is requesting a GCF grant to enable the efficient and effective delivery of the proposed Project interventions to achieve the stated impact. The requested grant is considered the most appropriate financial instrument to enhance climate services, disaster risk reduction and MHEWS due to the public good nature of such services and limited availability of government funding. Not receiving funding from the GCF, would imply increasing the risks and the potential negative economic impacts due to the non-action derived from the lack of precise climate information locally and nationally. Besides, the lack of financing would represent an additional negative impact to COVID 19 given the current circumstances. The investment will directly address financial, technical, capacity and coordination barriers to the effective delivery of climate information and multi-hazard early warning services. Actionable risk information and warnings and response action are key to the effectiveness and efficiency of EWS. This is the innovative solution that the project proposes to establish by building on lessons, best practices, and state-of-the-art impact-based multi-hazard early warning system coupled with forecast-based early actions. Although direct revenue will not be an outcome of the GCF investment, the Project is expected to develop information products with commercial value that will enable cost recovery options beyond its term.

Avoided economic losses represent changes in economic flows arising from the disaster, lasting up to several years. The project aims to increase sectoral and community resilience to climate-related hazards and extreme climate events, resulting in improved productivity and avoided losses to agriculture, fisheries and other relevant sectors. Effectiveness of the Project is further enhanced by its direct contribution to key national priorities and strengthening of existing national mechanisms. There is a market potential for expanding hydrological data and services. WMO could contribute to strike a balance between particular and general societal interest. Effectiveness is expected to increase as factors influencing the decision-making become less of an obstacle (e.g. access to credit, and lack of skills to interpret information received). To conclude, the solutions and technology proposed in this project have been tested and proven in other developing countries and will significantly contribute to the development of the Central American region.

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Finally, the project is fully integrated with the National Adaptation Plan (NAP) which will start its implementation during 2020. The NAP has the objective of mainstreaming climate change adaptation into sectoral, intersectoral and territorial plans to build a climate-resilient society and economy; it includes monitoring instruments and considers the gender perspective and the human rights approach.

[1] Informe nacional del Estado de los Riesgos y Vulnerabilidades (INERV), Demografía. Proyecciones de población 2016 del Censo Nacional de Población y Vivienda 2007.

[2] Ibid.

[3] NDC, El Salvador 2017

[4] Estudio Multidimensional de El Salvador © OCDE 2019

[5] Memoria de Labores, Instituto de Acceso a la Información Pública. 2013 -2014

[6] World Meteorological Organization, 2010. "Guide to Agricultural Meteorological Practices" WMO-No. 134, Geneva Switzerland.

[7] National Determined Contributions NDC. 2017

B.4 Stakeholders consultation and engagement (300 words)

The Environmental Observatory (DOA) belongs to the Ministry of Environment and Natural Resources. The National Designated Authority is MARN and they have requested the strengthening of CIS and MHEWS across the country. The NDA has led the elaboration of this proposal as previous proposals made evident the lack of climate information services during the formulation of different interventions. DOA is headed by MARN and has a wide representation across the country as it keeps operating the hydrometeorological and ocean observation network across the country. Several DOAs technicians are based on different locations and work together with local communities and volunteers to be ready to address any potential risk from extreme weather events.

There are different projects related to climate change at different levels of implementation. However, most of them have identified through different workshops and meetings with key stakeholders, the need to strengthen climate information services across the country to provide timely and accurate information for the most vulnerable communities and key sectors. UNEP in coordination with the country, has organized a consultation workshop with local observers to identify gaps and potential opportunities to strengthen the coverage of CIS and MHEWS. All the information presented in this proposal has been previously reviewed and discussed with government officials from the Ministry of Environment and DOA and with local observers who participate as volunteers to keep monitoring networks active and operating.

A list of projects and/or programs that have incorporated climate information services components is as follows:

Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador (RECLIMA, lifespan 5 years, expected start date 2020, USD 127.7 M, FAO). RECLIMA joins the PREP to meet the target set in the NDC of 1 million hectares of restored soils and ecosystems to protect water sources. REDD+ El Salvador.

Productive Investment Initiative for Adaptation to Climate Change (CAMBio II, 5 years, USD \$ 28 M, Central American Bank for Economic Integration - CABEL). This initiative will provide concessional loans and technical assistance to encourage micro, small and medium enterprises (MSMEs) to invest in adaptation.

