Simplified Approval Process
Concept Note

Project/Programme Title:	Improving the health resilience of communities vulnerable to climate change in Benin, focusing on the regions of Adjohoun, Bonou and Dangbo, as well as malaria, cardiovascular diseases and acute respiratory infections
Country(ies):	Benin
National Designated Authority(ies) (NDA):	Ministry of Living Environment and Sustainable Development
Accredited Entity(ies) (AE):	Fonds National pour L'Environnement
Date of first submission:	*04.03.2020 V.1*
Date of current submission:	*22.08.2021 V.4*
Version: 4	

GREEN CLIMATE FUND

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

A. Project / Programme Summary (max. 1 page)					
A.1. Project or programme	☒ Project ☐ Programme	**A.2. Public or private sector**	☒ Public sector ☐ Private sector	**A.3 RFP**	Not applicable
A.4. Indicate the result areas for the project/programme	*Check the applicable GCF result area(s) that the proposed project/programme targets. Indicate for each checked result area(s) the estimated percentage of GCF budget devoted to it. The summed up percentage should be equal to 100%.* Mitigation: Reduced emissions from: ☐ Energy access and power generation: 0 % ☐ Low emission transport: 0 % ☐ Buildings, cities and industries and appliances: 0 % ☐ Forestry and land use: 0 % Adaptation: Increased resilience of: ☒ Most vulnerable people and communities: 15.47 % ☒ Health and well-being, and food and water security: 33.7 % ☒ Infrastructure and built environment: 50.83 % ☐ Ecosystem and ecosystem services: 0 %				
A.5. Impact potential	A.5.1. Estimated mitigation impact (tCO2eq over project lifespan)		tCO2eq		
	A.5.2. Estimated adaptation impact (number of direct beneficiaries)		109,807 direct beneficiaries		
	A.5.3. Estimated adaptation impact (number of indirect beneficiaries)		132,492 indirect beneficiaries		
	A.5.4. Estimated adaptation impact (% of total population)		2.2 % of the country's total population		
A.6. Financing information					
A. 6.1. Indicative GCF funding requested (max 10M)	Amount: 8,600,000 Currency: usd Financial Instrument: Grants (If other financial instrument is opted, please specify: _) ** Please expand the information if needed.*				
A.6.2. Indicative co-financing	Amount: 450,000 Currency: usd Financial Instrument: Grants (If other financial instrument is opted, please specify: _) ** Please expand the information if needed.*				
A.6.3. Indicative total project cost (GCF + co-finance)	Amount: 9,050,000 Currency: usd				
A.7. Implementation period:	a) disbursement period: 60 b) repayment period, if applicable:	**A.7.2. Total project/ programme lifespan**	240		
A.8. Is funding from the Project Preparation Facility needed?	☐ Yes ☒ No	**A.9. Is the Environmental and Social Safeguards Category C or I-3?**	☒ Yes ☐ No		
A.10. Provide rationale for the ESS categorization (max 100 words)	The proposed project is innovative as it will spur a sustainably management of certain recurrent human health diseases in a context of climate change. The main activities of this project include the upgrading of the early warning system, the strengthening of the technical platform, the enhancement of human health resources capacities and the health care of vulnerable groups to climate change. These activities do not generate significant environmental and social risks. The small amounts of waste that will be generated from health-care activities will go directly into the existing biomedical				

	waste disposal cycle. Therefore, environmental and social risks are almost non-existent.		
A.11. Has the CN been shared with the NDA?	☒ Yes ☐ No	**A.12. Confidentiality[1]**	☐ Confidential ☒ Not confidential
A.13. Executing Entity information	The Executing Entities are the NGO-consortium GRAFED and the National Directorate of Public Health (DNSP) and the Sanitary Infrastructure, Equipment and Maintenance Agency (AISEM) on behalf of the Ministry of Health of Benin		
A.14. Project/Programme rationale, objectives and approach of programme/project (max 200 words)	Climate change (CC) has a negative impact on the health of Benin's population. In the ABD health zone, CC is likely to increase the delay in the onset of rains, the early end of rainy seasons and a tendency for temperatures to rise. These effects on natural and physical systems affect vulnerable people, particularly children under five years of age, pregnant women, the disabled and the elderly, and expose them to increased risks of malnutrition and incidence of vector-borne, non-communicable and food- and water-borne diseases as well as zoonoses. This threatens the livelihoods of these populations and increases their level of poverty. The proposed strategy, in a preventive approach at the intervention zone level, is based on the upgrading of the current health early-warning system with the inclusion of climate information into disease surveillance, improving the operational capacities of health personnel for emergency management in extreme weather events, supplying the health centers with climate-resilient and sustainable technologies and infrastructure and the implementation of community-based activities to strengthen the resilience of vulnerable populations to health challenges in case of climate emergencies..		

B. Project / Programme information

B.1. Context and Baseline (700 words)

The human health sector is one of the most vulnerable sectors to climate change (CC)[i]. CC will, without appropriate adaptations, lead to an additional 250,000 deaths per year in sub-Saharan Africa in 2030, including about 92,000 deaths among people aged 65 and older [ii]. In Benin, the health sector is vulnerable to at least three types of CC impacts: (1) rainfall and temperature variability, (2) weather disasters and (3) rising sea level[iii]. It is already certain that CC is having an impact on the prevalence of at least two types of diseases in Benin: vector-borne diseases (malaria, fevers), and non-communicable diseases, namely cardiovascular diseases (CVD) and acute respiratory infections (ARI), which are increasing due to the intense heat caused by the prevailing air temperature rise[iv]. Temperature changes facilitates the proliferation of vectors (mosquitoes, flies, ticks and fleas) while modifying the geographical distribution and transmission dynamics of viruses, bacteria and parasites. The spatial and temporal spread of vector-related infections will change by 2050 in Benin[v]. In addition, several authors indicate clearly that mortality by CVD is associated with temperature, especially during extremely hot or cold temperatures[vi].

The Adjohoun - Bonou - Dangbo (ABD) health zone is located in the lower Ouémé valley in south-eastern Benin between 6°33'24" and 6°55'32" north latitude and between 2°23'46" and 2°36'51" east longitude (Annex 2). It has an area of 923 km² and comprises three communes, namely Adjohoun, Bonou and Dangbo. The total population of the ABD health zone is 242,299 inhabitants divided between 20 districts and 130 villages and city neighborhoods[vii]. Agriculture, fishing and hunting are the main economic activities and occupy 37.7% of the

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

population, followed by trade (32.83%) and manufacturing activities and industries (11.6%)[viii]. Apart of hunters, all socio-professional groups are significantly exposed to climatic risks. The most affected are farmers, transporters, traders and craftsmen, breeders and river sand extractors[ix]. The ABD health zone has a four-season sub-equatorial climate characterized by the alternation of two rainy and two dry seasons. The months of February to April are the warmest and temperatures recorded from 1951 to 2017 are above 25°C with monthly temperature extremes ranging from 29.17° to 29.84°C in the health zone. Future projections have also shown an increase in temperature until 2050 with variations ranging from 0.51 to 0.54°C. Between 1951 and 2017, annual rainfall varied between 1155 mm and 1256 mm and annual relative humidity between 90.08% and 93.05%. The ABD health zone includes 42 public health facilities and 3 charity hospitals[x]. The 42 public health facilities are structured as follows: 1 central hospital, 3 municipal health centers, 20 district health centers and 18 village health centers. The attendance rate of health facilities in this health zone is 35.6% in 2018[xi]. This attendance rate is low compared to the national average of 51% in the same year.

The ABD health zone is one of the health zones in the South where the major climatic hazards observed are floods, drought, rising sea level, heavy rainfall and excessive heat [xii]. Projections under the three scenarios RCP 2.6, 4.5 and 8.5 carried out with the CSIRO and CCCMA models, indicate that by 2030 and 2050 in this zone, the delay in rainfall compared to the rainfall observed over the last 20 years is likely to increase, the rainy seasons will end early and temperatures will tend to rise with deviations from normal in the range of 0.8 - 2.3°C[xiii]. Floods, excessive heat, drought and heavy rains are the climatic hazards that have the greatest impact on people's health [xiv]. The ABD health zone is one of the climate-sensitive zones[xv] with the highest incidence of malaria in Benin[xvi] with an incidence of 11.4% in 2014[xvii]. During the same year, the incidences of CVD and ARI are 1.29‰[SM1] [RO2] and 2.81% respectively in the area (Annex 4).

