Conducting (pre)feasibility studies for adaptation projects to be submitted to the GCF in Francophone LDCs in Africa

A practical guide for practitioners

August 2021
Authors
Mahugnon Serge Djohy
Ouezzin Jean David Coulibaly
Prudence Houedegnon
Ibrahim Konaté

Contributors and reviewers
Yacouba Ouedraogo
Alexandre Yédjannavo Zounmenou
Benjamin K. Djabaré
Cocou J. Amegnaglo
Edmond Lankouandé
Corinne Kowalski

This document may be cited as:

This study is funded under the International Climate Initiative (IKI) Project for Scientific Support to National Adaptation Plan Processes in Francophone Least Developed Countries in Sub-Saharan Africa, supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) by decision of the German Parliament, and implemented by Climate Analytics and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
# Table of contents

1. INTRODUCTION .......................................................................................................................... 11
   1.1 What is the context? .................................................................................................................. 11
   1.2 What are the objectives of the guide? ....................................................................................... 11
   1.3. Who is the guide for? ............................................................................................................. 12
   1.4. How is the guide organized? ................................................................................................... 13
2. THE SCOPE OF THE PRE-FEASIBILITY STUDY ......................................................................... 13
   2.1. Why the (pre)feasibility study? ............................................................................................. 13
   2.2. Concept note vs (pre)feasibility study.................................................................................... 13
   2.3. Funding proposal vs (pre)feasibility study ............................................................................. 15
3. PRE-FEASIBILITY STUDY vs FEASIBILITY STUDY ................................................................. 16
4. METHODOLOGY OF THE (PRE)FEASIBILITY STUDY ............................................................ 17
   4.1. Drafting the terms of reference .............................................................................................. 17
   4.2. Stakeholder consultation ....................................................................................................... 17
   4.3. Data collection ...................................................................................................................... 18
   4.4. Data processing and analysis tools ...................................................................................... 19
5. CLIMATE RATIONALE (CR) ..................................................................................................... 19
   5.1 Importance of climate rationale.............................................................................................. 19
   5.2 GCF guidance for climate rationale ....................................................................................... 20
   5.3. How to develop a robust climate rationale .......................................................................... 21
      5.3.1. Key elements of the climate rationale under the GCF ...................................................... 21
      5.3.2. Guiding questions for constructing the climate rationale .............................................. 21
   5.4. Steps & Tools ....................................................................................................................... 22
      5.4.1. Literature review ............................................................................................................. 22
      5.4.2. Vulnerability and climate risks assessment .................................................................. 22
      5.4.3. Prioritization of adaptation actions ............................................................................... 22
      5.4.3.1. Cost-benefit analysis ............................................................................................... 23
      5.4.3.2. Cost-effectiveness analysis ....................................................................................... 23
      5.4.3.3. Multi-criteria analysis .............................................................................................. 24
      5.4.3.4. Adaptation Action Mapping Tool ............................................................................ 25
   5.5. Recommendations for a good climate rationale ................................................................... 25
6. EVALUATION OF THE INTERVENTION ACCORDING TO THE GREEN CLIMATE FUND INVESTMENT CRITERIA

6.1. Potential impact of the project

6.2. Potential for paradigm shift

6.3. Potential for sustainable development

6.4. Beneficiary needs

6.5. Country Ownership of the Project (COP)

6.6. Effectiveness and Efficiency of the Intervention (EEI)

7. ASSESSMENT OF (PRE)FEASIBILITY

7.1. Technical assessment

7.2. Environmental, economic and social assessment

7.3. Financing options, CAPEX and OPEX

7.4. Economic and/or financial viability

7.5. Exit strategy and sustainability

8. CRITICAL ANALYSIS OF THE PROJECT IN RELATION TO GCF FEASIBILITY ISSUES

8.1. Relevance of the intervention

8.2. Feasibility of the intervention

8.3. Prerequisites

8.4. Sustainability of the intervention

8.5. Stakeholder consultation and engagement

8.6. Crosscutting issues

9. STRUCTURE OF THE PRE-FEASIBILITY STUDY REPORT

10. MAIN LESSONS LEARNED FROM THE PAS-PNA PROJECT STUDIES

11. FINAL CONSIDERATIONS

12. BIBLIOGRAPHICAL REFERENCES
List of tables
Table 1: Difference between Funding proposal and (pre)feasibility study ................................................................. 15
Table 2: Main differences between feasibility and pre-feasibility studies ................................................................. 16
Table 3: Climate relevance of SLM/FB project actions ................................................................................................... 38
Table 4: Elements of the (pre)feasibility study report ................................................................................................. 41

List of figures
Figure 1: Relative sea level rise from altimetry data ............................................................................................... 25
Figure 2: Summary of future vulnerability scenarios (2035 & 2050) ...................................................................... 26
Figure 3: Problem tree ............................................................................................................................................. 27
Figure 4: Project Potential Impact Justification Framework ..................................................................................... 28
Figure 5: Framework for justifying the potential for paradigm shift ...................................................................... 29
Figure 6: Rationale of the project’s sustainable development potential .................................................................. 30
Figure 7: Rationale for Addressing Beneficiary Needs .......................................................................................... 31
Figure 8: Rationale for national ownership ........................................................................................................... 32
Figure 9: Rationale for Efficiency and Effectiveness of the Intervention ................................................................. 33
Figure 10: Evolution of the project’s economic profitability ratios .......................................................................... 36
Figure 11: A Proposed Phased Approach to CN and FP Development .................................................................... 44

List of boxes
Box 1: Stakeholder consultation in Burkina Faso ...................................................................................................... 17
Box 2: Stakeholder Consultation in Benin ................................................................................................................ 18
Box 3: Data collection in Burkina Faso .................................................................................................................... 18
Box 4: Data collection in Benin ................................................................................................................................ 19
Box 5: Data collection in Senegal ............................................................................................................................ 19
Box 6: Climate justification for Benin health project ............................................................................................ 20
Box 7 : Criteria to prioritize adaptation options.................................................................................................... Error! Bookmark not defined.
Box 8: Exit Strategy Recommendation and Sustainability of the Senegal Project .................................................. 37
Box 9: Sustainability of the health project in Benin .............................................................................................. 39
Box 10: Stakeholder Engagement in Benin ............................................................................................................ 40
### List of acronyms and abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>Accredited Body</td>
</tr>
<tr>
<td>ANP</td>
<td>Additional Net Profits</td>
</tr>
<tr>
<td>CA</td>
<td>Climate Analytics</td>
</tr>
<tr>
<td>CBA</td>
<td>Cost-benefit analysis</td>
</tr>
<tr>
<td>CBR</td>
<td>Cost/Benefit Ratio</td>
</tr>
<tr>
<td>CC</td>
<td>Climate Change</td>
</tr>
<tr>
<td>CEA</td>
<td>Cost-effectiveness analysis</td>
</tr>
<tr>
<td>CN</td>
<td>Concept Note</td>
</tr>
<tr>
<td>DNA</td>
<td>Designated National Authority</td>
</tr>
<tr>
<td>ERR</td>
<td>Economic Rates of Return</td>
</tr>
<tr>
<td>FP</td>
<td>Funding proposal</td>
</tr>
<tr>
<td>GCF</td>
<td>Green Climate Fund</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse gases</td>
</tr>
<tr>
<td>GIZ</td>
<td>Deutsche Gesellschaft für Internationale Zusammenarbeit</td>
</tr>
<tr>
<td>IA</td>
<td>Implementing Agency</td>
</tr>
<tr>
<td>ICS</td>
<td>Investment Criteria Scorecard</td>
</tr>
<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
</tr>
<tr>
<td>IRR</td>
<td>Internal Rate of Return</td>
</tr>
<tr>
<td>LDC</td>
<td>Least Developed Countries</td>
</tr>
<tr>
<td>MCA</td>
<td>Multi-criteria analysis</td>
</tr>
<tr>
<td>NAP</td>
<td>National Adaptation Plans</td>
</tr>
<tr>
<td>NPV</td>
<td>Net Present Value</td>
</tr>
<tr>
<td>PAS-PNA</td>
<td>Scientific Support to National Adaptation Plan (NAP) Processes in the Least Developed Francophone Countries of Sub-Saharan Africa</td>
</tr>
<tr>
<td>SAP</td>
<td>Simplified Approval Process</td>
</tr>
<tr>
<td>TOR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
</tr>
<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
</tr>
<tr>
<td>WG</td>
<td>Working Group</td>
</tr>
<tr>
<td>WRI</td>
<td>World Resources Institute</td>
</tr>
</tbody>
</table>
Glossary

- **Adaptation**: the adjustment of natural and human systems in response to current or future climate stimuli or their effects in order to mitigate adverse effects or exploit beneficial opportunities (IPCC, 2001).