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National Adaptation Plan (NAP) Readiness Project. consists of integrating climate change into sectoral, intersectoral and territorial plans to build a climate-resilient society and economy; it includes monitoring instruments and considers the gender perspective and the human rights approach.

Ecosystem-based Adaptation to increase climate resilience in the Central American Dry Corridor and the Arid Zones of the Dominican Republic (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama and the Dominican Republic).

Advancing a regional approach to e-mobility in Latin America (Argentina, Costa Rica, Cuba, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay and Uruguay).

Large-scale Ecosystem-based Adaptation to increasing resilience to climate change in the Central American Dry Corridor and Arid Zones of the Dominican Republic, proposal under development.

El Salvador - Forest Carbon Partnership Facility (FCPF) Reduce Carbon Emissions from Deforestation and Degradation (REDD+) Readiness Project.

The National REDD+ Program for El Salvador with an approach to adaptation-based mitigation.

The project will be implemented in close coordination with the initiatives above mentioned to align local and national interventions and avoid duplication of efforts, ensuring that climate information products/services are useful and can be applied in their strategies and activities. Besides, institutional arrangements to work with organizations with experience on the ground in El Salvador, will be developed before project implementation.

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 |
| 1. National Climate Services and Multihazard Early Warning Systems supported by institutions, coordination platforms, and legal frameworks | | 1,110,000 | 710,000 | Grant | | 400,000 | Other | MARN |
| 2. Enhanced Climate Information and Data | | 5,620,000 | 5,620,000 | Grant | | 0 | Other | MAR |
| 3. Strengthened response, adaptive capacity and reduced | | 3,000,000 | 2,200,000 | Grant | | 800,000 | Other | MAR |

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| | | | | | | | | |
|---|------------|-----------|-------|--|-----------|-------|-----|--|
| exposure to climate risk | | | | | | | | |
| 4. Improved use of climate information for investment planning in different sectors | 1,190,000 | 690,000 | Grant | | 500,000 | Other | MAR | |
| Indicative total cost (USD) | 10,920,000 | 9,220,000 | | | 1,700,000 | | | |

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

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

There is a strong evidence of climate change being the underlying factor behind the increasing frequency and severity of extreme climate-related hydrometeorological events, and these events are projected to intensify in the coming decades. El Salvador has made important efforts to invest in strategies to reduce climate risks. However, international support in climate financing received by El Salvador has been below the urgent needs. This has forced the country to depend on loans and to significantly increase the international debt to respond to the challenges of climate change.

The World Bank has classified El Salvador as a low middle-income country with persistent low levels of growth. Annual GDP growth has exceeded 3% only twice since 2000 and averaged just 2.3% in the last five years.[1] According to the International Monetary Fund (IMF), there is limited scope for El Salvador to incur further public debt since it is about 70% of the GDP[2]. In view of the high public debt and the large financing needs, the IMF called for the authorities of El Salvador to adopt front loaded fiscal measures to put debt on a firmly declining path. Public investment may be a good option for potential growth that could be further raised by increasing investment in public infrastructure, including through public-private partnerships. However, climate observation systems and many climate services fall into situations of market failure and could not be covered through private investments, unless a good strategy to involve the private sector is developed through this project. Overall, loan financing is not appropriate for the proposed project, as the benefits from the project will mostly be public goods and it is unlikely that there will be a financial return on investment within the project timeframe to repay loans. Consequently, the Government of El Salvador seeks maximum support from the GCF for the urgent adaptation actions proposed under this project.

The project represents an opportunity to address technical severe capacity limitations of DOA and other agencies in providing Climate Information Services (CIS) and MHEW to the vulnerable population to multiple climate-related hazards. Without international support, the country will continue with limited capacities to deal with the negative impacts of climate change. The board Decision B.07/04 (b) in reference to initial results management framework of the Fund: section (iii) Project/programme level outcomes for adaptation calls for: (5.0) Strengthened institutional and regulatory systems for climate-responsive planning and development; (6.0) Increased generation and use of climate information in decision-making; (7.0) Strengthened adaptive capacity and reduced exposure to climate risks; (8.0) Strengthened awareness of climate threats and risk-reduction processes. Hurricane Agatha in 2010 and, more recently, the effects of tropical storm 7E in October 2019 made evident the exposure of the country to these events and, notably, how strategic sectors

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such education, agriculture and fishing were vulnerable to their occurrence. This increased awareness, made evident the need to improve climate information and data with a focus on municipal interventions, as well as increased engagement with local communities to be better prepared to face climate risk.