In addition, the projections have shown that whatever the scenario considered, including the most optimistic climate scenario (RCP 2.6) and the most favorable socio-economic scenario associated with it (SSP1), when considering the major diseases in Benin (malaria, acute respiratory infections and diarrheal diseases), it is clear that the vulnerability of the health of the populations will probably be above national average by 2030 and 2050 in the project area[xviii]. The climatic risks observed in this area may have serious health and social consequences on the population, such as conflicts over access to water or food, the spread of diseases [xix] and increased human migration. Also, the predicted rising temperatures in this area could drastically increase the risk of mortality among the elderly and children under 5 years of age. Indeed, in Burkina Faso, Diboulo et al.[xx] observed in the Nouna region (which has similar characteristics to those of the ABD zone) from 1999 to 2009, that each temperature rise of one degree Celsius (°C) increases the risk of all-cause mortality by 2.9% in less than 48 hours, and this risk is particularly high among children under 5 years old (4%). Extreme heat events could induce hyperventilation in the ABD zone in people with chronic obstructive pulmonary disease, resulting in shortness of breath or dyspnea[xxi], particularly in elderly patients, who would then be unable to dissipate excess heat adequately, which could lead to the development of pulmonary vascular resistance. Likewise, high temperatures affect the respiratory function of very young children, possibly because their respiratory tracts are small and their respiratory system is still developing [xxii]. And since heat waves often cause thunderstorms that are predicted to increase with CC, outbreaks of asthma attacks in people suffering from pollen allergic rhinitis during thunderstorms are likely to occur in the project area[xxiii].

An assessment of the vulnerability of the health sector has confirmed the interrelation between malaria transmission and climatic parameters such as humidity, temperature and rainfall) in the three municipalities of the ABD health zone[xxiv]. In the municipality of Bonou, for every increase of one unit in average temperature, the number of malaria cases in the group of children under the age of five years increases by 4.6%. The analysis of future vulnerability indicates a probable increase of 2.5% in malaria cases with children under the age of five years for every increase of one unit in humidity in the municipality of Adjohoun. Similarly, the level of malaria transmission could seriously increase by 2050 due to the strong positive correlation between the Entomological Inoculation Rate (EIR), humidity, and average temperature in the three municipalities.

Trend analyses of historical data from the project area on climatic impacts and occurrences of CVD and ARI carried out and presented in Annex 4 showed that there is a significant correlation between the incidence of CVD and temperature (Rp=0.051) and humidity (Rp=0.080). In addition, these results also showed a very good correlation between humidity and the incidence of ARI in children under 5 years of age (Rp= - 0.540), adults (Rp= - 0.575) and all age groups (Rp= - 0.552). Other studies carried out in four health zones[xxv], including the project intervention zone, have also shown an increase in the frequency of ARIs during the rainy season, correlated with the increase in rainfall and relative humidity. At the same time, an intense dry season is accompanied by higher rates of ARIs in these health zones. Furthermore, in the vulnerability assessments of the health sector in the ABD zone, future forecasts have shown that with relative humidity above 80% and temperature above 25°C, it is likely that the prevalence of CVD and ARI could increase among vulnerable populations in the zone. Even if information on CVDs in Benin is not sufficiently available, according to WHO, the risks of respiratory and cardiovascular diseases are increasing in case of high heat and air pollution[xxvi]. Accordingly, the demand for health care services rises sharply as residents of the region go to emergency departments, emergency care centers, and physicians' offices. At the same time, the urban energy infrastructure is overloaded; the electricity power output cannot provide sufficient energy to meet residential and commercial air conditioning demands. As a result, rolling power outages often accompany prolonged heat waves, which can jeopardize the delivery of health care[xxvii].

To adapt to CC and prevent its effects on malaria, ARI and CVD prevalence, the adaptation options recommended in the ABD health zone are : Promote piping systems to avoid water stagnation, strengthen the existing health facilities[xxviii], upgrade the early warning systems for epidemiological risks and intervention plans, improve information, education and communication systems related to the adaptation of human health to CC, implement resilient drinking water supply systems, expand access to energy services (clean energy), supply climate-resilient health infrastructure and equipment and mobilize additional financial resources to achieve a climate-resilient health system in the health zone[xxix].

In the ABD health zone, several malaria control strategies have been implemented by the projects of the National Malaria Control Program (NMCP) in order to reduce the transmission of the disease (distribution of long-lasting impregnated mosquito nets, diagnosis and treatment of malaria, treatment at no cost for pregnant women and children under 5 years old suffering from malaria). The present project approach is to take CC into account in the measures, for example the control of stagnant waters resulting from heavy rainfall and flooding caused by CC in order to considerably reduce the larval deposits of disease-carrying mosquitoes. The project targets the three diseases of CVD, ARI and malaria, a vector-borne disease. However, diagnosis and treatment of malaria are not covered by this project. These aspects are already covered by other projects of the National Malaria Control Program (NMCP). Within the framework of the funding proposal, complementarity with these projects will be ensured. In the different components proposed, it is components 1, 2 and 4 that target malaria. Thus, the activities of these components are mainly aimed at reducing the impact of CC and improving the resilience of the health system and populations, aspects that are not covered by the other NMCP projects. In Component 4, for example, activities 4.1.1 and 4.1.3 aim respectively to develop and implement a communication and community awareness plan and to develop channeling activities to direct stagnant water during floods to retention basins in order to considerably reduce mosquito breeding grounds, which will be formed particularly during periods of heavy rainfall. Once the breeding grounds are reduced, the density of vectors will decrease and this will have the impact of drastically reducing malaria transmission. The pre-feasibility study currently underway will provide further clarification.This aspect of the present project is not covered by the other NMCP projects. In addition, several institutional and operational reforms have also been implemented but without formally addressing the CC-related aspects to tackle these diseases. These include the division of the entire national territory into health zones and the establishment of an early warning system (EWS) for an adequate response in the event of an epidemic. Despite this system, there has been a resurgence of climate-sensitive diseases, the consequences of which sometimes extend beyond the entire health system. Indeed, in the ABD intervention zone, the existing EWS is not fully operational, due to factors related to the permanent unavailability of electricity, the non-integration of information on CC, which does not allow anticipation of the evolution of health risks in order to allow preparation, communication, surveillance and deployment of appropriate interventions in a timely manner. However, measures are being taken at

the national level to take CC into account in various sectors in order to put in place a National CC-Health Strategy. Among these measures, there is the training of senior managers in CC, the establishment of the National Framework of Climate Services (CNSC) and the finalization of the National Adaptation Plan (NAP) with a strong integration of the health sector.

While Benin has received many grants, they have been used to fund other dimensions of the health system with the exception of climate change aspects. The recent project of USD 13.7 million financed by the Global Fund to Fight AIDS, Tuberculosis and Malaria project in Benin on resilient and sustainable health systems (RSHS) has as its main objective to strengthen the health system by impacting various components including the community level to enable universal access to promotional, preventive and curative services for a sustainable reduction in mortality and morbidity among the Beninese population. The capacity building component of this Global Fund project focuses on retaining and strengthening the health sector workforce, including community health workers, and on building the capacity of health providers, including at the community level. The main activities of this intervention are to cover the costs of recruitment, installation, training, remuneration, supervision, kit equipment and post-training follow-up of 3088 new community health workers in 113 villages in order to expand and intensify integrated community health services in accordance with the country's strategic priorities (HIV and AIDS, tuberculosis, malaria, hepatitis, and reproductive, maternal, neonatal and child health). Thus, since the ABD zone is one of the six health zones covered by the RSHS project, some of the health sector staff strengthened by this project, which ends in 2022, will be involved in the present GCF project. However, it is necessary to reinforce them on the diseases covered by the current project and their link with CC.