- **Adaptation project**: this is an intervention aimed at limiting or reversing potential damage or taking advantage of opportunities created by climate variability and change. Indeed, adaptation and economic development can be strongly intertwined on the ground and the same intervention or measure can contribute to both adaptation and economic development. However, what distinguishes adaptation from economic development is that an adaptation response is clearly linked to an observed or projected impact of climate change (Climate Analytics, 2020).

- **Climate change (CC)**: according to Article 1 of the UNFCCC, CC is defined as "a change that is attributed directly or indirectly to a human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods. The UNFCCC thus distinguishes between CC attributable to human activities altering the composition of the atmosphere and climate variability attributable to natural causes (IPCC, 2007).

- **Climate finance**: Climate finance refers to the financial resources mobilized to finance actions in mitigation and adaptation to the effects of CC. According to the UNFCCC, climate finance is any local, national or transnational financing that can be sourced from public, private or alternative sources of finance for CC mitigation and adaptation. For WRI, it is any movement of funds towards activities that reduce GHG emissions or help society adapt to CC.

- **Concept Note (CN)**: this is the first step in the GCF application process. It is a document that provides basic information about a project or program. It also allows Accredited Bodies to obtain feedback from the GCF Secretariat on whether their proposal is consistent with the Fund's objectives and mandate. Applicants whose summary scores have been selected for further evaluation will be notified and asked to prepare a detailed project proposal for further evaluation.

- **Green Climate Fund (GCF)**: this is the main multilateral climate financing instrument for developing countries. It is a global fund created to support the efforts of developing countries to address the challenge of climate change. The GCF helps countries limit or reduce their greenhouse gas (GHG) emissions and adapt to climate change. It aims to promote a paradigm shift to low-emission, climate-resilient development by addressing the needs of nations that are particularly vulnerable to the impacts of climate change.
• **National Adaptation Plan (NAP):** this is the set of means to identify medium and long-term adaptation needs and to develop and implement strategies and programs to meet these needs. The formulation and implementation of NAPs is a continuous, incremental and iterative process that is nationally driven, participatory, fully transparent and gender-responsive. (UNFCCC, 2012).

• **PAS-PNA:** this stands for Projet d’Appui Scientifique aux processus de Plans Nationaux d’Adaptation dans les pays francophones les moins avancés d’Afrique subsaharienne. It is funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), and implemented by GIZ in collaboration with Climate Analytics from 2016 to 2021. This project supports LDCs in Sub-Saharan Africa in their NAP formulation processes. In the countries of intervention (Benin, Senegal and Burkina Faso), the project accompanied in-depth vulnerability studies in strategic sectors such as agriculture, health, water resources and the coastal area, assisted in the identification of adaptation project ideas and provided technical assistance for the conduct of feasibility vulnerability studies in support of the development of Concept Notes and Funding proposals to be submitted to the GCF.

• **(Pre)feasibility study:** this consists of setting out a series of key questions, the answers to which will enable an initial judgment to be made about the project. The main objectives of this type of study are to analyze in some detail the feasibility of the project from various angles (technical, financial, environmental, gender, etc.), to identify aspects of the project that require further study, to revise the project if necessary, or to decide to abandon it. In the GCF process, the (pre-)feasibility studies of an adaptation project aim to establish the climate justification of the project and how the chosen adaptation options will contribute to avoiding or reducing the identified climate risks.

• **Vulnerability:** the degree to which a system is able to cope or not cope with the adverse effects of climate variability and change. Vulnerability depends on the character, magnitude and rate of climate change, the variations to which the system is exposed, its sensitivity and its adaptive capacity (IPCC, 2007).
EXECUTIVE SUMMARY

This document is a practical guide for conducting (pre)feasibility studies for adaptation projects to be submitted to the Green Climate Fund (GCF) in Francophone LDCs in Sub-Saharan Africa. It is a synthesis document that draws on lessons learned from the implementation of (pre)feasibility studies of three adaptation projects in Francophone LDCs in Sub-Saharan Africa:

- Benin: Pre-feasibility study of the project "Strengthening the resilience of communities in the Adjohoun, Bonou and Dangbo (ABD) region vulnerable to climate change in the face of malaria, cardiovascular diseases and acute respiratory infections".

- Burkina Faso: Pre-feasibility study of the project "Strengthening the resilience of local communities to climate change through the application of good practices in sustainable land management in the provinces of Tuy and Houet through the integrated landscape approach"

- Senegal: Feasibility study of the project "Strengthening the resilience to climate change of socio-ecological systems in the Saloum Delta"

The guide provides, but is not limited to, elements for successful (pre)feasibility studies of adaptation projects including:

- the difference and complementarity between a concept note and a (pre)feasibility study;
- consultation and involvement of stakeholders in the conduct of (pre)feasibility studies;
- Technical and technological assessments of adaptation options;
- environmental and socio-economic impact assessment, including gender considerations,
- assessment of the baseline situation, governance framework and institutional arrangements;
- Key elements and tools for establishing the climate justification for an adaptation project;
- Evaluation of the intervention according to the investment criteria of the Green Climate Fund;
- and critical analysis of the project in relation to the GCF feasibility issues including relevance of the intervention, preconditions, sustainability of the intervention, cross-cutting issues.

The Green Climate Fund (GCF) seeks to finance adaptation projects and programs that support developing countries to address climate change and achieve a paradigm shift towards more climate-resilient development, taking into account the needs and priorities of those countries most vulnerable to the impacts of climate change.

Thus, to increase the chances of accessing GCF adaptation funds, project promoters or holders are called upon to consider the following elements for the proper conduct of (pre)feasibility studies:

- to Start the (pre)feasibility study after conducting a climate change vulnerability study and identify potential adaptation options at the national, local and sectoral levels. Indeed, the vulnerability study presents the exposure, sensitivity and adaptive capacities of local ecosystems and communities and prioritizes the risks presented in the project area, which facilitates the establishment of the climate justification during the (pre)feasibility study.
Vulnerability studies must be participatory in order to better take into account socio-cultural aspects and the real capacities and needs of communities. Climate Analytics has developed a best practice guide for conducting vulnerability studies in West Africa that can be used for this purpose (Climate Analytics, 2019).

- to facilitate the development of the final concept note and funding proposal, the (pre)feasibility study should properly **assess the feasibility of the project/program** against the **six GCF investment criteria** that form the basis of the approval and funding decision process for GCF project and program proposals. These include the potential of the program/project to contribute to the achievement of the GCF's objectives; the degree to which the proposed activity can catalyze impact beyond a one-time investment project or program; and broader benefits and priorities, including social and economic co-benefits and gender-sensitive development impact; effective consideration of the needs of beneficiaries within the target group; and the recipient country's input and capacity to implement a funded project or program; and the financial strength and viability of the project, including its sustainability.

- **consultation and effective involvement of stakeholders** in all stages of the process. The conduct of (pre)feasibility studies should be done using an inclusive and participatory approach. Stakeholders should be systematically consulted from the conduct of vulnerability studies through the identification of adaptation options, prioritization of options and selection of a project idea, to the conduct of (pre)feasibility studies. Stakeholders should be consulted on the proposed technical and technological options for the implementation of each project component to ensure their acceptability in the local context. Within the framework of the PAS-PNA project, consortia were set up for the sector-by-sector vulnerability studies and also as part of the conduct of the (pre)feasibility studies in Benin, Burkina Faso and Senegal. These working groups (WG) mobilized national scientists, resource persons, potential project leaders and potential beneficiaries. Consultations in the project areas were carried out to sensitize local populations and to receive, through semi-structured interviews and focus groups, amendments and validation of the preliminary results of the studies.

- to Identify, before the start of the (pre)feasibility study, the Accredited Body (AB) that will carry the project to the GCF. Considering that most of the countries in the region do not have an Accredited Body with direct access to the GCF, it is recommended to approach, as soon as the project idea is identified, accredited bodies that can potentially carry the project. The identification of the latter should be done in consideration of the size of the project ranging from the smallest (up to 10 million USD) to the largest (over 250 million USD) (priority should be given to national direct access ABs); the areas of intervention and interest of the entity and its experiences in the project area and its willingness to establish a sustainable partnership that goes beyond the implementation period of the project in question.
1. INTRODUCTION

1.1 What is the context?

According to GCF requirements, any funding proposal submitted to the Fund for consideration must be based on a pre-feasibility study and accompanied by several technical studies, among others, which allow for the assessment of the relevance and realism of the activities foreseen by the funding proposal.