El Salvador needs international support for the development and transfer of technologies to increase its adaptive capacity. Currently, the country faces several barriers to make climate information products attractive to the private sector, starting with awareness-raising to strengthen the importance of climate information knowledge across different sectors and groups. Besides, increasing impacts from climate change are forcing the rural and urban population to migrate as their livelihoods are at risk as never before. Immediate actions should take place to produce new pathways for El Salvador. As a result, the GCF is best positioned to provide this grant and to provide support and experience based on other similar projects. Developing climate and ocean observation networks is a challenge for Central American countries as their national budgets are focused on reducing risks from food security for populations that have been living with a very low income and in extremely poor conditions.

[1] <https://www.worldbank.org/en/country/elsalvador/overview>

[2] IMF, 2019. El Salvador - 2019 Article IV Consultation - Press Release; Staff Report; and Statement by the Executive Director for El Salvador. IMF Country Report No. 19/143

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

By the end of this project, DOA will be institutionally, technically and technologically equipped and trained to maintain the modelling, forecasting, and early warning systems countrywide to develop specific climate sensitive adaptation strategies. Strengthening the DOA through this investment, will establish the possibility of improving the information and diversity of services offered by the Observatory through the Special Activities Fund, a body that is regulated by the Ministry of Finance, and through which a partial recovery of funds is made. These funds are re-invested in internal processes that contribute to the reduction of risks at the national level. The project will be aligned with country priorities and will strengthen capacities at all levels.

The sustainability and monitoring of the project will be based on national coordination through the creation of a national body or platform integrated by a high-level political committee, a steering committee, and an external non-binding advisory committee will be established. Besides, during the first months of the project, specific activities are aimed at ensuring high political buying-in for the CIS mainstreaming and to create the enabling environment for the establishment of the coordination platform. Mainstreaming climate information services across different sectors through policies, strategies, plans and national and local budgets, will be essential to accomplish appropriation by the country and ensure the long run of the project.

The project will provide the country with the necessary baselines to continue with the generation and dissemination of information, DOA has human resources and technical-scientific capacity to continue and follow up activities, through managerial and specialized areas that exist, and particularly to the recent creation of the Research, Development, and Innovation Management Unit, which means solid support for the different areas in the framework of climate services. With the development of the project, the monitoring capacity, and the improvement of sectoral forecasts will be expanded, allowing us to expand our offer of services to the productive and social sectors. The Special Activities Fund will

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be improved, allowing to have long-term sustainability capacity. Additionally, other opportunities for the generation of financial products are identified in coordination with financial institutions like the Banco de Fomento Agropecuario, who is currently developing in coordination with the government the parametric insurance schemes to protect clients from catastrophic events; this can be incorporated into the list of services currently offered to the public by DOA and will be available beyond the project execution to cover operations and maintenance.

The project will create the conditions for the interoperability and full coverage of the observation network to prevent and respond to potential risks from climate change. For this, staff capacities will be reinforced to provide services during the operation and maintenance of the networks to respond and/or adapt to any situation or failure during and after the project implementation. An operation and maintenance strategy with a clear roadmap, including a finance strategy will be developed as part of the outputs of the project. The exit strategy will support the creation and/or strengthening of key partnerships who will be the leading promoters of mainstreaming the use of climate information services across different sectors, institutions, universities and organizations. The project will support the capacity of the institutions involved through the adoption of a strategy for staff retention also based on gender balance, the production of training and guidelines that will ensure continuous training in the future and avoid knowledge loss due to replacement of public officials. Academy will play an important role in the management and durability of these pieces of training, the project will ensure that crucial universities and research centres are part of the project since the beginning. Finally, the identification of funding modalities for climate information products is a crucial element of the finance strategy.