The capacity building proposed in the proposed project takes into account different aspects than those of the Global Fund project and will be focused on CVD, ARI and the fight against malaria vector breeding sites planned in components 2, 3 and 4. In addition, the various activities planned in the Global Fund project do not integrate the CC and Health dimension. There is a complementarity between the proposed project and the Global Fund project and therefore there is no duplication. The funding proposal will further develop the complementarity.

The project is aligned with national priorities and national strategies, programs and plans included in strategy documents such as the National Development Plan (*Plan National de Développement*, PND), the National Health Policy (*Politique Nationale de la Santé*, PNS), the National Health Development Plan (*Plan National de Développement Sanitaire*, PNDS), the National Adaptation Action Plan (NAPA), the Nationally Determined Contribution (NDC) and the Third National Communication (TNC). In fact, the government of Benin has defined several main measures as priorities, including the following:

· The protection of children under the age of 5 years and pregnant women against malaria in the areas most vulnerable to CC in the NAPA through the adaptation project profile 4;

· Enhancing the health information and research system in the NDC and the strategic orientation (SO) 5 of the NAPA;

· Improving the quality of services and the operation of the EWS as well as the implementation of reform strategies to upgrade the training of health workers in accordance with the NDC and SOs 2 and 5 of the PNS;

· The development of an integrated communicable disease surveillance and response system, the strengthening of the health information and research system, the implementation of a new plan to upgrade the training of health personnel and the improvement of health services and products in the TNC through options 1, 2, 4 and 5.

It should be added that Benin's health system faces several types of challenges that are exacerbated by CC. An assessment of the national health situation in the frame of the PNDS 2009-2018 and the Technical Commission for

Health Sector Reforms (*Commission Technique des Réformes du Secteur de la Santé*, CTRSS) revealed strengths but also weak points of several levels and major challenges in the health system.

The situational analysis of national strategy documents and vulnerability assessments along with the consultation of key stakeholders result in the following main constraints:

Shortcomings of current Early Warning System

To better understand the shortcomings of the existing national Early Warning System (EWS), it is important to describe it before highlighting its shortcomings.

· Description of the existing national EWS

The existing national EWS aims to (i) strengthen the capacities of hydrometeorological services and national institutions to better monitor extreme weather conditions, and (ii) make the best use of the information from this monitoring to set up an early warning and seasonal forecasting system that supports development plans. Regarding its operationalization, the system is largely integrated in the structures with the best skills for data collection and analysis and therefore closer to the institutions, including the General Directorate for Water, Météo-Benin, etc. However, this alert system remains simplified, not automated, and leaves much room for human interpretation. As a result, the coastal erosion bulletin that is issued is qualitative and the flood bulletins are produced using a simplified and manual model.

· Gaps in the existing national EWS

The existing EWS that covers the project area does not fully take into account all the stakeholders of an EWS, but only the state structures. Indeed, the community-based EWS approach has not been taken into account (no community involvement). There is still a need to integrate the support aspects of local and community institutional structures that have not really been taken into account in this existing national EWS. There is also a lack of involvement of municipalities in the current EWS. The existing national EWS suffers from a lack of synergy and communication strategy between stakeholders (weather, hydro, ocean, community). Indeed, there is neither an open access portal nor an operational platform or public-private partnership or EWS-Communities realized. The only risk taken into account by the EWS at the moment is the flood risk; if the modeling of this risk remains for the moment very simplified, it is also manual (not automated) and not linked to the data servers, which limits its added value (manual entry of data from the servers). The data are stored but their analysis and processing is very weak or derisory, this remains a major weakness of the current EWS. In addition, the existing national EWS does not integrate health aspects into data collection and alert transmission to communities.Also, the lack of community involvement, lack of communication strategies and obsolete equipment are some of the major shortcomings of the current Early Warning System (EWS) that covers the project area. In addition, the lack of a climate and health risk monitoring centre, the incapacity to integrate climate information into disease surveillance as well as other environmental determinants of health, such as water and sanitation, nutrition and air quality, taking into account the shifting effect of socio-economic conditions is also a major weaknesses of the current EWS in the project area. Furthermore, the current EWS is not automated and only considers the risk of flooding through a simple manual data processing model. These shortcomings of the current EWS does not allow to inform the health system and the population in real time about the upsurge of climate-sensitive diseases. In the event of climatic shocks (flood, heat wave, drought), this failure of the current EWS can negatively affect the livelihoods of the populations in the ABD zone and weaken their ability to fully recover, making them even more vulnerable. Thus, the vulnerability of the intervention zone may be aggravated by the combined effects of socio-economic factors such as extreme poverty, rising insecurity and the migration of the population from this zone to neighboring municipalities. The current

health EWS will be further analyzed as part of a pre-feasibility study during the preparation of the funding proposal.

The project does not aim to fill all gaps in the existing EWS but to use the existing EWS and strengthen it with the health and CC dimension in the project intervention area. The activities proposed by the project to achieve this objective are proposed in component 1

· **Constraints related to the resilience of health care products**

The rate of use of health services is low (34%). This weakness becomes even more pronounced when compared with the relatively satisfactory first-level health infrastructure coverage rate of 80%. This low utilization of health services is due, among other things, to the quality of health care in some health centers, financial accessibility by the population, to floods which seriously affect the physical accessibility of these centres, the inadequacy of traditional awareness raising activities, as well as cultural reasons, particularly the use of traditional medicine, which is also faced with the disappearance of many medicinal plants, and poor collaboration with physicians for a common understanding of diagnoses. . In addition, the situation of human resources in the health sector in the project area is more characterised by its qualitative and quantitative insufficiency. Indeed, this qualitative insufficiency is reflected in the lack of capacity of health personnel, community relays and communal focal points in the ABD zone to deal with the impacts of CC on the health system and the absence of a training programme dedicated to CC, including response or coping strategies. The increase in climate-sensitive diseases in the context of extreme weather events is leading to a quantitative and qualitative increase in the need for planning and trained health personnel, community relays and communal focal points including specialists on climate change health issues[i]. During extreme weather events, health and social services in the project area will be increasingly affected by climate change-related weather events, including increased hospital admissions and visits to various health professionals, including emergency rooms. The actions proposed by the project to address these shortcomings are presented in components 2, 3 and 4. [i] WHO (2016). Cadre opérationnel pour renforcer la résilience des systèmes de santé face au changement climatique, 60p.

· **Constraints related to the capacities of health personnel**

The status-quo of the health sector in Benin with regard to human resources is characterized more by its unequal geographical distribution in the country than by its qualitative and quantitative inadequacy. Indeed, this qualitative inadequacy is reflected in the lack of capacity of health personnel in the ABD zone to deal with the repercussions of CCs on the health system and the absence of a training program dedicated to CC, including response or riposte strategies. The upsurge of climate-sensitive diseases in the context of extreme weather events demands for planning and a quantitative and qualitative increase of trained health personnel, particularly specialists in health issues related to CC[xxx].

· **Constraints related to health infrastructure and technology**

In the project area, the coverage of health facilities is average (56%)[xxxi]. Unfortunately, these health infrastructures are vulnerable to extreme weather events such as floods and temperature increases that are prevalent in the area. Another deficiency is the high proportion of health structures that do not meet the norms and standards for resilient equipment and the program for architecture adapted to CC. In addition, there is poor planning for the acquisition, construction and maintenance of health infrastructure and equipment to cope with climate change. A strategy of better organization of equipment maintenance is being implemented by AISEM. However, current technologies are not compatible with extreme weather events. Indeed, during disaster situations such as flooding , some health facilities are completely isolated due to the systematic cutting of the electricity network and others have difficulty receiving health care items and hosting patients. Also, during periods of excessive heat, the electricity grid is overloaded as it is called upon to provide enough energy to meet the demands of residential and

commercial ventilation and air conditioning. As a result, constant power outages occur. The lack of technologies for drinking water supply and wastewater treatment in some health centers can impact the health of populations in the event of extreme events. Strengthening the electricity network through renewable energy[xxxii], transportation through solar-powered motorboats and water supply and wastewater treatment technologies is necessary to ensure a safe health care for vulnerable populations. The actions proposed to overcome these constraints are contained in components 3 and 4.