This guide responds to the lack of information on the methodological approach for conducting pre-feasibility and/or feasibility studies of projects and programs within the framework of the GCF processes.

The document was developed within the framework of the Scientific Support to National Adaptation Plan Processes Project (PAS-PNA), implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, in cooperation with Climate Analytics gGmbH (CA). This project is structured around the following four (4) components:

- Strengthening the Governance Framework of the NAP Process;
- Strengthening scientific capacity for adaptation planning and programming;
- Facilitating access to funding for priority adaptation measures;
- Establishing a network for practitioners to exchange information on the NAP process.

As part of the implementation of the PAS-PNA project, Climate Analytics (CA) conducted two (2) pre-feasibility and one (1) feasibility studies of three adaptation projects in Benin, Burkina Faso and Senegal, in order to provide scientific evidence for the development of concept notes and funding proposals to be submitted to the Green Climate Fund.

Based on this experience, CA undertook the writing of this guide which provides practical guidelines on conducting pre-feasibility studies in Francophone African Least Developed Countries (LDCs) and capitalizes on the lessons learned from conducting (pre)feasibility studies in the three countries.

1.2 What are the objectives of the guide?

In general, this guide aims to provide practitioners with a rigorous approach to conducting (pre)feasibility studies for adaptation projects to be submitted to the Green Climate Fund
(GCF) in Francophone LDCs in Sub-Saharan Africa. Specifically, this practical guide has several objectives:

- to present the GCF requirements in relation to the pre-feasibility and feasibility studies;
- to share tools to help build a solid climate justification for adaptation projects in the West African context;
- to present the important aspects to be addressed in assessing the feasibility of interventions in an adaptation project to be submitted to the GCF;
- to present the methodological approaches used by Climate Analytics in the framework of PAS-PNA for the realization of the (pre)feasibility studies of the three countries;
- to share lessons learned and identify practices that work well in each country, and overall;
- to provide a framework that can enable actors/stakeholders to replicate (pre)feasibility studies through a capacity building approach and using a robust methodology.

1.3. Who is the guide for?

This guide provides a practical description of the different steps for conducting (pre)feasibility studies and the information needed to obtain a complete and robust study. It is intended for any organization/individual who, with a view to submitting a project proposal to the GCF, would like to conduct an inclusive, participatory and scientifically robust (pre)feasibility study in the context of Francophone LDCs in Sub-Saharan Africa, to support their proposal. It is specifically but not exclusively addressed to the following actors:

- Government bodies and agencies in charge of climate action;
- Designated National Authorities (DNAs) and/or their Councils at country level;
- Accredited Bodies (ABs) with national, regional and international direct access that are involved in adaptation financing in African countries;
- Centers for research and specialized studies on climate change adaptation issues;
- Local authorities and their specialized agencies in charge of environmental protection and natural ecosystems;
- Associations and non-governmental organizations involved in the fight against climate change.
1.4. How is the guide organized?

This guide is structured around the following main points:

- the scope of a (pre)feasibility study;
- the difference between a (pre)feasibility study and other tools such as the concept note or the funding proposal;
- the methodology of a (pre)feasibility study;
- climate justification;
- evaluation of the intervention according to the Green Climate Fund investment criteria;
- critical analysis of the project in relation to the (pre)feasibility issues of the GCF;
- the structure of the (pre)feasibility study report;
- lessons learned from the PAS-PNA project studies in Benin, Senegal and Burkina Faso;
- recommendations of good practices.

2. THE SCOPE OF THE PRE-FEASIBILITY STUDY

2.1. Why the (pre)feasibility study?

According to GCF requirements, any funding proposal submitted to the Fund for consideration must be based on and accompanied by several technical studies, including a (pre)feasibility study, which will assess the relevance and realism of the activities foreseen by the funding proposal. In addition, the (pre)feasibility study will demonstrate that the proposed project/program is technically, economically, socially and environmentally robust (GCF, 2019).

2.2. Concept note vs (pre)feasibility study

The Concept note (CN) is the document providing basic information about a planned project or program, aimed at obtaining feedback on the alignment of the project’s underlying concept with GCF policies and investment criteria (GCF, 2020). This is the shortest expression of the project idea (max 18 pages). The GCF prefers to understand the project through a CN rather
than a full proposal. For this purpose, a NC template to fill out is available on the GCF website (http://fondsvertclimat.bf).

The (pre-)feasibility study, on the other hand, presents an assessment of the project/program interventions in terms of the soundness of their technical design, costs and benefits, social and environmental impacts, legal and regulatory environments in which the proposed interventions/activities are expected to be implemented, institutional and financial aspects, and any other analysis to assess the feasibility of the investment (GCF, 2020). The (pre)feasibility study should provide a clear conclusion, with recommendations that explain the underlying logic of the project structure and activities. In addition to the primary data and information from secondary sources, the concept note, if available, can be used to develop the (pre)feasibility study ensuring that the proposed technologies and solutions are adapted and evaluated to be feasible and viable in the context of the proposed project.

In practice, the (pre-)feasibility study is a non-mandatory annex to the CN, i.e. it is not mandatory to carry it out or to attach it to the CN when submitting it to the GCF. However, it provides additional information for the finalization of a robust and complete CN. Two approaches can be adopted for this purpose:

First, for an organization that already has an initial CN, it is possible to focus the (pre)feasibility study on it in order to assess its feasibility and make recommendations for updating it.

A second approach concerns the case where only a project idea is available. The (pre)feasibility study can be carried out based on this idea in order to assess its relevance and to provide the necessary information to design a robust CN.
2.3. Funding proposal vs (pre)feasibility study

The funding proposal is a set of documents prepared based on the GCF's standard or Simplified Approval Process (SAP) templates and submitted to the GCF by the Accredited Body (AB) in order to proceed with the formal application for project financing (GCF, 2020). The information provided in both the funding proposal and the (pre)feasibility study should be presented in a succinct and structured manner, so that the information is not duplicated and is complementary. Make sure that the funding proposal for the SAP model refers to the pages and paragraphs of the pre-feasibility study document where additional details and information are provided. The funding proposal usually comes after a favorable opinion from the GCF on the CN. Once the CN is "liked" by the GCF, a feedback on the CN is made with a request for additional information at certain levels. A (pre)feasibility study can therefore be carried out to respond to the GCF’s comments and prepare the funding proposal.

The following table summarizes the differences between the (pre)feasibility study and the funding proposal: case of the SAP model

Table 1: Difference between funding proposal and (pre)feasibility study

<table>
<thead>
<tr>
<th>Funding proposal</th>
<th>(Pre)feasibility study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simpler documents: key documents simplified and presented in a single, immediately accessible list</td>
<td>More complex document that combines primary and secondary information</td>
</tr>
<tr>
<td>Shorter form with total length of funding proposals not to exceed 20 pages</td>
<td>Unlimited number of pages</td>
</tr>
<tr>
<td>Easier form completion: fewer questions and clearer guidelines allow for more concise and succinct responses for each subsection, avoiding duplication of information</td>
<td>Gather more information</td>
</tr>
</tbody>
</table>

Source: Authors
3. PRE-FEASIBILITY STUDY vs FEASIBILITY STUDY

The pre-feasibility study and the feasibility study serve the same purpose and have commonalities such as: technical, environmental, social, and political assessment; description of the feasibility of intervention options for the proposed project, and presentation of results and recommendations with the most feasible and robust options (GCF, 2019).

Pre-feasibility and feasibility studies focus on essentially the same variables or components of the project, but at different levels of analysis in depth and detail. The pre-feasibility study consists of a set of key questions, the answers to which will allow an initial judgment to be made about the project. The main objectives of this type of study are to analyze in some detail the feasibility of the project from various perspectives (technical, financial, environmental, gender, etc.), to identify aspects of the project that require further study, to determine whether to proceed with the project with or without a feasibility study, to revise the project if necessary, or to decide to abandon it at this stage.

In the GCF processes, the (pre-)feasibility studies of an adaptation project aim to establish the climate justification of the project and how the selected adaptation options will contribute to avoiding or reducing the climate risks identified through a risk and vulnerability assessment and enhance the adaptive capacity and resilience of natural and human systems to CC.