The sustainability of the project intervention is being addressed through the examination of risk financing approaches to enable the government to identify long-term requirements to enable budgeting and planning for the maintenance of the system. The project will provide the private sector (telecom, small-scale farmer enterprises and fisheries, agri-businesses, commercial fishers, fish processors, and fish traders, among others) with the weather and climate information that is required to make informed decisions to increase productivity and to make medium and long-term investments. GCF involvement and its ability to leverage public and private sector financing through reduction of barriers for such investments will promote ownership and long-term financial sustainability of the investments and their impacts.

The project will promote the systematic use of index-based catastrophic risk insurance products, specifically to protect small farmers and low-income families against disasters due to extreme weather events. In particular, the development of risk transfer markets for agricultural losses caused by extreme weather event will be made possible through the use of improved impact based weather forecasting systems, which coupled with more accurate tools to measure vegetative cover (e.g., by using satellite images) will lead to the availability of enhanced types of index insurance products to be offered through local insurance companies, which will distribute policies through aggregators, including microfinance institutions, and other organizations. Thanks to a much more precise evaluation of the likelihood and expected magnitude of low-probability, high-consequence loss events, the market of potential insurance purchasers in El Salvador will significantly expand resulting in a more socially optimal quantities of risk transfer based on sustainable products that are appropriate and affordable for farmers and small businesses.

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

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Annex 1: Environmental and Social Screening Checklist

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.

| Exclusion criteria | YES | NO |
|---|--------------------------|-------------------------------------|
| Will the activities involve associated facilities and require further due diligence of such associated facilities? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| N/A | | |
| 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"/> |
| N/A | | |
| 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"/> |
| N/A | | |
| 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"/> |
| N/A | | |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| N/A | | |
| Will the activities potentially involve resettlement and dispossession, land acquisition, and economic displacement of persons and communities? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| N/A | | |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| N/A | | |
| Will the activities affect indigenous peoples that would require further due diligence, free, prior and informed consent (FPIC) and documentation of development plans? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| N/A | | |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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N/A

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 checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| 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>The identification of risks, impacts and mitigation measures (see section B.2) was undertaken by UNEP in close consultation with the Ministry of Environment and Natural Resources (MARN), representatives of different sector agencies and local communities through a national 4-days workshop held in August 2019 in San Salvador as well as through several meetings with representatives of the National Environmental Observatory at MARN. While environmental and social risks relating to this proposal is likely to be minimal, they will be further assessed and detailed in the SAP Funding Proposal through further consultation with the project beneficiaries and partners. During the preparatory stage and implementation of the SAP Funding Proposal, UNEP with partners will take precautionary measures where the risks of project activities may likely impact or cause harm to the people or to the environment.</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"/> |
| N/A | | | |
| 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"/> |
| N/A | | | |
| 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"/> |
| N/A | | | |
| Will the activities utilize significant amount of natural resources including water and energy? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| Will there be a need to develop detailed measures to | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

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| | | | |
|--|-------------------------------------|-------------------------------------|--------------------------|
| reduce pollution and promote sustainable use of resources? | | | |
| N/A | | | |
| 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"/> |
| N/A | | | |
| 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"/> |
| N/A | | | |
| 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"/> |
| N/A | | | |
| Land Acquisition and Involuntary Resettlement | YES | NO | TBD |
| Will the activities likely involve land acquisition and/or physical or economic displacement? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| Biodiversity Conservation and Sustainable Management of Living Natural Resources | YES | NO | TBD |
| Will the activities potentially introduce invasive alien species of flora and fauna affecting the biodiversity of the area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| Will the activities have potential impacts on or be dependent on ecosystem services including production of living natural resources (eg. agriculture, animal husbandry, fisheries, forestry)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| Indigenous Peoples | YES | NO | TBD |
| Will the activities potentially have any indirect impacts on indigenous peoples, ethnic minorities, or vulnerable and marginalized groups? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| Cultural Heritage | YES | NO | TBD |
| Will the activities restrict access to the cultural heritage sites and properties? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| Will there be a need to prepare a chance-find procedure in case of the discovery of cultural heritage assets? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| N/A | | | |
| Stakeholder engagement and grievance redress | YES | NO | TBD |
| Will the activities include a continuing stakeholder engagement process and a grievance redress mechanism and integrated into the management/implementation plans? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Simplified Approval Process CONCEPT NOTE Template V.1.1

The Grievance Redress Mechanism for the Project will be detailed in the SAP Funding Proposal.

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.*

Yunae Yi, Safeguards Advisor