· **Constraints related to the financing of the health system against CC**

Scheduleds actions in the planning documents (PNDS, PNS) for response to climate emergencies in the health sector are not implemented most of the time. The national financial resources are limited and cannot cover the additional cost generated by the health situations induced by climatic disasters. National financial resources are mainly oriented to meet the current high demand to finance curative interventions. The additional cost induced by the impact of CC should be sought elsewhere, in particular from the GCF.

B.2. Project / Programme description (1500 words)

Component 1: Strengthen the existing Early Warning System by integrating CC and health aspects in the ABD zone

The strengthening of such a system will make the existing EWS in the ABD zone effective, address new health risks related to climate change and increase the resilience of the populations. The establishment of the local community-based EWS integrating health aspects in the area will make it possible to warn the population and the health system about future climate risks and to take appropriate measures to deal with the health risks (increase in the incidence of malaria, CVD and ARI) that could be caused by these CC-related risks in order to increase the resilience of the population and the health system

Output 1.1: A local EWS for climate-sensitive diseases is functional

Activity 1.1.1: Set up a local community-based EWS that integrates health aspects into data collection and alerting of communities.

This activity involves developing multi-criteria numerical warning models to substantially refine the forecasting of extreme weather events and diseases in the ABD area, and subsequently applying/using these models to improve the forecasts in the warning bulletins

Activity 1.1.2: Develop a communication strategy and train health professionals, communities and actors associated with the new EWS, including practical simulation exercises

Output 1.2: A climate risk and health monitoring center is functional

Activity 1.2.1: Set up and make functional a health and climate risk monitoring center at the zone hospital

Activity 1.2.2: Train the staff in charge of the monitoring center

In order to appreciate how the proposed local EWS builds on the existing national EWS, the new local EWS proposal and the required equipment are presented below.

· New local EWS proposal

There is no local EWS. But the project area is part of the areas covered by the existing national EWS. The project does not aim to fill all the gaps in the existing EWS but to use the existing EWS and strengthen it with the health and CC dimension in the project area. Therefore, it will be a matter of setting up a health and community EWS for the ABD region. The local EWS proposed integrates health aspects into data collection and alert transmission to communities. Given the poor quality of the current national EWS forecasts, the proposed EWS will develop multi-criteria numerical warning models to substantially refine the forecasting of extreme events and diseases in the ABD area, and therefore propose warning bulletins with more refined forecasts. It is intended to be a community-based EWS capable of providing information that is both relevant and adapted to the beneficiaries and adaptable to the different risks present in the area. The communities will therefore be well trained to better know the warning signals and messages. A good communication strategy will be proposed to inform the community in real time. This local EWS can be used for the installation of other EWS at local or national level.

· Equipment requirements

Without being exhaustive, the equipment requirements are the following: a server capable of generating climatic information and bulletins in an automated way, an automatic station (modern hydrological equipment with automatic recording, remote data transmission..., rain gauge with remote transmission), multi-parameter analyzer (O3, NO2, CO, SO2, suspended particles, volatile pollutants) for air quality analysis.

The pre-feasibility study will give more details on the local EWS to be implemented.

Component 2: Enhance the capacities of the staff of the health centers in the ABD zone to ensure the resilience of population health to climate risks

The aim of this component is to enhance the capacity of health personnel community relays and communal focal points to better manage health emergencies during extreme weather events in the region. In order to better face these health risks that could be exacerbated by CC, it is important that health personnel and technical agents be trained on the CC - Health concept and particularly on the impact of CC on malaria, CVD and ARI, and on managing emergency situations during extreme events. Indeed, it is important to train staff on what will change in the management of these climate-sensitive diseases in a CC context. For this, it is necessary to strengthen their capacity. Indeed, during extreme weather events, the number of staff available in health centers is not sufficient to manage the flow of patients. Observations made in the registers of the health centers in the zone during floods and periods of heavy rain have shown a high rate of consultation of the population during these periods. Moreover, the lack of preparation of the staff of these centers for the management of these emergencies could lead to the saturation of health centers; the available health infrastructure will be insufficient for the hospitalization and diagnosis of patients who will flock to the centers, health staff and technical agents will be overwhelmed by work and the consequence of all this could lead to an increase in mortality related to these climate-sensitive diseases.

Output 2.1: Health personnel in the zone are trained and the health centers are resilient to the impacts of CC.

Activity 2.1.1: Design a didactic training program for health personnel (at the departmental and health center levels), community relays and communal focal points in the ABD zone on the links between CC and human health and the best approaches to diagnosis and treatment of CVD and ARI during extreme climate events.

The objective of this activity is to develop a manual to strengthen the capacity of staff on the CC-health concept and to prepare them to better deal with the effects of CC on the health system. The aim is to strengthen the

available documentation and to publish training manuals for health personnel, community relays and communal focal points. These manuals will be used to train health personnel, community relays and communal focal points on climate change and public health issues through clearly established training programs as described in Activity 2.1.3.

Activity 2.1.2: Develop standard operating protocols (SOPs) for health personnel, community relays and communal focal points for the planning or management of CC-health emergencies

The objective of this activity is to develop SOPs for the various actors involved in CC-Health emergencies to better deal with the effects of CC on the health system. These SOPs will allow for the training of these actors through clearly established training programs according to Activity 2.1.3

Activity 2.1.3: Implement the capacity building program designed under activity 2.1.1 and 2.1.2 for health staff,community relays and communal focal points.

This activity is proposed to implement the programs developed to improve the technical capacities of specialized agents and other identified actors in the management of cases of CVD and ARI caused by climatic hazards. Indeed, during periods of extreme weather events, the incidence of these diseases could increase among the population. If health personnel, community relays and communal focal points are not prepared to better manage these diseases during emergency periods, the mortality rate related to these diseases could increase in the population. This activity is related to activity 3.1.4 on the acquisition of equipment for better management of CVD and ARI. The funding proposal will further clarify the equipment to be acquired in this activity, based on the results of the pre-feasibility study.

Activity 2.1..4: Capitalise on the knowledge generated by the project and disseminate it both on a national level and to other health zones vulnerable to CC through the training of trainers, the organization of peer-to-peer exchange sessions, and the sharing of knowledge tools (e.g. workshops, digital CC-Health knowledge platforms, study days, etc.)

To this end, exchange sessions will be held with health facilities in other vulnerable areas of the country to share experiences. Peer exchange sessions, training of trainers, knowledge sharing and improvement tools (training, knowledge hub, CC-Health digital knowledge platform, study days, strengthening the project's extension and replication potential, etc.) will be the activities to be carried out.

Component 3: Supply health centers in the ABD zone with climate-resilient and sustainable technologies and infrastructure

This component aims to strengthen the health centers in the project area in terms of access to water and renewable energy to improve health interventions in a CC context.

It has been proposed to improve diagnosis and proper management of patients during extreme weather events. This component will help strengthen the capacity of health centers to provide good care to vulnerable populations and to diagnose these diseases (CVD and ARI), which could be exacerbated by CC. Indeed, during extreme weather events such as floods, we systematically observe a power cut in health centers, difficulties in some centers in the project area to receive patients and health products as well as drinking water supply. This is why it is important to ensure that the health centers in the project area are self-sufficient in sustainable and resilient equipment and technologies.

Output 3.1: Infrastructure and technologies to increase the resilience of health centers to CC are provided and functional

Activity 3.1.1: Ensure self-sufficiency in the supply of drinking water to health centers from solar-powered water pumps

Activity 3.1.2: Ensure the electricity self-sufficiency of health centers by installing and operating photovoltaic (PV) solar panels

Activity 3.1.3: Establish a sustainable and CC-resilient system for wastewater management in health centers

Activity 3.1.4: Supply the central hospital and the municipality health centers with biomedicalequipment for better care management of CVD and ARI in a CC context

The biomedical equipment in question are: digital electrocardiogram, aspirator, digital blood pressure monitors, saturometer, nebulizer, portable hemoglobinometer, glucometer, oxygen tank + humidifier + mask + goggles, doppler, biochemistry automaton, ion analyzer, incubator, autoclave, respirator, ultrasound machines, X-ray machine.