The table below shows some differences in their content:

**Table 2: Main differences between feasibility and pre-feasibility studies**

<table>
<thead>
<tr>
<th>Prefeasibility study</th>
<th>Feasibility study</th>
</tr>
</thead>
<tbody>
<tr>
<td>• May rely on secondary data sources supplemented by primary sources as needed</td>
<td>• Uses primary and secondary data sources</td>
</tr>
<tr>
<td>• Uses existing evaluation reports for implemented/ongoing or previous projects</td>
<td>• Incorporates extensive engineering design studies for proposed technology solutions</td>
</tr>
<tr>
<td>• Uses proven technologies and solutions with a track record to demonstrate the feasibility of proposed technology solutions</td>
<td>• May involve detailed engineering study/analysis with on-site testing and evaluation</td>
</tr>
<tr>
<td>• Evaluates feasible options using existing/available data, studies and resources</td>
<td>• Includes more in-depth analysis and testing of each feasible option</td>
</tr>
</tbody>
</table>

Source: GCF, 2019, adapted by CA
4. METHODOLOGY OF THE (PRE)FEASIBILITY STUDY

4.1. Drafting the terms of reference

As with any study, the first step is to develop TORs that outline the context, objectives, and expected results of the study. These TORs should be as clear as possible in order to clearly delineate the scope of work and present the information expected from the study. The development of the TOR should be participatory. To this end, the involvement of all stakeholders in the design of the proposal should be effective.

4.2. Stakeholder consultation

Stakeholder consultation is necessary for the implementation of a (pre)feasibility study. This allows all actors to take ownership of the study results and also contributes to capacity building.

Examples of working group composition in Benin and Burkina Faso to facilitate the participatory and inclusive process of developing concept notes and overseeing pre-feasibility studies:

**Box 1: Stakeholder consultation in Burkina Faso**

**Project:** Pre-feasibility study of the project "Strengthening the resilience of local communities to climate change through the application of good practices in sustainable land management in the provinces of Tuy and Houet through the integrated landscape approach"

In order to support the development of the Burkina Faso project proposal, PAS-PNA established a multi-sectoral Working Group (WG) for the development of the project Concept Note and the assessment of complementary studies. In addition to a national consultant in charge of developing the CN, this working group was composed of a representative of the following structures:

- Ministry of Environment, Green Economy and Climate Change through the Department of Coordination of International Conventions (DCCI);
- The Fonds d'Intervention pour l'Environnement (FIE) through an expert in resource mobilization;
- The Designated National Authority (DNA) through an expert in CC adaptation;
- Ministry in charge of agriculture through the General Directorate of Hydraulic Facilities and Irrigation Development (DGAHDI);
- Ministry of Animal Resources and Fisheries through the General Directorate of Pastoral Development (DGEAP);
- GIZ-ProSol;
- Climate Analytics;
- GIZ-PAS-PNA.

This working group made it possible to involve all the sectors and actors concerned by the project. From the conception of the study to its validation, the WG was involved and its recommendations were taken into account.
Box 2: Stakeholder Consultation in Benin

- **Project**: Strengthening the resilience of communities in the Adjohoun, Bonou and Dangbo region vulnerable to climate change in the face of malaria, cardiovascular diseases and acute respiratory infections.
- As part of the process of developing the project in Benin, PAS-PNA adopted a participatory approach to allow all the actors and institutions involved to take part and own the design of the CN, the pre-feasibility study and the FP. Thus, a working group (WG) was set up.
- The WG consists of the following institutions:
  - The General Directorate for the Environment and Climate of the Ministry of the Living Environment and Sustainable Development (DGEC/MCVV),
  - The National Environment and Climate Fund (FNEC)
  - The National Directorate of Public Health (DNSP)
  - Climate Analytics
  - GIZ-PAS-PNA
  - National consultant responsible for the development of the CN and FP of the project.
  - The GRAFED consortium of NGOs (project leaders).
- Ongoing exchanges took place between the Climate Analytics team in charge of the study and the members of the WG, particularly with the national consultant.

4.3. Data collection

The pre-feasibility study must be based primarily on secondary data and, if necessary, on primary data. The collection of secondary data consists of a literature review. It is a process involving the collection of relevant data (documents from projects and programs working in the same field and/or area, local policy documents in the project area, national strategy related to the project theme, etc.) and an analysis of the documents collected to better orient the project's interventions.

Primary data collection may involve interviews with resource persons as well as with local communities. This will help determine the expectations of the project's beneficiaries and assess the relevance of the proposed actions through an inclusive and participatory approach.

Box 3: Data collection in Burkina Faso

The pre-feasibility study of the Burkina Faso project involved all local stakeholders in the project area. Data collection consisted of interviews with resource persons in the area (mayors of communes and provincial directors of deconcentrated technical services) and focus groups with 8 groups of local people in each commune (2 groups of women, 2 groups of youth, 2 groups of agro-sylvo-pastoralists and 2 groups of customary and traditional leaders). The focus groups were facilitated by agricultural technical agents from the area, who were supervised and trained by supervisors. The results of the data were very satisfactory to the team.
Two approaches were used to conduct the pre-feasibility study for the project in Benin. The first was the participatory approach, which made it possible to collect data from the various stakeholders, namely the implementing entities and beneficiaries. This approach essentially provided a body of primary data. Subsequently, the inclusive approach was used for data collection in the project area. This approach allowed for interviews with local elected officials (the three mayors of the ABD area), the focal points in charge of climate risks management, health professionals, traditional medicine practitioners, technicians in the implementation of infrastructure and adaptation technologies of the project and the community of the ABD area. In addition, an inclusive consultation was held with other WG members in the three communes affected by the project to ensure that local populations took ownership of the project’s objectives.

Data collection was conducted in two phases: an exploratory phase and a data collection phase. During the exploratory phase in the coastal area of the Saloum Delta, key stakeholders were consulted and potential project sites visited, including their natural ecosystems and the local populations living there. This exploratory visit and the consultations made it possible to develop data collection tools adapted to the reality of the area and the needs of the stakeholders and project leaders. A workshop to validate the tools was organized and allowed the members of the working group to make amendments to the collection tools developed. Finally, the data collection phase itself took place first in Dakar with the institutions that would have important information for the development and implementation of the project, and then in the Saloum Delta area in Fatick with the decentralized and deconcentrated authorities, associations and NGOs involved in the protection of the Saloum Delta marine protected areas and local populations.

4.4. Data processing and analysis tools

Quantitative and qualitative statistical data processing tools must be mobilized for robust data analysis. Commonly used analysis tools include: EXCEL, SPSS, SPHYNX, ArcGIS.

5. CLIMATE RATIONALE (CR)

5.1 Importance of climate rationale

The climate justification for a GCF project proposal provides the basis for ensuring that the project specifically addresses the challenges of climate change. It is a fundamental element in justifying the request for GCF funding. It is essential to clearly demonstrate the impacts of CC and the vulnerability of the target populations of the project proposal. The link between the proposed activities and the identified impacts should be established in a simple manner, while emphasizing that the project is truly a climate change adaptation project, as opposed to a conventional development project. However, it is important not to confuse the effects resulting from CC with those resulting from human activity.
Like all countries in the world, the human health sector in Benin is one of the most vulnerable sectors to climate change (UNDP and MEPN, 2008; WHO, 2014). Indeed, with climate change, we are witnessing increased temperatures, changes in rainfall and humidity, climatic parameters that affect the biology and ecology of vectors responsible for certain communicable and non-communicable diseases.

Current vulnerability analysis conducted through several studies (MCVDD, 2019; Ossè et al., 2019; MS, 2020; Ossè et al., 2021) shows that flooding, drought, heavy rains, heat waves, and high winds are the major climatic phenomena affecting Benin health areas. In the ABD health area, there is an increasing trend toward late onset of rains, early end of rainy seasons, and rising temperatures (Ossè et al., 2021). These climatic changes affect two categories of diseases namely, vector-borne diseases and non-communicable diseases (MS, 2017). Among the major climate-sensitive diseases identified in the ABD health area are malaria, Acute Respiratory Infections (ARIs) and cardiovascular diseases (CVDs) (BZ-ABD/MS, 2017; MS, 2020).

The analyses show that:

• for each increase of one unit in mean temperature, the number of malaria cases in the population of children under five (05) years of age increases by 46.5 in the commune of Bonou. Analysis of the relationship between malaria transmission by the vector and climatic parameters revealed that malaria transmission is a function of humidity, temperature and rainfall in all three communes.

• Flooding and longer periods of drought lead to crop destruction and lower crop yields. The loss of crops or the drop in yields hinders the repayment of loans taken out by farmers with financial institutions. This situation of the impossibility of repayment of loans creates a general psychosis among the population because they fear the consequences which are among others the seizure of the guarantees or the imprisonment. This combined with the heat of the poorly ventilated buildings causes insomnia and consequently the development of cardiovascular diseases. Similarly, the intensification of transhumance caused by the scarcity of grazing due to the long dry spells also leads to the destruction of crops, which also favors the development of CVDs.