Activity 3.1.5: Supply the ABD health zone with means of transport, in particular with solar-powered motorized boats to facilitate the transport of health products and patients to health centers in the event of flooding

The implementation of this component will make it possible to limit the impacts of climatic hazards on the ABD zone. Indeed, the project proposes to empower these health centers with renewable energy in order to ensure continuous services and to manage the flow of patients during these high-risk periods. Indeed, the resilience of the health centers will be strengthened with the installation of renewable energy as there will be a permanent supply of electricity in case of extreme weather events. In addition, the need for permanent electrical energy is necessary to power the new version of the EWS that will be installed. Moreover, regarding the physical accessibility of health centers during floods, the populations can no longer move to these health centers. The measure would be to make specific buildings not subject to flooding and to propose adapted means of transport (solar boats) to facilitate the movement of health products and access to these centers for the population for proper care.

Similarly, not all health centers have the necessary diagnostic and treatment equipment for CVD and ARI. Their acquisition will help reduce the rate of induced mortality, which is exacerbated during periods of high temperature and heavy rains. Indeed, during these periods, the number of registered patients increases considerably and the centers are overwhelmed due to the limited number of care staff and materials that must be used to administer its care. To this end, the public service is already strengthening the staff of these health centers. But it is necessary to acquire rapid diagnostic equipment to be sure to examine many patients in record time, and to train health workers in the effective use of these tools. Moreover, the availability of this equipment constitutes a means of prevention favorable to an early diagnosis of these diseases for a better management of the patients. According to WHO and the Agency for Health Infrastructure, Equipment and Maintenance (AISEM), the equipment to be acquired is available and accessible.

Component 4: Provide populations especially vulnerable to CC in the ABD zone (pregnant women, elderly, disabled, children) with technical and logistical means to meet the new health challenges

This component aims to implement activities benefit to all social groups, especially those vulnerable to CC, in order to strengthen their resilience to health challenges in cases of climate emergencies.This component will provide communities vulnerable to CC with the means to prevent and protect their health during CC-related emergencies such as floods or heat waves

Output 4.1: Vulnerable groups are empowered to minimize the effects of CC-related health risks

Activity 4.1.1: Develop and implement a community-based communication and sensitization plan on health and CC

Activity 4.1.2: Promote the construction of airy housing adapted to CC at the level of health facilities and households (construction of one model per municipality, sensitization of the population)

Activity 4.1.3: Build water channels to divert stagnant water during floods to retention basins in order to significantly reduce mosquito breeding sites

Activity 4.1.4: Develop market gardening activities for the valorization of stagnant water in the basins and improve the income of vulnerable populations

Activity 4.1.5: Establish and strengthen community plantations to ensure an adequate supply of traditional medicines

The strengthening of these community plantations will allow better management of patients suffering from cardiovascular diseases and ARIs diagnosed in 2.1.2. In addition, these plantations will also allow for the ventilation of households to limit the risks related to these diseases.

The pre-feasibility study currently underway will detail and prioritize the airy housing options. Replication of the airy housing model will be possible for the community. Indeed, this component will provide training to artisans in the project area on the construction of airy housing. The model that will be proposed will take into account the socio-cultural realities of the communities (model on stilts and model on plateau), their purchasing power and the local materials available for its adoption in order to protect their health. The construction standards of airy housing thus retained will be published in official documents and manuals for appropriation by the public authorities. Thus, the municipalities which will be involved in this activity will be able to set up provisions to allow the population to appropriate these models. Better still, hospitals, schools, municipality buildings, social centers and others that will be built in the future will take into account these housing models. The population will be sufficiently sensitized for the adoption of these housing models.

The project has planned to solve the problems of physical inaccessibility of the health centers in the area through Information, Education and Communication (IEC) sessions for behavior change and income-generating activities for vulnerable groups. These actions are proposed through activities 4.1.1 and 4.1.4 of this component.

Similar activities for the prevention and control of vector-borne diseases such as malaria, and cardiovascular and respiratory diseases are implemented by other projects. However, these do not consider and operate in the CC-context:

The proposed project is the first of its kind that focuses on diseases that can be aggravated by CC and the negative effects of CC in the health sector in general in Benin. It envisages a new communication, sensitization and plea strategy based on the development and implementation of internal and external communication plans to raise awareness on health and CC issues. Furthermore, response options targeting key audiences such as health professionals and decision makers, community leaders, communities, media and other sectors at the local level are developed. The challenge of CC requires a broader perspective, including more climate resilient interventions in both health care and health determinant sectors, ranging from renewable energy in health facilities to climate resilient water and sanitation systems. This requires a particular focus on the use of innovative technologies. The financial resources requested from the GCF will be used to finance preventive intersectoral approaches, emergency preparedness and emergency management in relation to the health consequences of extreme weather events.

Considering that the fundamental causes of climate-sensitive diseases are a priori identical, the practices developed within the framework of this project can be extended nationwide and to sub regions with similar climatic conditions. In addition, the capacity enhancement program planned under Component 2 will benefit

recipients beyond those in the ABD health zone (for example, instructors within the Ministry of Health at the central level to duplicate trainings nationwide or in other sub regions).

Key risks and mitigation measures

Risk related to a lack of expertise

The innovative approach of this project may need high standard expertise during implementation. Also, implementing the project at community level may be time-consuming due to weak participation of the beneficiaries. Proposed mitigation measures will rely on regional and international expertise and information, as well as Information, Education and Communication (IEC)- activities planned in the project. Furthermore, the benefiting communities have been involved during the preparation of the project concept and will be more so as the project will be further developed.

Socio-cultural and economic risk

Weak use of health-care facilities, especially for financial reasons of the population, is also a risk for the achievement of project objectives. The level of community participation is also one of the conditions for success of project actions. Awareness-raising actions undertaken within the project as well as the delivery of these services by community members themselves mitigate this risk of low utilization of community-based health services. Traditional medicine will be integrated.

The institutional framework for the project has the following structures: the steering committee, the project management unit and executing entities.

The Steering Committee (SC), a decision-making body, will be made up of representatives of the following entities: GRAFED Consortium[1], FNEC, *Ministère du Cadre de Vie et du Développement Durable* (Ministry of Living Environment and Sustainable Development, MCVDD), National Designated Authority (NDA), *Direction Nationale de la Santé Publique* (National Directorate for Public Health, DNSP) and Agency of Sanitary Infrastructures, Equipment and Maintenance (*Agence des Infrastructures Sanitaires, des Equipements et de la Maintenance*, AISEM) of the Ministry of Health, World Health Organization (WHO), *Ministère des Finances* (Ministry of Finance), *Ministère du Plan et du Développement* (Ministry of Plan and Development), *Ministère des Travaux Publiques* (Ministry of Civil Engineering), *Direction des Energies Nouvelles et Renouvables* (Directorate for New and Renewable Energies, DENR), Universities, beneficiary municipalities and *Association Nationale des Communes du Bénin* (National Association of Municipalities of Benin, ANCB).

The Project Management Unit (PMU) is composed of a multidisciplinary team led by a coordinator. It ensures the daily management of the project.

Executing Entities consist of the GRAFED Consortium and the Ministry of Health through DNSP and AISEM.

All aspects of the project affecting the communities and access to the health service will be managed by the GRAFED Consortium. DNSP will be responsible for the capacity building of human resources for health in the ABD zone and the sustainability of the project's achievements in close collaboration with the local communities. AISEM will be in charge of strengthening the technical platform and all aspects related to maintenance. The private

sector will be mobilised in the various activities of the project, particularly in relation to the procurement and installation of new equipment.