• Dry periods are characterized by abundant dust that favors the circulation of pathogens responsible for ARIs and the relative humidity allows the diffusion of viruses such as respiratory syncytial virus and influenza that are at the root of acute respiratory infections.

### 5.2 GCF guidance for climate rationale

Important elements to include in a climate justification for projects to be submitted to the GCF are (Climate Analytics, 2020):

- Establish evidence of CC events, a robust assessment of population exposure, impacts, vulnerability and disaster risk in the project target area;
- Develop a set of optimal interventions that collectively and comprehensively address the underlying climate risks and maximize the benefits of sustainable development;
- Integrate interventions into broader national and international policy and decision-making processes for long-term low-emission and climate-resilient development to meet commitments under the United Nations Framework Convention on Climate Change (UNFCCC) and other related global programs.

---

1 Climate Analytics, 2020, Improving the climate justification of project proposals for submission to the GCF. URL: [https://climateanalytics.org/media/enhancing_the_climate_rationale_in_gcf_proposals_french.pdf](https://climateanalytics.org/media/enhancing_the_climate_rationale_in_gcf_proposals_french.pdf)
5.3. How to develop a robust climate rationale

The climate justification is of particular interest for any proposal to be submitted to the GCF. This section outlines the key elements that must be presented in order to achieve a robust climate justification.

5.3.1. Key elements of the climate rationale under the GCF

The description of the climate justification, as required in the GCF proposal template, requires access to sound climate and scientific data. Specifically, for adaptation projects, the climate justification for a GCF proposal is based on clear information on climate risks, vulnerabilities and impacts, and the proposal should explain how the proposed interventions will address these risks and vulnerabilities.

5.3.2. Guiding questions for constructing the climate rationale

Proposals for GCF funding, whether SAP or Standard, must address a specific climate rationale. The following list of questions from the GCF guide for preparing pre-feasibility studies provides general guidance on how to present a science-based climate rationale (GCF, 2019):

- What are the manifestations of climate change in the target region(s), what impacts may be associated with them, and to what extent (with an emphasis on attribution) for the sector and different demographic groups in the target region(s)?
- What impacts are likely to occur due to climate change over the project cycle (e.g., between now and the 2030s or 2040s)?
- Why is climate change adaptation important for the country, the population and the economy?
- What general responses (i.e., interventions) are proposed and envisioned to address the changes and associated impacts (for adaptation projects, please focus on change in sensitivity to impacts and/or change in adaptive capacity)?
- Are there viable alternative responses/interventions for the same climate change issues, which one is chosen and what is the rationale for these choices?
- An analysis of the perceived barriers in the current country/regional context to implementing the selected/proposed intervention(s).
5.4. Steps & Tools

5.4.1. Literature review

Conducting a literature search and/or undertaking a literature review is a first step toward developing a strong climate case. This will help project proponents understand the climate impacts and vulnerabilities faced by the project's target country or region. This research should provide existing information on climate impacts and help clarify exactly what the proposed intervention(s) is intended to address, as well as identify any data and information gaps regarding the activity/project.

5.4.2. Vulnerability and climate risks assessment

Vulnerability assessments in the context of climate change adaptation identify the groups, sectors, and regions most at risk from climate impacts and therefore provide important information on priority areas and types of adaptation responses needed. They fill in the data and information gaps identified in the literature review. The inclusion of the results of the vulnerability studies in project proposals significantly strengthens the climate justification for the project as this information highlights the most vulnerable population groups and regions. The vulnerability studies address two themes depending on the purpose:

- Identify the factors that currently make the study area vulnerable to climate variability and extreme climate events. Consider exposure, biophysical vulnerability, sensitivity of the socio-economic context and adaptive capacity.
- Identify the potential future impacts of climate change (increased temperatures, changes in rainfall distribution, heat waves, etc.) on the study area. This involves looking at biophysical impacts and combining them with projections of socio-economic parameters.

Climate Analytics, as part of the first phase of PAS-PNA proposed a practical guide for conducting vulnerability studies (CA, 2019).

5.4.3. Prioritization of adaptation actions

In addition to analyzing the feasibility of the interventions, it is also important to be able to rank them in order to establish a certain order of priority. For this purpose, the use of economic analysis tools is recommended.

Prioritization of options therefore involves giving preferential weight to one option in a set of options. The goal of prioritization is to identify the most ambitious but feasible options that fit the national vision for adaptation and the country's environmental, social, and economic development goals. The question that arises is what criteria should be used to define priority actions?
According to the United Nations Framework Convention on Climate Change (UNFCCC, 2005), decision-making methods vary depending on the objectivity of the decision and the complexity of the problem. For option prioritization analysis, the following methods can be adopted: (i) cost-benefit analysis (CBA); (ii) cost-effectiveness analysis (CEA) and (iii) multi-criteria analysis (MCA) (GIZ, 2013 & UNFCCC, 2009).

5.4.3.1. Cost-benefit analysis

Cost-benefit analysis (CBA) expresses the consequences of a CC adaptation option in monetary units by comparing costs and benefits. Beyond economic costs and benefits, CBA integrates as much as possible non-economic aspects. The main instruments used are the Net Present Value (NPV) and the Cost-Benefit Ratio (CBR).

In view of the issues related to greenhouse gas emissions and the capacity of adaptation options to sequester and/or mitigate them, the estimation of the marginal CO₂ eq abatement cost (ACE) is recommended. The BCR and NPV are used to assess whether the option is cost-effective for society. The ACC is the ratio of the NPV to the amount of CO₂ eq avoided/removed. This instrument assesses what is gained (if NPV is positive) or lost (if NPV is negative) by reducing/sequestering a ton of CO₂ eq.

According to the UNFCCC (2009), by allowing for a monetary comparison of economic and non-economic benefits and costs, CBA is the "most thorough type of analysis for facilitating the prioritization" of adaptation options. However, this analysis is demanding in the sense that the expected positive impacts/effects (benefits) and negative impacts/effects (costs) per option must be monetized. However, some benefits and costs "are neither sold nor bought in markets, such as disease, human life and biodiversity, and are more difficult to express in monetary terms.

Cost-benefit analysis involves a comparison of the costs of interventions to the benefits generated. It informs about the economic viability of an adaptation option and allows prioritization between alternative adaptation options in monetary terms. However, costs and benefits must be measurable in monetary terms.

5.4.3.2. Cost-effectiveness analysis

Cost-effectiveness analysis details the costs of different options for achieving the same objective in order to identify the least expensive option. It provides information on how an objective can be achieved in the most efficient way. Its main limitation is that the objective must necessarily be measurable and the costs must be defined in monetary terms.
Cost-effectiveness analysis (CEA) involves determining the least costly (efficient) way to achieve an objective for a given option. This method assumes that different options provide the same benefits. Therefore, only the costs are evaluated in monetary terms. This is a major drawback, as decision-makers cannot know whether the option is inherently beneficial, especially in terms of climate objectives. In addition, co-benefits and indirect costs are ignored. This limitation leads UNEP (2013) to point out that CEA does not allow for an absolute assessment of the costs and benefits that justify an option as "worthwhile" as a CBA does.

5.4.3.3. Multi-criteria analysis

The use of multi-criteria analysis (MCA) is justified if the requirements of monetary conversion of all costs and benefits are not a limitation. In such a situation, qualitative monetary and non-monetary variables are mobilized to select the most important option according to relevant defined criteria. The MCA qualitatively reinforces the quantitative results (CBA, CEA).

Multi-criteria analysis allows adaptation options to be ranked according to a series of criteria. It allows for prioritization and identification of trade-offs and win-win situations. For example, scores can be calculated (if a quantitative judgment is possible) or obtained through expert consultation. However, it is more subjective than other methods and says nothing about economic efficiency.

Moreover, in view of the limitations of CBA and also to not exclusively base decisions on economic and only quantitative indicators, it is recommended to use MCA. Moreover, as a reminder, the IPCC (2015) considers MCA as the preferred method of the UNFCCC. Indeed, by integrating qualitative factors based on criteria defined by stakeholders, MCA facilitates a consideration of factors that are difficult to monetize.

<table>
<thead>
<tr>
<th>Box 7: Criteria to prioritize adaptation options</th>
</tr>
</thead>
<tbody>
<tr>
<td>The feasibility study of the Senegal Coastal Area Project defined 10 criteria, the evaluation of which allowed the selection of four (4) adaptation options from a list of about twenty possible options recommended by the literature and in particular by local communities during consultations and data collection activities in the field. The criteria for evaluating the options were:</td>
</tr>
<tr>
<td>1. Contribution to the reduction of exposure</td>
</tr>
<tr>
<td>2. Effectiveness of the option to mitigate the identified risk</td>
</tr>
<tr>
<td>3. Scope/Achievability</td>
</tr>
<tr>
<td>4. Stakeholder Acceptability</td>
</tr>
<tr>
<td>5. Estimated cost, including operation and maintenance</td>
</tr>
<tr>
<td>6. Potential impacts on surrounding areas</td>
</tr>
<tr>
<td>7. Impact on the morpho-dynamics of the environment</td>
</tr>
<tr>
<td>8. Environmental and social impacts</td>
</tr>
<tr>
<td>9. Medium and long-term sustainability</td>
</tr>
<tr>
<td>10. Compatibility with existing options</td>
</tr>
</tbody>
</table>
5.4.3.4. Adaptation Action Mapping Tool

In the context of identifying national climate change documents, one available tool that may be useful for Caribbean SIDS and some African countries is the Adaptation Map Tool created by Climate Analytics: [http://adaptationmap.climateanalytics.org/index.html](http://adaptationmap.climateanalytics.org/index.html)

The tool provides an overview of adaptation actions in 11 West African countries and Caribbean Community (CARICOM) member states since 2010. It is not an exhaustive list but rather a collection of documents that were used for a specific study conducted in 2018. Its main purpose is to serve as a library, promoting interregional learning on adaptation actions. The map includes national documents, e.g., policies, strategies, programs, and projects but does not include nationally funded projects.

Adaptation actions are classified by country (regional actions are also included) and by sector.

5.5. Recommendations for a good climate rationale

**Case study of the coastal area project in the Saloum Delta in Senegal**

The climatic justification of the coastal area project in the Saloum Delta was carried out through the determination of the Sea Level Rise (SLR) and the Coastal Vulnerability Index (CVI) to establish the vulnerability of the Saloum Delta islands. A risk and vulnerability assessment was conducted that clearly establishes the observed and projected vulnerability and climate change in the medium and long term. First, the relative sea level rise was characterized from altimetry data, which amounts to 3.2 mm/year between 1993 and 2016:

\[
y = 0.0032x - 0.0073 \\
R^2 = 0.7621
\]

*Source: Sadio et al. 2019*
Then, it was clearly established Coastal Vulnerability Index (CVI) which is 0.05 to 3.30 over the current period (1954-2018) and will worsen by 2035 and 2050.

Finally, the chain of impacts (problem tree) is established which clearly presents the first and second order impacts of the identified phenomenon on natural and human resources in the project area. The problem tree developed for the impact of climate change in the coastal area of the Saloum Delta is as follows:
Considering the chain of impacts and after the multi-criteria analysis of all possible options, the options retained within the framework of the component 2 of the project which aims at setting up mechanical and biological works of protection of the littoral of the Saloum Delta against the coastal erosion and the submersion are the following:

- Reforestation of beaches and dunes in casuarinas;
- Reforestation of mangrove;
- Flood barriers;
- Breakwaters.

It should be noted from this experience that once the chain of impacts is developed and the adaptive capacities of local communities and their needs are identified, it is easier to identify the optimal solutions to promote climate change resilient development.
6. EVALUATION OF THE INTERVENTION ACCORDING TO THE GREEN CLIMATE FUND INVESTMENT CRITERIA

This section presents a number of themes that should be developed in the (pre)feasibility study. Not all themes are necessarily relevant to all projects. It will therefore be necessary to judge the relevance of the theme to the proposal under development. These themes are closely linked to the GCF (ICS: Investment Criteria Scorecard).

6.1. Potential impact of the project

This section should describe the potential of the project/program to contribute to the achievement of the Fund’s objectives and outcomes and, where relevant, describe the intended impact of the project/program on CC adaptation. This section can be developed by addressing the points in the following diagram:

![Figure 4: Project Potential Impact Justification Framework](image-url)
6.2. Potential for paradigm shift

Paradigm shift is about making changes that last beyond the investment. A good description of paradigm shift should address the eight (8) points in the following diagram.

![Figure 5: Framework for justifying the potential for paradigm shift](image-url)
6.3. Potential for sustainable development

Here, it is important to highlight the alignment between the proposed intervention and the Sustainable Development Goals (SDGs) and national development goals. This can be done by explicitly citing the SDGs that the project aligns with and how the project relates to the sustainable development policies and strategies of the recipient country. In addition, it is also important to elaborate on the different points in the following diagram:

Figure 6: Rationale of the project’s sustainable development potential
6.4. Beneficiary needs

The purpose of this section is to determine whether the proposed project addresses the vulnerability and financing needs of the beneficiary country and the target community. The following diagram describes the important information to highlight when identifying the real needs of the beneficiaries. Special attention should also be paid to not duplicating information on climate justification. In this section, be as specific as possible. The identification of needs should be as participatory as possible with the beneficiaries. It is the developer’s responsibility to prioritize and prioritize the needs based on the results of the climate justification.

![Figure 7: Rationale for Addressing Beneficiary Needs](image_url)
6.5. Country Ownership of the Project (COP)

This section should describe how the recipient country is taking ownership of and implementing the funded project/program. To do this, the following information should be developed:

**Figure 8: Rationale for national ownership**

NB: The choice of a national level Implementing Agency (IA) (to demonstrate its capacity in this area) gives an added value in terms of ownership of the project.
6.6. Effectiveness and Efficiency of the Intervention (EEI)

The objective of this section is to describe how the project's financial structure is adequate and reasonable to achieve the proposal’s objectives. The information logic shown in the following diagram helps to achieve this objective.

![Diagram showing the steps for effectiveness and efficiency of the intervention]

It is also necessary to demonstrate the capacity of the Accredited Body to carry out such a project and to manage the proposed financing structure. A track-record of the IA is to be demonstrated to get a good score. This part must also confirm the removal of financial barriers of the country and the beneficiaries, if they have been identified.
7. ASSESSMENT OF (PRE)FEASIBILITY

7.1. Technical assessment

In this part of the study, a description of the proposed adaptation options, equipment specifications and infrastructure to be implemented is expected. Based on the literature review and catalogs of best practices, it should be shown that the proposed options are the best in the context of the project’s target area and describe how the project invests in technologies that are sustainable and adapted to the local context.

7.2. Environmental, economic and social assessment

Two studies support the (pre)feasibility study and provide information that the (pre)feasibility study can use to support the environmental, economic and social feasibility. These are:

- the environmental and social impact assessment, which should highlight the potential impacts (positive and negative) of the project’s planned interventions and propose an environmental and social management plan. For programs, it is advisable to develop an Environmental and Social Management Framework (ESMF), depending on the country, and to define the E&S due-diligences to be applied during the identification and implementation of sub-projects.
- the economic and financial analysis study, which must highlight the economic costs and benefits of the intervention and its financial profitability.

The (pre)feasibility study draws information from both studies to establish a solid justification for the environmental, economic and social feasibility of the project.

7.3. Financing options, CAPEX and OPEX

In addition to funding options, this section provides the rationale for requesting GCF funding, as well as a description of capital and operating expenses. This section can be provided by addressing the following topics:

- present the total amount of the project, the share requested from the GCF and the share of co-financing;
- explain why the project/program requires GCF funding, i.e. why the project/program is not currently funded by the country’s public and/or private sector;
- describe the extent to which the GCF contribution covers climate change-related expenditures and not development or other types of expenditures (i.e., climate justification);
- highlight which market failure is being addressed with GCF funding;
- List other national or international funding sources being considered. If applicable, indicate whether other national and/or international donors (including the private sector) have been previously consulted to support this project/program;
- Also describe the financial gaps and barriers that the proposed project/program must address and overcome in the absence of other funding;
- explain how the co-funding amounts and prices were determined.

7.4. Economic and/or financial viability

The economic and financial analysis study provides the essential information to prove the economic and financial viability of the project. Indeed, a cost-benefit analysis is usually performed to highlight the economic and financial profitability of the project. Indicators such as the cost-benefit ratio and the internal rate of return are important to mention in this part.

In the framework of the PAS-PNA project, the financial and economic analysis was carried out through the determination of the discounted cash flows from which the NPV and ERR were calculated. Indeed, the economic analysis requires an evaluation of the net impact that a project has on economic welfare.