The beneficiaries of the project are the municipalities, the Directorate of Research, Training and Traditional Medicine (*Direction de la Recherche, de la Formation et de la Médecine Traditionnelle*, DRFMT), Météo Bénin, the General Directorate of Water (*Direction Générale de l'Eau*, DG Eau), the National Agency for Civil Protection (*Agence Nationale de la Protection Civile*, ANPC), the Beninese Agency for Rural Electrification and Energy Management (*Agence Béninoise d'Electrification Rurale et de la Maîtrise d'Energie*, ABERME), the General Directorate of Housing and Construction (*Direction Générale de l'Habitat et de la Construction*, DGHC) and the structures of the ABD health zone.

The FNEC, Accredited Entity, will establish an agreement with the Executing Entities. FNEC will be responsible for the supervision and monitoring of the project implementation.

B.3.Expected performance against the GCF investment criteria (1000 words)[2]

Impact potential

This project addresses three strategic impact areas of adaptation with co-benefits in one GCF result area for mitigation. The implementation of this project will enable institutions and beneficiaries in the project area to conduct weather, climate and climate-sensitive disease surveillance to best respond to extreme weather conditions and plan adaptation to CC. The achievements of most of the results will impact the health system at the national level by taking CC into account in future strategies. The various calculation models developed and consolidated will be easily transferable to other regions of the country and beyond.

· Outputs 1.1, 2.1 and 3.1 will benefit indirectly to the entire population of the project area, of which the most vulnerable that count for about three quarters of the population (children, pregnant women, disabled, the elderly) will benefit disproportionately.

· Output 4.1 will benefit directly to the population of the intervention area, i.e. 109,807 people, of which the most vulnerable that count for about three quarters of the population (children, pregnant women, disabled, elderly) will benefit disproportionately. As for the project activities carried out at the local level, they are ready to be scaled up to the entire country, as the lessons learned can and will be used in other sub regions.

· Activities 3.1.1. and 3.1.2.: The reduction in CO2 emissions (co-benefit) that will be generated during the project and its life span will be calculated as part of a project-specific pre-feasibility study, which will be developed as part of the preparation of the funding proposal.

Paradigm shift potential

· The project aims to remove barriers and constraints to transformative change and to enhance resilience to CC, including insufficient capacity of health care experts, the current inability to alert and protect vulnerable populations, and the current low capacity to diagnose and treat patients suffering from climate-sensitive diseases. Furthermore, the inadequacy of current technologies and infrastructure for extreme weather events, the low capacity of health care with high demand in case of extreme weather events, the population's access to health facilities during climatic events and the low availability of current financial resources to respond effectively to

[2] For more information please refer to Annex XIV of document GCF/B.07/11

health situations induced by climate-related disasters will be addressed (see Theory of Change of the project attached as Annex 3).

· By proposing a set of favorable outputs and activities at the local level, combined with concrete activities that are directly beneficial to the population and patients in the targeted intervention zone, the project encourages a paradigm shift in the medium and long term and creates the framework conditions for replication and/or extension of project results beyond the intervention zone. The various documents and manuals developed as a result of this project will be appropriated by the government and will serve to significantly strengthen the CC and health strategy in the country. The lessons learned will be systematically capitalized and will be integrated into the country's health policy in order to spur a real paradigm shift in this sector.

· By implementing a comprehensive approach at the local level (project area), including not only better health care services and capacities, but also technological improvements and infrastructure directly beneficial to the population, the project aims to significantly increase the number of people using health services. This system, therefore, allows for sustainability, impact beyond a one-time investment and long-term change;

· The capacity building activities that will be designed and implemented under Component 2 of the project, including the training of health personnel and the exchange and sharing of experiences on the project's achievements among health facilities in other vulnerable areas of the country, which will be carried out by national executing entities, will be able to generate new knowledge that will be disseminated to other regions of the country. Indeed, the various documents and manuals developed under component 2 will be sharing at differents actors (other centers, local actors) at the national level. With regard to the EWS that will be implemented in the project area, its user base can be expanded and extended to adjacent areas and beyond.

Indeed, the various documents and manuals developed under component 2 will be sharing at different actors (other centers, local actors) at the national level.

The operational capacity building activities planned in this project aims to generate expertise that will be disseminated nationwid.

Sustainable development potential

· The project contributes to the fight against poverty and helps implement the Poverty Reduction Strategy Paper (PRSP) by increasing the affordability of and access to and improving the quality of the health system, especially in rural areas.

· Long-term positive effects on human capacities through the systematic training of health experts, associated with gender co-benefits, since more than 50% of health workers are women[xxxiii].

· Social benefits for women (they benefit disproportionally much from training and improved health services).

· Economic and social benefits due to decreased sick-time and less live-years lost due to climate-sensitive diseases.

· Improved, safer and cleaner electricity supply in health centers.

· Enhanced social inclusion of most vulnerable groups (elderly, disabled, children, pregnant women).

Needs of the recipient

· The health sector in Benin, already underfunded and insufficiently developed, is likely to deteriorate further with the exacerbation of CC phenomena. Health impacts of CC need to be better understood and capacities to diagnose and treat diseases urgently needs to be strengthened. Many patients cannot afford medication or even a visit to a doctor or health expert (which is especially true for the most vulnerable segments of society: children, pregnant women, sick people and the elderly). CC is expected to worsen all these negative trends and intensify the needs of the population, especially in rural areas and among the poor. The interventions proposed in this project will not only improve the health care services and capacities of communities in the event of extreme weather events, but also improve technologies and infrastructure that directly benefit the population. The project will significantly increase the use of health services by beneficiaries.

· Lack of budgetary funds, especially in rural areas, is the main obstacle to access domestic public funding for such a project. Barriers to accessing private funding include the fact that the majority of patients cannot afford health costs healthcare priced at cost-covering or profitability levels. A key barrier to accessing international sources of finance (other than GCF) is that other international sources cannot provide the necessary financing to meet the needs induced by CC

Country ownership

· The proposed project is fully aligned with Benin's National Development Plan (PND), the National Health Policy (PNS), the National Health Development Plan (PNDS) and the National Action Plan for Adaptation (NAPA). Benin's NDC highlights the need to “train all stakeholders of the medical pyramid with regards to climate change and its impacts on health”, and, to “develop an information and monitoring system on the impact of climate change on health”. As for Benin's TNC, it clearly states to "develop an integrated communicable disease surveillance and response system", to "strengthen the health information and research system", to "put in place reforming strategies for the upgrading of health worker training" and to "improve health services and products". With regard to the PNS following its strategic orientations 2 and 5, it refers to "strengthening the health information and research system" and "improving the quality of services and the functioning of the early warning system as well as the implementation of reform strategies for upgrading the training of health workers".

· Key stakeholders from the NGO consortium GRAFED drafted the present Concept Note in close cooperation with the Ministry of Health, the proposed DAE (FNEC), the *Direction Générale de l'Environnement et du Climat* (DGEC) as a representative of the NDA office and health researchers from universities in Benin. The drafting process supported by GIZ also benefited from a regional exchange with other project developers from Senegal and Burkina Faso.

Efficiency and effectiveness

The project applies and builds on the best practices in the health sector: for all outputs and components, the project will use methodologies and knowledge from other countries as benchmark (these will be identified during the pre-feasibility study). For specific expertise, teams composed of national experts and experienced international experts will be procured. In terms of sustainable equipment and technologies adapted to CC (e.g. development of piping activities to divert stagnant water to retention basins to reduce the number of malaria cases, aerated housing construction at the level of health structures and households adapted to CC, strengthening community plantations), good practices that have proven to be efficient will serve as a reference

B.4 Stakeholders consultation and engagement (300 words)

The development of this concept note was undertaken in collaboration with the Accredited Entity, the NDA, the Ministry of Health, health researchers from universities in Benin and NGOs member of GRAFED.

During the development of this concept note, an information workshop for key stakeholders in the health sector in the project zone (public, private and civil society) was organized in December 2018 to inform about the project development process. This was followed by a call for ideas for the identification of CC adaptation projects based on a participative effort involving local communities. Following the selection process, an interactive process involving project leaders, the Accredited Entity, the NDA, the public entities in charge of CC and the community-based organizations helped refine the selected project ideas with the support of health specialists. In this context, several consultation sessions were undertaken in the project zone with: i) representatives of the municipalities, ii) health actors and (iii) representatives of local communities to gather their expectations on identified adaptation needs. The consultation process provided valuable inputs to the concept note formulation, which involved the organization of two key workshops in February and May 2019, in Benin and Senegal respectively, with the participation of all stakeholders.

This participatory process made it possible to ensure the commitment of all key stakeholders, mainly: The Accredited Entity, the NDA, the Ministry of Health and the organizations of the civil society. The same participative approach will be continued during the development of the full Funding Proposal. In addition, consultations will be conducted at the local level - particularly with women - to ensure that the activities of the project are well aligned with the needs of local communities and contribute to the empowerment of vulnerable people through increased access to the health service.

During a validation workshop organized on November 18th,2019 in Cotonou, the concept note was validated by national and local stakeholders as well as by the National Committee on Climate Change (*Comité National sur les Changements Climatiques*, CNCC).

In addition, a meeting with heath actors of the ABD health zone was organized in May 2020 in order to enrich this new version of the Concept Note before its re-submission.

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
Component 1: Component 1: Upgrade the Early Warning System in the ABD zone	A local EWS for climate-sensitive diseases is functional	2,300,000	2,200,000	grant	public	100,000	grant	Ministry of Health and FNEC

Component 2: Enhance the capacities of the staff of the health centers in the ABD zone on the resilience of the health system against CC	Health personnel in the zone are trained and qualified to deal with the impact of CCs on health services	800,000	700,000	grant	public	100,000	grant	Ministry of Health and FNEC
Component 3: Supply health centers in the ABD zone with climate-resilient and sustainable technologies and infrastructure	Infrastructure and technologies to increase the resilience of health centers to CC are provided and functional	4,350,000	4,225,000	grant	public	125,000	grant	Ministry of Health and FNEC
Component 4: Provide populations especially vulnerable to CC in the ABD zone (pregnant women, elderly, disabled, children)	Vulnerable groups are empowered to minimize the effects of CC-related health risks	1,600,500	1,475,500	grant	public	125,000	grant	Ministry of Health and FNEC

with technical and logistical means to meet the new health challenges								
Indicative total cost (USD)		9,050,500	8,600,500		450,000			

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

C.2. Justification of GCF Funding Request (500 words)

The analysis of economic performance in Benin reveals an average economic growth of 5.5% in 2018[xxxiv] against a population growth of 3.5% per year and a poverty rate of 40.2%. The country falls into the category of nations with low development, with a Human Development Index (HDI) of 0.515 in 2018, ranking Benin 163rd out of 189 countries [xxxv] with a growth rate of the GDP of 6%[xxxvi]. The impact of CC on the agricultural sector (development base) is increasingly damaging the country's economy, increasing poverty and consequently lowering the level of access to health care.

The level of funding of the health sector from 2009 to 2017 is far from meeting the requirements of the Abuja Declaration which recommends an allocation of at least 15% of the General Budget of the State, and is characterized by a permanent decline ranging from 9% in 2009 to 5.53% in 2017. An analysis of the national health accounts reveals that households' share of current health expenditure increased from 42% in 2012 to 52% in 2015 while the State contribution decreased from 24% in 2012 to 20% in 2015 and that of Technical and Financial Partners from 29% in 2012 to 20%in 2015[xxxvii]. This shows the inadequacy of the financial resources devoted to the health sector and the need to use GCF funding to address the CC-related health challenges.

Since 1988, Benin has adopted the cost recovery system under the Bamako Initiative and the financing of the health sector. Thus, the tariffs practiced in public health-care centers are not suitable for the poor, especially in rural areas. This project aims to overcome this state of affairs by improving the equipment of health-care centers and increasing the accessibility of the poor to the health-care service in a CC context. Moreover, the current interventions used in the fight against malaria in Benin (long-lasting impregnated mosquito nets, intra-domiciliary spraying) showed their limits because these measures do not imply national planning that takes into account the negative impacts of CC on the health sector (no significant decrease in incidences). It is therefore important to shift to a more sustainable approach to improve the health of vulnerable populations. This improvement in the health conditions of the poor will increase productivity in the zone of intervention and participate in the improvement of the local economy.

The project activities will not have environmental and social impacts but will help strengthen the natural capital of the area. They focus more on women, children, the elderly and the disabled, who are often the most vulnerable to CC impacts on health. The flagship actions of this project, which are the strengthening of the early warning system, the improvement of the equipment of health-care centers and the capacities of health-care human resources as well as the taking into account of the health situations of vulnerable groups, are all measures which are aligned with the priorities defined in the NDC, the PNDS and the NAPA.

[xxxiv] PNUD (2018) : Indice de Développement Humain, Bénin.

[xxxv] PNUD (2018) : Indice de Développement Humain, Bénin.

(xxxvi) UNDP (2018), Indices et indicateurs de développement humain. Mise à jour statistique 2018, 123 p.

[xxxvii] Ministère de la Santé de la Republique du Bénin (2018), Plan national de développement sanitaire 2018-2022, 86 p.

C.3. Exit Strategy and Sustainability (500 words)

The concerns of all key stakeholders and partners in the health sector have been taken into account in the design and formulation of the project. Measures are also planned to ensure their participation in project implementation through community meetings, management committees, NGOs and the steering committee. The participation of the different stakeholders favors their ownership of the project and thus strengthens the sustainability of the project. The investments that will be made in capacity building of human resources will contribute to the qualitative improvement of the medical staff and will thus have a positive impact on the quality of health services. The equipment acquired for the project will be used for several years due to better maintenance provided by the management committees. Indeed, the sustainability of the project will be ensured by the main actors such as the communities, the municipalities, the Ministry of Health (AISEM), ABERME, etc. The equipment and infrastructure that will be acquired will become part of the State's assets and will be taken care of by its various structures. All these actors are taken into account in the lifetime and achievements of the project. They will thus contribute for a long time to the improvement of the health of the population. A financial exit strategy for all these facilities and infrastructure will be developed during the formulation of the funding proposal. In addition, community and private sector participation in the implementation of activities will contribute to the ownership of project achievements by the population and ensure its sustainability. In fact, in activity 4.1.4, the vulnerable populations who will carry out market gardening activities are formed into groups. These groups will be strengthened to save their income. Thus, partnerships with microfinance structures in the project area will be strengthened to facilitate loans to these groups in order to further develop their activities and make them sustainable. In addition, regarding airy housing, the communities are used to building in the project area. These airy buildings will now be the standard for their construction. These buildings will not be expensive and will just improve what is already being done by the populations in the area. Sensitization will be done at their level during the implementation of the project for an appropriation of the different models proposed by the community. In addition, to ensure the sustainability of the technologies that will be made available to the health centers, measures have been taken at the level of these health centers, the municipalities of the health zone and the state structures involved in the project through the integration of budgetary lines in their budgets to ensure the maintenance and upkeep of these technologies after the project.

Improving the use of health services through the care system for indigents will have a positive impact on the general state of health of the population, a factor that favors the increase in national production.