According to IFAD (2015), this analysis follows steps that can be summarized as follows:

1. Convert all market prices to economic/fictive prices that better reflect the social opportunity cost of the good.
2. Deducting transfers (taxes and subsidies) and quantifying externalities (positive and negative):
   In our analysis, we have taken into account prices before taxes and all funds are considered to come from the same source, i.e., subsidies.
3. Present the schedule according to which the beneficiaries will be included in the project activities: the overall cost is estimated and spread over the implementation period. On the other hand, maintenance costs are spread over the duration of use of the infrastructure and aggregate the flow of Additional Net Benefits (ANB) of each production model;
4. Compare the additional benefits with the economic costs of the project to calculate the total net additional flow. Using a social discount rate, calculate the economic performance indicators: NPV, IRR.
5. Conduct a sensitivity analysis (SA) to test for key risks and uncertainties that may affect the proposed project.

Following the methodology presented above, the evolution of the economic profitability ratios of the interventions of the project for the resilience of agro-ecological systems in the Saloum Delta is as follows
Figure 10: Evolution of the project’s economic profitability ratios
Source: Climate Analytics, 2021

7.5. Exit strategy and sustainability

This part of the study aims to describe the extent to which the project builds the capacity of the participating institutions, including a concrete staff retention strategy and sustainability indicators, and explain how the sustainability of the project/program (financial, institutional, social, gender, environmental) will be ensured in the long term after the project’s closure. Information on long-term ownership, project/program exit strategy, operations and maintenance of investments (e.g., key infrastructure, assets, contractual arrangements) should be included here. Information should also be provided on additional actions to be taken by the public and private sector or civil society as a result of the project/program implementation for scaling up and sustaining best practices, and how the project strengthens policy and regulatory frameworks that influence the sustainability of results in the long term. It will also show how the project is creating a reassuring and enabling environment for attracting further investment (private, public, bilateral) after the close of GCF funding.
The recommendations of the feasibility study of the project to strengthen agro-ecological resilience in the Saloum Delta proposes an innovative and inclusive strategy for the sustainability of the project’s achievements through the development of a win-win economic partnership between development partners, local communities and the private sector. It was therefore proposed a financial package of integrated actions including: A public incentive for the creation of communal green investment clubs made up of members of local Economic Interest Groups (EIGs); entrepreneurs and carriers of ideas for social and solidarity enterprises (SSEs), via a communal cluster or incubator.

Thus, it is proposed to negotiate with the financial sector, in this case the management and intermediation companies (SGI) installed in Senegal, partnership agreements for the establishment of communal investment clubs; the investment clubs created will be able to invest part of the income from their activities in less risky assets in the medium to long term (2 to 5 years) and will benefit from the SGI and NGOs, awareness and training in stock market education. These clubs are committed to allocate a fraction of the income from financial investments or real estate to the maintenance plan of the infrastructures developed by the project. It is also proposed a partnership in order to arouse the interest of SGI and asset management companies to implement or intensify donations and other CSR actions for the benefit of the project.

8. CRITICAL ANALYSIS OF THE PROJECT IN RELATION TO GCF FEASIBILITY ISSUES

While this section is most appropriate at the feasibility study stage, which should inform the development of the full project proposal, it is considered useful that the pre-feasibility study can already initiate the analysis of the project in relation to the GCF feasibility issues. This analysis conducted at the pre-feasibility study level allows for the identification of any issues of interest and recommendations that the feasibility study should take into consideration.

8.1. Relevance of the intervention

The relevance assessment describes the degree to which the proposed intervention is consistent and aligned with sector and national development policies and strategies. In Burkina Faso, the agro-silvo-pastoral systems resilience project responds to the economic, social and environmental needs and challenges of the country and the targeted provinces and benefits from the experience and lessons learned from the ProSol project implemented by GIZ. The analysis of the relevance of the two components of the project from a climate perspective is summarized in the following table:
Table 3: Climate relevance of SLM/FB project actions

<table>
<thead>
<tr>
<th>Component I</th>
<th>Component II</th>
<th>Adaptive technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Establishment of multi-stakeholder platforms at the local and regional level</td>
<td>• Information/awareness of actors on climate risks through radio and forum theater</td>
<td>• Restoration of degraded lands (DRS-CES)</td>
</tr>
<tr>
<td>• Integration of climate change adaptation into municipal/regional planning documents and development and management plans</td>
<td>• Training on climate risks and sustainable land management for the benefit of the actors of the communes as well as the development structures</td>
<td>• Runoff collection basins (BCR)</td>
</tr>
<tr>
<td>• Establishment of early warning committees at the local level</td>
<td>• Training of producers on innovative sustainable agro-sylvo-pastoral production techniques adapted to climate change</td>
<td>• Production and planting of appropriate woody species in reclaimed areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Equipment/Infrastructure for climate-smart conservation and processing of agro-sylvo-pastoral products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Green micro-projects</td>
</tr>
</tbody>
</table>

Source: Climate Analytics, 2021

For Benin level, the project to strengthen health resilience through the establishment of a climate-health early warning system is aligned with the strategic options and orientations of the Benin health sector as defined in the various policy documents, namely Benin National Health Policy (NHP) 2018-2030, the National Health Development Plan 2018-2022; the Third National Communication (TNC) and the Benin health sector NAP.

For Senegal, the project’s objectives are perfectly in line with national priorities and the objectives of the Senegalese Emerging Plan (PSE II, 2019-2023), particularly in terms of the component devoted to the sustainable management of the environment and natural resources. Within this framework, it is envisaged, among other things, the restoration of degraded land and marine habitats through the co-management of protected areas and the conservation of biodiversity. This priority of the PSE II is taken into account in the project by the activities of the component 2 and 3. The project also takes into account the priority of the NDC relating to the management of coastal areas and ecosystems.

8.2. Feasibility of the intervention

It consists of an analysis of the feasibility of the different components of the proposal and of alternative technical solutions, taking into account the economic and financial aspects, the institutional and organizational situation, the environmental and socio-cultural constraints and the regulatory and operational situation.
8.3. Prerequisites

This involves assessing whether all the necessary preconditions for the start of the project activities and the detailed cost estimates per activity, as well as the detailed phasing and organization/management of the project are met.

8.4. Sustainability of the intervention

This section seeks to assess the potential for sustainability of the project's impact. The analysis of the potential sustainability of the interventions proposed in the concept note will be conducted using key sustainability factors including, but not limited to, political-institutional, governance and coordination aspects; environmental and socio-cultural impacts; financial and economic aspects; and regulatory and operational aspects.

<table>
<thead>
<tr>
<th>Box 9: Sustainability of the health project in Benin</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure the sustainability of the project in Benin:</td>
</tr>
<tr>
<td>• concerns of all the actors and partners in the health sector were taken into account in the design and formulation of the project;</td>
</tr>
<tr>
<td>• Provisions are made to ensure the participation of all stakeholders in the implementation of the project through community stakeholders, management committees, NGOs and the steering committee. This participation of the various actors promotes their ownership of the project and thus strengthens its sustainability;</td>
</tr>
<tr>
<td>• investments that will be made in capacity building of human resources which will contribute to the qualitative improvement of medical staff and thus have a positive impact on the quality of health services;</td>
</tr>
<tr>
<td>• durable equipment will be acquired within the framework of the project and will be used for several years due to better maintenance by the communities, the town halls, the AISEM, the ABERME etc.;</td>
</tr>
<tr>
<td>• the equipment and infrastructure that will be acquired will become the property of the State and their maintenance will be taken care of by its various structures;</td>
</tr>
<tr>
<td>• a budgetary allocation from the State, the beneficiary local authorities and other State structures directly involved in the implementation of the project will be made;</td>
</tr>
<tr>
<td>• a private sector awareness plan will be implemented to encourage donations and other CSR actions for the sustainability of the project. Civil society organizations involved in the implementation of the project will be solicited in the mobilization of funds to finance the maintenance of the equipment;</td>
</tr>
<tr>
<td>• the project is essentially social and environmental with no market value. Nevertheless, it will produce direct and indirect economic gains for the beneficiaries. Thus, a lump-sum contribution from the beneficiaries through the incorporation of a fee into the price of health services and dedicated to the sustainability of the project will be studied by the DNSP with the agreement of the Minister of Economy and Finance in the last year of the project's implementation.</td>
</tr>
</tbody>
</table>

8.5. Stakeholder consultation and engagement

This section presents the results of the mapping of key stakeholders and the assessment of their level of involvement in the project implementation. Key stakeholders include all actors interested in or affected by the project, including the local communities that are direct and indirect beneficiaries.
Box 10: Stakeholder Engagement in Benin

The stakeholders of the Benin project are

- GRAFED Consortium, a consortium of four (4) NGOs namely ADEQSS, ACTION PLUS, CAPES and GRAFED: will carry the project and manage all aspects of community mobilization, access to health services and training;
- National Directorate of Public Health (DNSP): responsible for capacity building of human resources in health in the ABD Area and the sustainability of the project's achievements in close collaboration with the communities at the grassroots level, by mobilizing all the competent structures/programs under its supervision;
- Beninese Meteorological Agency (METEO BENIN): in charge of the acquisition of quality equipment and the sustainability of the local climatic and sanitary SAP and related activities;
- National Platform for Disaster Risk Reduction and Adaptation to Climate Change (PNRRC-ACC): will ensure the success of the dissemination activities of the information produced by the local climate and health EWS and its sustainability;
- Agency for Health Infrastructure, Equipment and Maintenance (AISEM): will ensure the acquisition and maintenance of health equipment and infrastructure during and after the project;
- National Environment and Climate Fund (FNEC): an accredited entity, will establish an agreement with the Project Implementing Agencies. It will be responsible for supervising and monitoring the implementation of the project;
- Community and town halls of the ABD health area, Directorate of Research, Training and Traditional Medicine (DRFMT), Météo Bénin, General Directorate of Water (DG Eau), National Agency for Civil Protection (ANPC), Benin Agency for Rural Electrification and Energy Management (ABERME), General Directorate of Housing and Construction (DGHC), and the bodies of the ABD health area: beneficiary entities of the project.

8.6. Crosscutting issues

This involves analyzing crosscutting issues, including gender and vulnerable groups, implications for the environment and human rights (including the rights of marginalized people), and analyzing the likely resource/cost implications, as well as the involvement of civil society organizations (CSOs) and the private sector.
## 9. STRUCTURE OF THE PRE-FEASIBILITY STUDY REPORT

The main sections of the adaptation project (pre)feasibility study report to be submitted to the GCF are as follows:

*Table 4: Elements of the (pre)feasibility study report*

<table>
<thead>
<tr>
<th>Proposed structure of the (pre)feasibility study report</th>
</tr>
</thead>
</table>
| **1** Country and Project Area Profile | Geographic and climatic  
Socio-economic  
In relation to the project’s area of intervention  
Governance and national climate action goals |
| **2** Project background | Institutional framework of the intervention sector  
Policy and regulatory framework of the intervention sector  
Political situation regarding climate action (NAP, NDC, etc.) in relation to the project  
Adaptation financing in the project area  
Integration of the project with the country’s strategic development plans and programs |
| **3** Study methodology | Data collection tools  
Analysis approach and method |
| **4** Climate rationale of the project | Analysis of current (and future) climate risks related to the project  
Analysis of current (and future) climate change impacts related to the project  
Analysis of current (and future) vulnerability in relation to the project (community, infrastructure, natural resources etc.)  
Analysis of the perception, dynamics and community logic of climate change in relation to the project  
Analysis of coping capacities and strategies. |
| **5** Evaluation of the intervention according to the investment criteria of the Green Climate Fund | Potential impact of the project  
Potential for paradigm shift  
Potential for sustainable development  
Beneficiary needs  
Country ownership of the project  
Efficiency and effectiveness of the intervention |
| **6** Project objective | Theory of change  
Logical framework  
Determination of direct and indirect beneficiaries |
| **7** Assessment of the feasibility of each project component | Analysis of the current situation in relation to the component’s activities (SWOT, Screening etc.)  
Technical evaluation  
Environmental, economic and social assessment  
Financing options  
Rationale for funding request  
Description of capital and operating expenditures  
Economic and/or financial viability  
Exit strategy and sustainability  
Method of evaluating the component’s results and risk indicators |
| **8** Estimated Co-benefits | Environmental (mitigation theory, circular economy, and sustainable production and consumption etc.)  
Economic  
Social |
| **9** Institutional arrangements for the implementation of the project | Project Management Unit  
Implementing Agency/Technical Institution  
Beneficiary entities |
10. MAIN LESSONS LEARNED FROM THE PAS-PNA PROJECT STUDIES

The conduct of (pre)feasibility studies of adaptation projects in Benin, Burkina Faso and Senegal in the health, sustainable land management and coastal area sectors has provided practical experiences that deserve to be shared. It is worth noting mainly:

- That the climate justification is very important in the process of preparing a concept note and a proposal for funding a project to be submitted to the GCF. Thus, the climate justification must be aligned with climate scenarios (observed and projected) and with endogenous perceptions and knowledge (which determine their adaptive capacities). It must show direct links between climate change and project interventions;

- That it is necessary to conduct an initial stakeholder mapping and assessment in order to determine a strategy for their engagement in project development and implementation. The GCF process is an inclusive one and it is important that local stakeholders, including project owners, participate in both the vulnerability study (to determine present and future risks and possible adaptation options) and the project (pre)feasibility study (which assesses the relevance and technical and technological feasibility of actions). It is also important to list the organizational, technical and political risks that could hinder the implementation of the project and to propose mitigation measures with the responsibilities of each stakeholder. During the consultation phase, it is important to ensure the commitment of the stakeholders to take ownership and ensure the sustainability of the infrastructure and technologies to be implemented.

- That the technical and technological options to be proposed must be accessible, sustainable and environmentally friendly. For environmental impact assessments of the project, it is recommended that an environmental screening of the project interventions be carried out at the project idea phase, to determine if there is a need for an in-depth environmental impact assessment. It is also recommended that the national environmental and social impact assessment framework be followed to facilitate national ownership and benchmarking;

- That the co-benefits and externalities of the project including mitigation co-benefits for adaptation projects increase the chances of the project receiving GCF funding. Therefore,
care must be taken to identify all environmental, economic and social (including gender) co-benefits of all proposed adaptation technical and technological options;

- That care must be taken to determine through a clear methodology, the direct and indirect beneficiaries of the project, component by component. The determination of the beneficiaries must take into account the number of people who are affected by the impact of climate change. In the specific case of projects aimed at a target group (e.g. children, women, etc.), the percentage of this vulnerable group should be taken into account in order to have a more precise value;

- That an institutional arrangement should be proposed that is efficient, inclusive and promotes knowledge and technology transfer and national ownership. Thus, in the case where the project is submitted to the GCF by an accredited body with regional direct access or international access, care must be taken to recommend an institutional arrangement that promotes national participation and ownership. This is the case for the Burkina Faso project, where the studies recommend that GIZ (the accredited body that will carry and submit the project) be assisted by FIE (Fond d'Intervention pour l'Environnement), which could benefit from GIZ experience during the project implementation phase to accelerate its accreditation process with the GCF as a national direct access accredited body for Burkina Faso;

- Justify the funding option proposed by the project sponsors. All co-financing options should be analyzed in order to increase the project’s impact. It is also important to analyze the national institutional framework for financial mobilization to better appreciate the investment options/instruments proposed by the GCF and the project’s exit strategy. It is recommended here to categorize the different actions of the project so as to submit the adaptation actions (which will contribute to adapt to the identified climate risks) to the financing of the GCF and the other development actions to the other development partners or taken over by the government or other national actors including the private sector.

11. FINAL CONSIDERATIONS
In conducting pre-feasibility and feasibility studies for adaptation projects in Benin, Burkina Faso and Senegal in the health, sustainable land management and coastal area sectors respectively, Climate Analytics adopted an inclusive approach, placing national stakeholders, including project owners, at the heart of the entire process. This approach fostered consultations and engagement with national stakeholders and consequently national ownership of the process. The approach also allowed for the systematic consideration of endogenous knowledge and the real needs of beneficiaries, as well as the transfer of knowledge between Climate Analytics experts and local actors who have the capacity to replicate the same process in other sectors or localities of the country.
It should also be noted here that based on the lessons learned during the conduct of the studies, a phased approach is recommended for the development of a concept note and a funding proposal to be submitted to the GCF in francophone LDCs in sub-Saharan Africa, including:

Figure 11: A Proposed Phased Approach to CN and FP Development
12. BIBLIOGRAPHICAL REFERENCES


Climate Analytics. (2020). Improving the climate justification of project proposals for submission to the GCF. URL: https://climateanalytics.org/media/enhancing_the_climate_rationale_in_gcf_proposals_french.pdf


Plan Processes in the Francophone Least Developed Countries of Sub-Saharan Africa (PAS-PNA), Climate Analytics gGmbH, Berlin.