All individuals trained in various specialties, beyond improving their own skills, will be potential trainers, guaranteeing continuity in knowledge transmission and good professional practices. The new clinical diagnostic techniques promoted by the project will be generalized throughout the national territory through periodic retraining sessions and the development of training programs. The availability of climate information related to health and the planning done in the strategic documents during this project will allow for replicating project activities in the other health zones of the country

D. Annexes

☒ ESS screening check list (Annex 1)

☒ Map indicating the location of the project/programme (as applicable)

☒ Evaluation Report of previous project (as applicable)

Annex 1: Environmental and Social Screening Checklist[3]

Part A: Risk Factors

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

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

Risk Factors	YES	NO
Will the activities involve associated facilities and require further due diligence of such associated facilities?	☐	☒
The activities of the project are essentially activities of scaling up and are not requiring new facilities to be set up. No associated facilities are funded as part of the project and no cumulative impacts will be associated.		
Will the activities involve trans-boundary impacts including those that would require further due diligence and notification to affected states?	☐	☒
The proposed activities will be carried out in the project area and don't have an impact outside this area. The ABD zone does not border any country bordering Benin.		
Will the activities adversely affect working conditions and health and safety of workers or potentially employ vulnerable categories of workers including women and children?	☐	☒
The proposed activities aim to build the capacity of vulnerable groups by creating conditions that will enable them to resist the adverse effects of CC. There are no activities that may potentially generate risks to the health and safety of workers involved in the activities		
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?	☐	☒
The project activities will not generate uncontrolled nuisances. In Benin the management of different types of waste (biomedical, household solids) are managed in accordance with the regulations. Already in the health treatment rooms, the sorting system is done systematically. Some biomedical waste is decontaminated with bleach at 1.2° before incineration. These wastes are incinerated twice a week in a Monfort-type incinerator. General waste is destroyed in a 1.5 m deep pit. This management system for all types of waste will be reinforced during the implementation of the project.		
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?	☐	☒
One of the activities of Component 4 is to build water channels to set up a water drainage system to avoid stagnation of water that could serve as a breeding ground for mosquito larvae. This is a small manual gully that will not require excessive masonry work over a small distance. Also, the construction of ventilated habitats to be promoted does not require environmental impact assessment studies. In accordance with the framework law on the environment in the Republic of Benin, activities of this magnitude are not subject to environmental and social impact studies. Indeed, natural traces of water exist in the communes under consideration. It will just be necessary to reinforce them so that they naturally play the role of water flow towards the existing basins.		

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

Will the proposed activities potentially involve resettlement and dispossession, land acquisition, and economic displacement of persons and communities?	☐	☒
Project activities do not include activities that will require the displacement of populations. On the contrary, the project seeks to implement activities that strengthen the livelihoods of the populations to protect them from impacts that will exacerbate diseases at risk for the community		
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?	☐	☒
Although the ABD zone is located in a wetland area, the Ouémé valley under the influence of the Ouémé river, the largest river in Benin, the activities to be implemented will have no influence on the wetland. The natural habitats of the animals are not threatened. The activities will take place in towns, health centers and with the populations themselves.		
Will the activities affect indigenous peoples that would require further due diligence, free, prior and informed consent (FPIC) and documentation of development plans?	☐	☒
No project activities will negatively affect indigenous peoples. Rather, they are aimed at strengthening their capacity to recover from diseases exacerbated by climate change.		
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?	☐	☒
The ABD zone is not considered as an archaeological, historical, paleontological or religious cultural heritage. Moreover, the activities will be carried out rather in health centers, human settlements, etc.		

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?	☒	☐	
Has the rationale for the categorization of the project been provided in the relevant sections of the concept note?	☒	☐	
Are there any additional environmental, health and safety requirements under the national laws and regulations and relevant international treaties and agreements?	☐	☐	☒
Are the identification of risks and impacts based on recent or up-to-date information?	☒	☐	☐
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?	☐	☒	☐

No additional requirements. The project has planned activities that will not negatively affect the environment or health. The activities are not in inadequacy with the regulatory texts at national and international level.			
Will the activities pose occupational health and safety risks to workers including supply chain workers?	☐	☒	☐
The environmental assessment is based on recent activities and information in the concept note.			
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?	☐	☒	☐
The project activities are mainly capacity building actions to increase resilience, construction activities of a sample of aerated habitats in health centers and small gully digging works. These actions will be carried out by professionals who are familiar with such activities. Sensitization, training and some extension activities to enable the populations to have the adaptive capacities to resist shocks of all kinds related to climate change. And this is oriented towards the vulnerable groups identified in the description of the vulnerability studies and in the stakeholder analysis. The activities will not use child labor. With equal competence, workers from the ABD zone will be prioritized			
Will the activities utilize significant amount of natural resources including water and energy?	☐	☒	☐
Through its activities, the project seeks to strengthen the capacities of health workers in the ABD zone to increase the resilience of the health system to climate change. The project has planned a series of activities aimed at preventing staff to be at risk during busy periods in the hospital, in particular activity 2.1.3 entitled " Strengthen the technical capacities of the zone's health centers to manage and control CC-related infectious risks in accordance with the CC-health strategy ". Healthcare workers in the event of an accident at work are systematically taken care of by the health center in the ABD health zone. However, it should be emphasized that each worker has personal protective equipment to prevent accidents. In the event of an accident involving exposure to blood or any other biological liquid, there is a protocol for the care of victims			
Will there be a need to develop detailed measures to reduce pollution and promote sustainable use of resources?	☐	☒	☐
Waste generating activities will be carried out in accordance with national legislation and in line with GCF's environmental safeguard principles. Waste will be disposed of in an environmentally sound manner to avoid emissions, as the health facilities at the national level know how to do in accordance with the requirements of the Ministry of Health. These activities will not increase pollution in the health sector. Rather, the project will work on reducing such pollution. The water used in some centers is supplied by the National Water Company of Benin (SONEB). SONEB is the approved company in Benin that provides drinking water to the population. In other centers, the Village Water Supply Systems are used			
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?	☐	☒	☐
The project is a project to strengthen people's resilience to the adverse effects of climate change. The water and energy used will be managed in a rational way. That is why the project has planned a series of activities aimed at optimizing water and energy to be used in the beneficiary health centers. These are activities 3.1.1 and 3.1.2 respectively entitled “Ensure autonomy in the supply of drinking water to health centers from solar-powered water pumps” and “Ensure the electricity autonomy of			

health centers by installing and operating photovoltaic (PV) solar panels".			
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?	☐	☒	☐
The activities to be carried out during the project do not require a more detailed development of pollution reduction measures. The project has planned activities to avoid possible risks. These include, for example, activity 3.1.3 "Establish a sustainable and CC-resilient system for wastewater management in health centers".			
Will there be risks posed by the security arrangements and potential conflicts at the project site to the workers and affected community?	☐	☒	☐
The project activities aim at ensuring the safety of communities to cope with the adverse effects of climate change that exacerbate diseases.			
Land Acquisition and Involuntary Resettlement	**YES**	**NO**	**TBD**
Will the activities likely involve land adquisition and/or physical or economic displacement?	☐	☒	☐
The project activities will guarantee the well-being of the populations and reinforce their capacities against health emergencies induced by climate change.			
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?	☐	☒	☐
The project activities seek to build community's resilience to climate change. The implementation of these activities will not generate any potential conflict.			
Will the activities have potential impacts on or be dependent on ecosystem services including production of living natural resources (eg.agriculture, livestock, fisheries, forestry)?	☐	☒	☐
No project activity requires to acquire land or displacement. The sites where the activities will be implemented are targeted and known. Beneficiary populations are identified.			
Indigenous Peoples	**YES**	**NO**	**TBD**
Will the activities potentially have any indirect impacts on indigenous peoples, ethnic minorities, or vulnerable and marginalized groups?	☐	☒	☐
The proposed income-generating activities are aimed at the production of market gardening with the production of tomato, okra etc. that the populations already know. There will be no introduction of new crops prejudicial to the biodiversity of the environment.			
Cultural Heritage	**Yes**	**NO**	**TBD**
Will the activities restrict access to the cultural heritage sites and properties?	☐	☒	☐
During the floods, solar-powered motorized boats will be used to provide flooded communities with essential medicines. Also, the plants that will be used as traditional medicines will be produced by the communities themselves.			
Will there be a need to prepare a chance-find procedure in case of the discovery of cultural heritage assets?	☒	☐	☐
The activities are aimed at strengthening the adaptive capacities of vulnerable communities. Thus no distinction is made between peoples or groups.			

Stakeholder engagement and grievance	Yes	NO	TBD
Will the activities include a continuing stakeholder engagement procress and a grievance redress mechanism and integrated into the management/implementation plans?	☒	☐	☐
The project activities are mainly capacity building activities. Capacity building is emphasized in all project components to ensure that the project can continue even after the funding ends.			

Part C: Sign Off

Sign-off: BIAOU Mathieu, Vice-President of the Expert Committee in charge of Environmental, Social Monitoring and Gender Approach in FNEC